

**TECHNICAL SPECIFICATION OF ARMOURED 1100 VOLTS L.T.PVC INSULATED TWIN CORE 2.5mm<sup>2</sup> CABLE WITH ROUND ALUMINIUM CONDUCTOR YELLOW SHEATHED.**

**I. SCOPE:**

This specification covers Manufacture, testing at works, supply and delivery of armored LT PVC insulated and PVC sheathed cables, twin core 2.5mm<sup>2</sup> of H2 Grade aluminum conductor to any UGVCL's stores in Gujarat.

**II. Climatic Conditions:**

The armored L.T. PVC cables are required to be laid outdoors either for giving power supplies to domestic and commercial consumers. The climatic conditions will be as under.

- a) Temperature Variation : 5°C to 55°C
- b) Relative humidity : Up to 95%
- c) Altitude : 0 to 1000 Mtrs.
- d) No.of tropical monsoon months : 3 (Three)
- e) Max. Wind pressure : 150 Kg/cm<sup>2</sup>
- f) Average annual rainfall : 750/800mm
- g) Average thunderstorm base : 15  
Per annum.
- h) Terrain : Coastal, saline, Desert, chemically polluted,  
Heavily/moderately polluted and normal,  
Atmosphere.

**III. Installations:**

These cables are required to be laid indoor or outdoor between LT Distribution Poles and the consumer's premises i.e. as LT overhead lines supported between poles and houses/shops, Commercial establishment. These cables are required to be laid overhead, hung, expose to atmosphere in a climatic condition as maintained above.

Signature of Tenderer

Date:

Place:

Company's Round Seal

#### IV Applicable Standards:

1. IS - 1554 of 1988 (part-1)
2. IS - 5831 of 1984 Re-affirmed 1991
3. IS - 8130 of 1984 "
4. IS - 10810 of 1984 (Methods of test for cable)  
Re-affirmed - 1991
5. IS - 1554 of 1988
6. IS - 3975 of 1979 (Test for armouring)
7. IS - 10462 of 1983 (Part-1)
8. IS - 10418 of 1982 (For wooden Drums)

The above standards with latest amendment/revision in force on date of tender shall be applicable. However, for type test certificates, samples submitted for type testing will have to be got tested at Government approved laboratory as per the IS-1554/1988 (Part-1) with latest amendment/revision as in force on the date of inviting tender. All acceptance and routine tests on offered lots shall be carried out according to IS-1554 of 1988 (Part-1) with latest amendment revision in force on date of inviting tender during the execution or order placed and till complete supply is over.

#### V. Technical Particulars:

##### a) Voltage Class and Aluminum Conductor Grade :

PVC insulated cable shall be PVC insulated and PVC sheathed LT cable for working voltage Up to and including 1100 Volts confirming standards mentioned above and with ISI mark having aluminum H2 Grade round conductor 2 core with colour coded of each core as specified in the relevant IS.

##### b) Insulation and Sheath:

The type of insulation shall be Type-A as per IS-5831 of 1984 (with latest amendment/revision).

Similar the type of sheath shall be type ST-1 as per IS-5831 of 1984 (with latest amendment/revision) and colour of sheath is yellow.

##### c) Armouring shall be of galvanized round steel wire complying the requirements of IS 3975-1979 and conforming to IS-1554 (Part-I) of 1998.

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**VI. Packing and Marking/Embossing:**

The LT PVC cable shall be wound on a wooden drum of 1000 meters length, marking should be done on the label attached to be each drum as per Clause No.18 of IS 1554 (Part-I/1988 ).

The wooden drums shall be as per IS: 10418/1982. The outer surface of the drums shall be painted with white Aluminum paint. Similarly, the inside surface of the drums shall have the protective layer of varnish/paint to protect it from white ants.

The ends of the cable shall be sealed by means of non-hydroscopic sealing materials.

(iii)The following information must be either stenciled on the drums

- a) IS: 1554(Pt-I)/88 or as applicable.
- b) Manufacturer's Name, Brand Name or Trade Mark
- c) Type of cable & Voltage Grade
- d) Number of cores
- e) Nominal cross sectional area of conductor
- f)Cable code
- g)Colour of cores
- h)Length of cable on the reel, drums or coil
- i)Number of lengths on reel, drum or coil
- j)Direction of rotation of drum (by means of arrow)
- k)Approximate gross weight & Drum No.
- l)Country of Manufacture
- m)Year of Manufacture
- n)A/T No. and Date
- o)Date of dispatch
- P)Property of UGVCL
- q)Details of consignee (on wooden drums only)
- r)ISI Mark

**VI)** The following words shall be duly embossed on sheath of very meter length of cables. The embossing should be clear and visible.

