

IOCL, PANIPAT REFINERY	HIGH VOLTAGE AND LOW VOLTAGE CABLES & ACCESSORIES	SECTION-3 CHAPTER-6
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The following documentation shall be submitted for record for installation and commissioning of materials:

1. Complete test report
2. As manufactured cross sectional drawings showing cable construction, dimensions, cable catalogue indicating DC resistance, reactance, capacitance, de-rating factor charts, screen resistance etc.

8.0 **QAP ANNEXURE:** The QAP is indicative only. For details please refer the IS standard only.

QUALITY ASSURANCE & INSPECTION (HT CABLES)

Attributes / Characteristics	Item / Components / Sub System Assembly	Make, Type, Rating & T.C.	Dimension/Surface finish	Mechanical properties	Chemical Composition	Curing Properties	Electrical Properties	Triple Extrusion & Curing	ot Set Test/Eccentricity & Ovality	Lay length & Sequence	Armour coverage, cross over, looseness, gap between two wire	Sequential marking / surface finish / cable length	T.S. & elongation before & after ageing on sheath & insulation. Outer sheath thickness test	Thermal stability on sheath	Anti Termite Test	Constructional requirements feature as per IOCL specification	Routine & Acceptance Test as per relevant standard & IOCL specification	FRLS Test / HR Tests
Aluminium/Copper (IS-8130)		Y	Y	Y	Y		Y											
Semiconducting Compound		Y		Y		Y	Y											
XLPE Compound (IS-7098 Part-II)		Y		Y		Y	Y						Y					
FRLS PVC Compound (IS-5831, ASTM-D2843, ASTM-2863, IEC-754 Part-1)		Y		Y									Y	Y	Y			Y
Manufacturing of Core								Y	Y	Y								
Copper Tape		Y	Y	Y			Y											
Polyester tape		Y	Y															
Armour wire/strip		Y	Y	Y														
PVC comound (IS-5831)		Y		Y			Y											
Triple extruding & curing																		
Copper tapping/Screen							Y											
Inner sheath																		
Armouring											Y							
Outer Sheathing												Y	Y	Y	Y	Y		Y
Water swellable tape			Y							Y						Y	Y	
Power Cable (Finished) (IS:7098 Part-II, IEC:332, IS-5831, ASTM-D2843, ASTM-2863, IEC-754		Y								Y	Y	Y	Y	Y	Y	Y	Y	Y

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Part-1)																	
Wooden drum (IS-10418) / Steel Drums		Y												Y			

Notes :

1. This is an indicative list of test/checks. The manufacturer is to furnish a detailed Quality Plan indicating the practice and procedure along with relevant supporting documents.
2. Routine tests including metal screen continuity test shall be generally based on IS: 7098 Part-2
3. Acceptance tests (including that of armored wire/strip) shall be based on relevant IS along with sampling plan of 7098 (Part-2)
4. Additional Acceptance tests like FRLS, Thermal stability, Tensile strength & elongation after ageing shall be done on one sample/lot.
5. Length measurement / Surface finish eccentricity / ovality shall be checked on one length / size / lot.

9.0 DATA SHEET: TO BE SUBMITTED ALONG WITH CABLE GTP DURING DETAILED ENGINEERING.

A	Site Conditions				
1	Maximum ambient temperature	50 Deg C	4	Relative humidity	100% max
2	Minimum ambient temperature	-2.5 Deg C	5	Altitude	Less than 1000 m
3	Ground temperature	30 Deg C	6	Environment	Humid & corrosive
					System Grounding: a. For 220 KV level: Solidly grounded. b. For 33 KV level: Solidly grounded.
B	Technical particulars :				
1	System voltage			4	Single line to ground fault For HV cables current: to be supplied as per the design requirements for the project
	Nominal Highest Voltage grade Details to be submitted by LSTK contractor				Current value (as per system kA (min) requirement)
	Cable Specifications (Major component): a. Size as per the details mentioned in individual item text. Insulation: XLPE IS:7098(II), Nitrogen dry cured a. Insulation screen : A per Clause no.3.8.5 b. Armoring: As per clause 3.7.10. c. Outer Sheath: Extruded HR PVC [FRLS]- ST2, d. Inner Sheath: Extruded HR PVC [FRLS]- ST2, e. Short circuit withstand capacity: a. to be decided as per project requirements.				kA/Duration: a. to be decided as per project requirements.
				5	Conductor material
					HV power cable Copper
					MV power cable NA
					MV control cable NA
				6	Cables to be flame retardant Yes
				7	Cables to be heat resistant Yes
				8	Armouring requirement Yes
				9	Type of armour bonding Bonded at one end in single core and at both ends for three core cables.
				10	Semi-conducting water swellable tape Yes
2	Frequency	50 Hz +-5%	11	Installation under jurisdiction	DGMS NA
3	Make of accessories: As per vendor list attached as Section-3 Chapter-15.				
MANUFACTURER'S DATA					
1	Name of manufacturer				Thickness mm
2	Cable type/ code			9	Nominal dia under armour mm
3	Conductor material			10	Calculated dia under armour mm