

# TECHNICAL DATA SHEET

## LT Power Cable - Aluminum Conductor (Multi-Core)

Electrical Cable Manufacturer | Gujarat, India

Last Updated: April 2026

BIS Certified | ISO 9001:2015

Standard: IS 694:2016

## 1. PRODUCT OVERVIEW

Vita Cable LT Power Cables with Aluminum conductors are designed for cost-effective power distribution in electrical systems. Aluminum provides excellent conductivity with significantly lower weight and cost compared to copper. Ideal for large-scale distribution networks, industrial plants, and infrastructure projects. Rated for 1100V operation with 90°C temperature rating.

### Key Features:

- High-purity Aluminum conductor (Grade A)
- Multi-core construction for flexible routing
- 1100V voltage rating for power distribution
- 90°C operating temperature for continuous duty
- Cross-section range: 1.5 sqmm to 400 sqmm
- Lower weight & cost compared to copper
- Excellent for large-scale distribution networks
- BIS certified & ISO 9001:2015 manufacturing

## 2. TECHNICAL SPECIFICATIONS

### 2.1 Conductor Specifications

Parameter	Specification	Standard Reference
Conductor Material	Aluminum (Grade A)	IS 694:2016
Conductor Type	Stranded (Class 2)	IS 694:2016
Aluminum Purity	99.5% minimum	IS 694:2016
Cross-Section Range	1.5 sqmm to 400 sqmm	IS 694:2016
Number of Cores	2, 3, 4 cores available	IS 694:2016
Electrical Conductivity	$\geq 34$ S/m @ 20°C	IS 694:2016

### 2.2 Insulation Specifications

Parameter	Specification	Standard Reference
Insulation Material	PVC (Polyvinyl Chloride)	IS 694:2016
Insulation Color	Black with core identification	IS 694:2016
Voltage Rating	1100V	IS 694:2016
Operating Temperature	-5°C to +90°C continuous	IS 694:2016
Insulation Resistance	$\geq 10$ M $\Omega$ /km at 20°C	IS 694:2016

Dielectric Strength	≥2500V AC @ 1 minute	IS 694:2016
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### 2.3 Voltage & Current Ratings (Aluminum) - 3-Core Configuration

Cross-Section (sqmm)	Voltage Rating	Current Rating (Amps @ 90°C)	Resistance (Ω/km)	Aluminum Weight (kg/km)
1.5	1100V	12A	20.0	4.05
2.5	1100V	16A	12.2	6.75
4.0	1100V	21A	7.63	10.8
6.0	1100V	27A	5.08	16.2
10	1100V	37A	3.03	27.0
16	1100V	49A	1.90	43.2
25	1100V	64A	1.21	67.5
35	1100V	85A	0.868	94.5
50	1100V	107A	0.641	135.0
70	1100V	136A	0.459	189.0
95	1100V	168A	0.341	256.5
120	1100V	196A	0.270	324.0
150	1100V	224A	0.216	405.0
185	1100V	256A	0.175	499.5
240	1100V	304A	0.135	648.0
300	1100V	348A	0.108	810.0
400	1100V	416A	0.081	1080.0

**Note:** Current ratings based on IS 694:2016 for 3-core cables at ambient temperature 30°C with 30°C rise. Aluminum cables have ~15-20% lower current capacity than copper but are lighter and more cost-effective for large installations.

### 3. ALUMINUM VS COPPER - ADVANTAGES

#### Aluminum Advantages:

- ✓ 60-70% lower cost per meter
- ✓ 3x lighter weight (easier installation)
- ✓ Excellent for large-scale distribution networks
- ✓ Lower material cost for bulk installations
- ✓ Ideal for infrastructure & utility projects

#### Trade-offs:

- 15-20% lower current carrying capacity
- Slightly higher resistance per unit length
- Requires larger cross-section for same amperage

## 4. APPLICATIONS

- ✓ **Large-Scale Distribution:** Utility networks, transmission lines, bulk power distribution
- ✓ **Infrastructure Projects:** Roads, railways, public utility installations
- ✓ **Industrial Plants:** Cost-effective wiring for large industrial facilities
- ✓ **Power Generation:** Coal plants, renewable energy installations

## 5. CONTACT & SUPPORT

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