- a) U.G.V.C.L..
- b) Voltage Grade
- c) Electric
- d) Year of Manufacture
- e) Trade Mark of Supplier
- f) IS Number

**V) Marking:**

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Progressive running length of the cable shall be marked on outer sheath at an interval of not more than 10 Mtrs.

## VII Tolerances

± ½% of standard length.

### VII. Standard Length:

Cable i.e. 2 Core 2.5mm<sup>2</sup> shall be supplied in standard length Of 1000 Mtr Length (deviation up to ± ½% of standard length shall be acceptable). Non-standard length will not be acceptable.

### VIII. Submission of ISI License for IS 1554/1988 for out door cable and G.T.P.

The tenderers are required to submit duly attested photocopy of the valid ISI License up to the date of delivery for supply of these cables/wires and they should submit GTP along with the tender failing which, the offer would be ignored.

### IX. Submission of Type Test Certificate:

The duly attested copy of Type Test Certificate not more than five years old as per IS: 1554/1988 be submitted on yellow colour sheath armoured cable from Government approved laboratory. The Type Test Certificate shall cover all tests AS PER CLAUSE 15 of IS: 1554/1988 with latest amendment/revision in operation on date of inviting tender.

### XI) Inspection and Testing :-

a) Testing will be carried out at the works of manufacturer's in presence of UGVCL's representative at the firm's cost according to IS : 1554 / 1988 with latest amendment/revisions if any or date of inviting tender.

Material shall not be dispatch by the supplier without having being inspected and test certificate approved by UGVCL's representative and obtaining of specific dispatch instructions in writing.

b) The UGVCL reserves the right to select sample from any offered/inspected lot against the A/T to be issued which will be get type tested at any Government approved laboratory as decided by the UGVCL. The results of this type tested sample shall be applicable for the entire quantity of the particular lot offered or supplied by the supplier. The UGVCL shall bear the testing charges if sample passes all the tests and if sample fails in any one of the tests, supplier shall have to bear testing charges, same are recoverable from the supplier's any pending bill, security deposit, Bank Guarantee or by any suitable means, whichever deem fit be the UGVCL. In case

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of sample failing in aforesaid type tests, supplier shall have to replace the whole lot materials, which should pass through the type tests, the re-testing charges will have to be paid by supplier. If any quantity against the particular lot is consumed by the UGVCL. Supplier will agree for any penalty/deduction in price as decided by the competent authority of UGVCL. Decision of competent authority in case of any dispute will be final and binding to supplier.

**XII. Machine/Meter Calibration:**

All machines and meters to be used in testing shall be calibrated within valid time limit either at the Laboratory of manufacturer or machine/meter of at Govt. recognized laboratory. The machine/ meter to be used in testing shall be in tolerance limit as per their accuracy class.

**XIII. Important:**

In absence of valid ISI License/GTP duly filled in/and copy of type test certificate duly attested by authorized person, offer will be liable to be ignored without any further correspondence.

**Manufacturer's Name:  
And Address:**

Signature of Tenderer

Date:

Place:

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### GUARANTEED TECHNICAL PARTICULARS

Technical information and Guaranteed Technical Particulars For supply of 2 Core 2.5 mm<sup>2</sup>, AL,armoured, Round L.T. PVC Cable having colour of sheath yellow confirming to IS : 1554(Part -1) 1988.

