Product Overview

CAAI and CAAI-S are self-supporting aerial cables designed for low-voltage overhead power distribution networks in urban and rural areas. They provide a practical solution for secondary electricity distribution where an independent supporting structure is required.

The cables are designed for installation on poles or attachment to building walls using suitable installation accessories. Their self-supporting construction allows overhead installation without the use of conventional line insulators, subject to the applicable installation system and accessories.

CAAI cables feature hard-drawn aluminium phase conductors with XLPE insulation. Depending on the design, the supporting conductor can be an aluminium alloy support conductor or a galvanized steel messenger conductor.

Product Types

The product series includes the following configurations:

Type	Description
CAI	Copper conductor, XLPE-insulated power cable
CAI-S	Copper conductor, XLPE-insulated power cable with steel support
CAAI	Aluminium conductor, XLPE-insulated power cable
CAAI-S	Aluminium conductor, XLPE-insulated power cable with steel support

CAAI: Aluminium phase conductors with an aluminium alloy supporting conductor. The support conductor can be bare (ND) or insulated (NA), according to the specified design.

CAAI-S: Aluminium phase conductors with an insulated galvanized steel supporting conductor.

Construction

CAAI Construction

- **Phase Conductor:** Hard-drawn aluminium conductor, Class 2.
- **Neutral / Messenger Conductor:** Aluminium alloy supporting conductor, according to the specified design.
- **Lighting Conductor:** Hard-drawn aluminium conductor, Class 2, where included.
- **Insulation:** Cross-linked polyethylene (XLPE).
- **Support Conductor Designation:** ND for bare support conductor or NA for insulated support conductor, as specified.

CAAI-S Construction

- **Phase Conductor:** Hard-drawn aluminium conductor, Class 2.
- **Phase Core Identification:** Colour strip, rib or number.
- **Lighting Conductor:** Hard-drawn aluminium conductor, Class 2, where included.
- **Neutral / