Product Description

HT Aerial Bunched Cable (HT ABC) is designed for high-voltage overhead power distribution networks. Manufactured with stranded aluminium phase conductors, XLPE insulation, semi-conductive screening layers and protective outer sheathing, HT ABC cables are suitable for power distribution in rural, residential and hilly areas where underground cable installation is impractical or not feasible.

The cable is available in 6.35/11 kV(E) AC and 19/33 kV(E) AC configurations, featuring three-phase systems with either bare or insulated aluminium-magnesium alloy messenger conductors.

The phase conductors are insulated with XLPE and screened with semi-conductive compounds and copper tape. The messenger conductor provides mechanical support for overhead installation and can be supplied with optional XLPE insulation.

HT Aerial Bunched Cables are designed for continuous operating temperatures up to 90°C, subject to the applicable cable design and specification.

Applications

- High-voltage overhead power distribution networks
- Rural and residential electricity distribution
- Power distribution in hilly and mountainous areas
- Overhead feeder networks where underground installation is not practical
- Utility power distribution and electrification projects
- Overhead distribution systems with bare or insulated messenger conductors

Product Range

Cable Type	Voltage Rating	Configuration
HT ABC	6.35/11 kV(E) AC	Three phase with bare messenger
HT ABC	6.35/11 kV(E) AC	Three phase with insulated messenger
HT ABC	19/33 kV(E) AC	Three phase with bare messenger
HT ABC	19/33 kV(E) AC	Three phase with insulated messenger

Cable Construction

★ Address: West Industrial Park, Zhulin Town, Gongyi City, Henan Province, China. ★
★ Tel:+86-371-5502-1747 Mob:+86-173-3570-4553 www.qzcablegroup.com E-mail: info@qzcablegroup.com ★



Phase Conductor

- Stranded compacted aluminium conductor
- Conductor manufactured according to IS 8130, Class 2
- Screened with an extruded semi-conductive compound
- Insulated with XLPE (Cross-Linked Polyethylene)
- Insulation screened with an extruded semi-conductive compound
- Wrapped with copper tape
- Covered with an extruded PVC outer sheath

Messenger Conductor

- Stranded circular or compacted heat-treated aluminium-magnesium alloy wire
- Manufactured according to IS 398 (Part 4)
- Available with bare or optional XLPE insulation

Core Identification

Cable Component	Identification
Phase Conductor	One, two or three ridges
Neutral / Messenger Conductor	Four ridges
Insulated Messenger	No identification mark

Applicable Standards

- IS 8130 – Aluminium Conductors for Insulated Electric Cables
- IS 398 (Part 4) – Aluminium Alloy Stranded Conductors
- IS 5831 – PVC Insulation and Sheathing Materials for Electric Cables
- IS 7098-2 – XLPE Insulated PVC Sheathed Cables for Working Voltages from 3.3 kV up to and Including 33 kV
- IS 14255:1995 – Overhead Cables / Aerial Bunched Cables, subject to verification of applicable scope

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Technical Data

6.35/11 kV(E) AC HT Aerial Bunched Cable

Phase Conductor + Messenger (Bare)

Cable Construction (mm²)	Insulation Thickness (mm)	Phase Conductor Overall Diameter (mm)	Messenger Overall Diameter (mm)	Approx. Weight	Minimum Messenger Breaking Load (kN)
3×25+1×50	3.60	20.10	9.11	1487	15.5
3×35+1×50	3.60	21.24	9.11	1660	15.5
3×50+1×70	3.60	22.83	10.77	1969	21.6
3×70+1×70	3.60	24.48	10.77	2266	21.6
3×95+1×80	3.60	26.28	11.49	2647	24.7
3×120+1×95	3.60	27.89	12.55	3027	29.4
3×150+1×125	3.60	29.97	14.36	3585	38.5
3×185+1×125	3.60	31.72	14.36	4020	38.5
3×240+1×150	3.60	34.17	15.75	4750	46.3
3×300+1×185	3.60	36.58	17.49	5547	57.1

Phase Conductor + Messenger (Insulated)

Cable Construction (mm²)	Phase Insulation Thickness (mm)	Messenger Insulation Thickness (mm)	Phase Conductor Overall Diameter (mm)	Messenger Overall Diameter (mm)	Approx. Weight	Minimum Messenger Breaking Load (kN)
3×25+1×50	3.60	3.60	20.10	16.3	1643	15.5
3×35+1×50	3.60	3.60	21.24	16.3	1816	15.5
3×50+1×70	3.60	3.60	22.83	18.0	2145	21.6
3×70+1×70	3.60	3.60	24.48	18.0	2442	21.6
3×95+1×80	3.60	3.60	26.28	18.7	2832	24.7
3×120+1×95	3.60	3.60	27.89	19.7	3225	29.4
3×150+1×125	3.60	3.60	29.97	21.6	3804	38.5
3×185+1×125	3.60	3.60	31.72	21.6	4240	38.5
3×240+1×150	3.60	3.60	34.17	23.0	4987	46.3
3×300+1×185	3.60	3.60	36.58	24.7	5805	57.1

