TECHNICAL SPECIFICATION OF UNARMOURED 1100 VOLTS L.T.PVC INSULATED 4 Core 4mm² and 6mm² PVC INSULATED PVC SHEATHED CABLE WITH CIRCULAR ALUMINIUM CONDUCTOR:

1. SCOPE:

This specification covers Manufacture, testing at works, supply and delivery of unarmoured 1100 Volts LT 4 Core X 4mm² and 4 Core X 6mm² PVC insulated and PVC sheathed cables, with circular aluminum conductor with yellow sheath to any stores in area of Uttar Gujarat Vij Company Ltd.

2. CLIMATIC CONDITIONS:

The unarmoured L.T. PVC cables are required to be laid outdoor either for giving power supply to motive power consumers or for LT distribution system (16mm²) on transformers. 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 METRES.
d) No. of tropical monsoon months	:	3 (Three)
e) Max. Wind pressure	:	150 Kg/cm²
f) Average annual rainfall	:	750/800 mm
g) Average thunderstorm base per annum:		15
h) Terrain	:	Coastal saline, desert chemically polluted, heavily/ moderately, polluted and normal atmosphere.

3. INSTALLATIONS:

These cables are required to be installed outdoor exposed to atmosphere, supported on pole, hugs or overhead either for service connection to motive power consumers or for any narrow crossing etc. where adequate electrical clearance for bare conductor is not possible.

4. APPLICABLE STANDARDS :

Unless otherwise specifically stated in the specification
The cables shall conform to the following standards:

1. IS – 694 of 2010
2. IS - 5831 of 1984
3. IS - 8130 of 1984
4. IS - 10418 of 1982 (For wooden Drums)
5. IS - 10810 of 1984 (Methods of test for cable).

The above standards with latest amendment/revision in force on date of tender shall be applicable. The Type Test on cable to be conducted at Government approved Laboratory as per **IS-694/2010** with latest amendment /revision as in force on the date of inviting tender. All acceptance and routine tests shall be carried as per IS-694/2010 with latest amendment/revision in force on date of inviting tender during the execution or order placed and till complete supply is over.

5. TECHNICAL PARTICULARS:

a) Voltage Class and Al. Conductor Grade:

The Cable shall be PVC insulated and PVC sheathed of yellow colour, suitable for working voltage up to and including 1100 Volts confirming to standard mentioned above and with ISI mark having H2 grade Class-I aluminum circular conductor for Cables up to 10mm^2.

b) Insulation and Sheath:

The type of insulation shall be Type-A as per IS-5831 of 1984.Similarly the type of sheath shall be type ST-1 as per IS-5831 of 1984.

(i) Colour of Insulation of each core as specified in IS.
(ii) Colour of outer sheath shall be yellow only.

6. PACKING AND MARKING/EMBOSSING:

i) The LT PVC cable of size 4mm^2 & 6mm^2 shall be supplied in coils packed in polythene straps each of 100 METRES standard length.

ii) 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 drum 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 drums or printed on the label attached with the coil.

a) IS: 694/2010
b) Manufacturer's name, brand name or trademark.]
c) Type of cable and voltage grade.
d) Number of cores
e) Nominal cross sectional area of conductor.
f) Cable code.
g) Colour of core.
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 and drum number.
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.

iv) The following word shall be duly embossed on sheath of every Metre length of all cables. The embossing should be clear and visible.

a) U.G.V.C.L.
b) Voltage Grade.
c) IS Number.
d) Year of manufacture.
e) Trade mark of supplier.
f) Marking in no. (i.e 1,2,3…) showing the continuous length of cable should be done on outer sheath of cable at interval of every one meter length.

7. STANDARD LENGTH:

Cable of **4 Core 4mm² and 6mm²** shall be supplied in standard length of 100 Mtr. (Length up to ± ½% of standard length shall be acceptable). Non-standard length will not be acceptable.

8. SUBMISSION OF ISI LICENCE FOR IS 694/2010 FOR OUTDOOR USE OF PVC CABLE & G.T.P.

Cables bearing ISI Mark only will be acceptable. The tenderer should submit attested copy of ISI License of IS: 694/2010 valid at least up to the date of tender. If applied for renewal, the copy of receipt of fees and or acknowledgement of ISI/BSI shall be furnished along with copy of IS License (expired) with the offer.

The tenderer shall also submit duly filled up GTP along with tender failing which offer will be ignored.

9. SUBMISSION OF TYPE TEST CERIFICATE NOT MORE THAN FIVE YEARS OLD FROM DATE OF OPENING OF TENDER

The duly attested copy of Type Test Certificate at least one of the offered sizes as per IS: 694/2010 be submitted from **any Govt. approved laboratory (in India)** along with the offer. The Type Test Certificate should cover all the test as per table 8 & one test "additional ageing test" from table 9 of IS IS-694/2010 with latest amendment/revision in operation on date of inviting tender.

Party has to submit type test certificate on ordered size before commencement of supply & get approved without affecting delivery scheduled

10. SEALING:

In case of 4 mm^2 & 6mm^2 cable, sample coils selected for testing should be sealed at both the ends with waterproof stickers or with Non-hygroscopic sealing material after successful testing.

In case of 10mm2 & 16mm2 Cable, each drum is to be provided with lead seals with seal wire or with non-hygroscopic sealing material at both the ends of cable.

11. 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-694/2010 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) 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 UGVCL. In case of sample failing in aforesaid type tests, supplier shall have to replace the whole lot materials, which should pass through the type tests, the retesting charges will have to be paid by supplier. If any quantity against the particular lot is consumed by 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.

12. 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.

13. 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:
& Address:

GUARANTEED TECHNICAL PARTICULARS (G.T.P)

Technical information and Guaranteed Technical Particulars For supply of 4 Core (i) 4 mm² (ii) 6 mm² Round, unarmoured, L.T. PVC Cable having colour of sheath yellow.

PART – A

A bidder has to confirm following important requirements:

Sr.No.	Particulars	confirmation
1.	Cable shall be manufactured and supplied Confirming to IS: 694/2010 with latest Amendment if any and UGVCL's specification	Yes
2.	Cable drums/label shall bear ISI Mark	Yes
3.	ISI License shall remain valid till order is Completed	Yes
4.	Colour of Sheath – Yellow	Yes
5.	Size: 4 Core (i) 4mm² (ii)6 mm²	Yes
6.	Shape – Round	Yes
7.	Standard length in case of 4 & 6 mm² 100 Mtrs.± 0.5 %	Yes
8.	Non-Standard length in case of 4 & 6mm² not acceptable	Yes
9.	Packing shall contain only one Length.	Yes
10.	Packing material: For 4 & 6mm²– Polythene Straps.	Yes
11.	Following shall be embossed on cable (as per IS 694:2010)	
	a. UGVCL	Yes
	b. 1100 Volts	Yes
	c. IS: 694/2010	Yes
	d. Year of manufacture	Yes
	e. Trade Mark	Yes
	f. No. showing length (i.e1,2,3…)	Yes
12.	Conductor – Aluminum :	
	a) For 4, 6mm² Class-I Solid circular Grade H2.	Yes
13.	Maximum Conductor resistance at 20ºC	
	a) 4 mm² Cable = 7.41 Ohm/KM.	Yes
	b) 6 mm² Cable = 4.61 Ohm/KM.	Yes

Date: Sign. & Seal of company/Bidder

14. Thickness of insulation & Sheath :

Cable size in mm²	Insulation		Sheath		Confirmation
	Average	Smallest	Average	Smallest	
4	0.8	0.62	1.4	1.09	Yes
6	0.8	0.62	1.4	1.09	Yes

15. Volume resistivity of insulation
    a. AT 27ºC – 1 x 10^13 Ohm-cm. Min Yes
    b. At 70°C – 1 x 10^10 Ohm-cm. Min Yes

16. Tensile strength of Insulation and sheath = 12.5 N/mm² Min. Yes

17. Elongation at break of Insulation and Sheath = 150 % Min. Yes

PART – B

A Bidder has to furnish below details about material for information:

Sr. No.	Particulars	Confirmation

1. ISI License for IS:694/2010
    a. Number
    b. Date of expiry

2. Approximate weight **in KGs.** of 100 Metres length of a coil

	Alum.	PVC	Total
a. 4 Sq. mm			
b. 6 Sq. mm			

Date: Sign. & Seal of company/Bidder

PART – C (ENCLOSURES)

A Bidder has to enclose following documents and has to confirm for the same

Sr.No.	Particulars	Confirmation
1.	ISI License	Yes
2.	Proof if applied for renewal of ISI License	Yes/No

3 **TYPE TEST CERTIFICATE:**

3.1 Type test certificate from any Govt. approved Laboratory in India (for all core & Ratings) with yellow colour Sheath Yes

	4mm²	6mm²
a. Name of Lab. & City (State)		
b. Test Report No.		
c. Date		

4.	List of plant and machinery	Yes
5.	List of testing facility available	Yes
6.	List of orders pending/executed	
	a. with MGVCL/DGVCL/UGVCL/PGVCL	Yes
	b. with agencies other than Sr. no. 6(a) above	Yes

PART – D

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

Date: Sign. & Seal of company/Bidder