#### PART - A

**Bidders have to confirm following important requirements:**

Sr	Particulars		Confirmation
1	Cable shall be manufactured and Supplied Confirming to IS: 1554/1988 with latest Amendment if any and UGVCL's specification	:	YES/NO
2	Label on drum of Cable shall bear ISI Mark	:	YES/NO
3	Colour of outer sheath - Yellow	:	YES/NO
4	Size: 2 Core, 2.5 mm <sup>2</sup>	:	YES/NO
5	Shape - Round	:	YES/NO
6	ISI License shall remain valid till order is completed	:	YES/NO
7	Standard length 1000 Mtrs.± 0.5 % Overall tolerance in total length ± 2% Non-Standard length not acceptable	:	YES/NO
8	Packing shall contain only one standard Length.	:	YES/NO
9	Packing material - wooden drums as per IS:10418/1982 duly painted as per Clause No.VI(i)of tenders specification.	:	YES/NO
10	Following shall be embossed on cable	:	YES/NO
	a. "UGVCL"	:	YES/NO
	b. "1100 Volts"	:	YES/NO
	c. "IS : 1554/1988"	:	YES/NO
	d. Year of Manufacture	:	YES/NO
	e. Trade Mark	:	YES/NO
11	Marking on label shall be as per IS : 1554 / 1988	:	YES/NO
12	Conductor - Aluminum Class - I Solid Circular Grade - H2	:	YES/NO
13	Conductor Resistance at 20 °C - 12.1 Ω / km	:	YES/NO
14	Thickness of insulation - 0.9 mm	:	YES/NO
15	Thickness of Sheath (Outer)	:	YES/NO
	Minimum - 1.24 mm	:	YES/NO
16	Thickness of inner sheath 0.3 mm	:	YES/NO
17	Volume Resistivity of Insulation		YES/NO
	a. At 27 °C - 1 x 10 <sup>13</sup> Ω - cm min	:	YES/NO
	b. At 70 °C - 1 x 10 <sup>10</sup> Ω - cm min	:	YES/NO
18	Armour : Armour (GI wire) Diameter 1.40 mm as per IS	:	YES/NO

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**PART - B**

Bidders has to furnish below details about material for information

Sr.No.	Particulars	Confirmation
1	copy of ISI License for IS : 1554 / 1988  a. Number b. Date of expiry	
2	Approximate weight of 1000 meters length of Cable in KG.  a. Aluminum in KG ----- b. PVC In KG ----- c. Armour (steel) In KG -----	

**PART - C (ENCLOSURES)**

Bidders have to enclose following documents and has to confirm for the same

Sr.No.	Particulars	Confirmation
Sr. No.	Particulars	Confirmation
1	ISI License	: YES/NO
2	Proof if applied for renewal of ISI License	: YES/NO
3	Type Test certificate from Government approved Laboratory (for all cores) with yellow colour Sheath for IS 1554 (Part-1) 1988	: YES/NO
	a. Name of Laboratory	YES/NO
	b. T.R. No.	YES/NO
	c. Date	YES/NO
4	List of Plant and Machinery	: YES/NO
5	List of testing facility available	: YES/NO
6	List of orders pending / executed	: YES/NO
	a. with GEB/GUVNL/UGVCL/MGVCL/PGVCL/DGVCL	: YES/NO
	b. with agencies other than GUVNL & Group of Companies	: YES/NO

**Part - D**

Bidders have to mention below deviation if any, quoting relevant clause of specification.

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Date:

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Company's Round Seal

**Part - E**

**DETAILS OF ROUTINE TEST & TYPE TEST FOR PVC CABLE**

**(A) ROUTINE TEST**

SR NO	NAME OF TEST	CONFORMATION
1	CONDUCTOR RESISTANCE TEST	YES/NO
2	HIGH VOLTAGE TEST	YES/NO
3	ANY OTHER INFORMATION	YES/NO

**(B) TYPE TESTS**

SR NO	NAME OF TEST	CONFORMATION
1	TENSILE TEST FOR ALUMINIUM	YES/NO
2	WRAPPING TEST (ALLUMINIUM)	YES/NO
3	CONDUCTOR RESISTANCE TEST	YES/NO
4	TEST FOR ARMOUR WIRES	YES/NO
5	TEST FOR THICKNESS OF INSULATION AND SHEATH	YES/NO
6	PHYSICAL TESTS FOR INSULATION AND SHEATH	YES/NO
7	TEST FOR BLEEDING AND BLOOMING OF PIGMENTS	YES/NO
8	INSULATION RESISTANCE TEST	YES/NO
9	HIGH VOLTAGE TEST(WATER IMMERSION TEST)	YES/NO
10	FLEMIBILITY TEST	YES/NO
11	THERMAL STABILITY TEST	YES/NO

**REMARK: TEST CERTIFICATE OF GOVT. APPROVED LABORATORY FOR ABOVE MENTIONED DATA SHOULD BE ATTACHED WITH THE TENDER(THE TEST REPORT MUST NOT BE OLD LESS THAN FIVE YEAR FROM THE DATE OF OPENING THE TENDER**

Signature of Tenderer

Date:

Place:

Company's Round Seal