19/33 kV(E) AC HT Aerial Bunched Cable

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Phase Conductor + Messenger (Bare)

Cable Construction (mm²)	Insulation Thickness (mm)	Phase Conductor Overall Diameter (mm)	Messenger Overall Diameter (mm)	Approx. Weight	Minimum Messenger Breaking Load (kN)
3×25+1×95	8.80	30.90	12.55	3100	29.39
3×35+1×100	8.80	32.04	12.85	3345	30.82
3×50+1×125	8.80	33.63	14.36	3749	38.50
3×70+1×125	8.80	35.28	14.36	4131	38.50
3×95+1×150	8.80	37.08	15.75	4648	46.32
3×120+1×150	8.80	38.69	15.75	5068	46.32
3×150+1×185	8.80	40.77	17.49	5760	57.12
3×185+1×185	8.80	42.52	17.49	6286	57.12
3×240+1×240	8.80	45.37	19.93	7362	74.12
3×300+1×240	8.80	47.78	19.93	8194	74.12

Phase Conductor + Messenger (Insulated)

Cable Construction (mm²)	Phase Insulation Thickness (mm)	Messenger Insulation Thickness (mm)	Phase Conductor Overall Diameter (mm)	Messenger Overall Diameter (mm)	Approx. Weight	Minimum Messenger Breaking Load (kN)
3×25+1×95	8.80	8.80	30.90	30.1	3738	29.39
3×35+1×100	8.80	8.80	32.04	30.4	3992	30.82
3×50+1×125	8.80	8.80	33.63	32.0	4442	38.50
3×70+1×125	8.80	8.80	35.28	32.0	4823	38.50
3×95+1×150	8.80	8.80	37.08	33.4	5382	46.32
3×120+1×150	8.80	8.80	38.69	33.4	5802	46.32
3×150+1×185	8.80	8.80	40.77	35.1	6546	57.12
3×185+1×185	8.80	8.80	42.52	35.1	7072	57.12
3×240+1×240	8.80	8.80	45.37	37.5	8221	74.12
3×300+1×240	8.80	8.80	47.78	37.5	9053	74.12

Manufacturing & Customization

Qingzhou Cable supplies HT Aerial Bunched Cables for overhead high-voltage distribution networks, offering different voltage ratings, conductor sizes and messenger configurations to meet project requirements.

Available configurations include:

- 6.35/11 kV(E) AC and 19/33 kV(E) AC
- Three-phase aerial bundled cable systems

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- Bare or insulated messenger conductors
- Stranded compacted aluminium phase conductors
- XLPE insulation
- Semi-conductive screening and copper tape screening
- PVC outer sheathing
- Custom cable configurations according to project specifications

Contact Qingzhou Cable for technical specifications, project quotations and customized manufacturing solutions.

Frequently Asked Questions (FAQ)

1. What is HT Aerial Bunched Cable?

HT Aerial Bunched Cable is a high-voltage overhead power distribution cable designed for distribution networks in rural, residential and hilly areas where underground cable installation is impractical. It consists of insulated aluminium phase conductors bundled with a supporting messenger conductor.

2. What voltage ratings are available for HT ABC cables?

HT Aerial Bunched Cables are available in 6.35/11 kV(E) AC and 19/33 kV(E) AC configurations.

3. What is the operating temperature of HT Aerial Bunched Cable?

The cable is designed for continuous conductor operating temperatures up to 90°C, subject to the applicable cable construction and specification.

4. What materials are used for the phase conductor?

The phase conductor is made of stranded compacted aluminium, according to IS 8130, Class 2.

5. What insulation is used in HT ABC cables?

The phase conductors are insulated with XLPE, which provides electrical insulation and thermal performance suitable for high-voltage overhead distribution applications.

6. What is the function of the messenger conductor?

The messenger conductor provides mechanical support for the aerial bundled cable assembly. It is made of heat-treated aluminium-magnesium alloy wires and can be supplied bare or with optional XLPE insulation.

7. What is the difference between bare and insulated messenger configurations?

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In the bare messenger configuration, the supporting messenger conductor is supplied without insulation. In the insulated configuration, the messenger conductor is covered with XLPE insulation. The cable configuration can be selected according to project design and installation requirements.

8. What screening layers are used in HT ABC cables?

The phase conductor incorporates a semi-conductive conductor screen, XLPE insulation, a semi-conductive insulation screen and copper tape screening, followed by an outer PVC sheath, according to the supplied construction.

9. What standards are applicable to HT Aerial Bunched Cable?

The supplied standards and references include IS 8130, IS 398 (Part 4), IS 5831, IS 7098-2 and IS 14255:1995. The applicable standard and conformity requirements should be confirmed according to the specific cable design and voltage rating.

10. Can HT ABC cables be manufactured with different messenger sizes?

Yes. Different messenger conductor sizes and bare or insulated messenger configurations are available according to the cable design, mechanical requirements and project specifications.

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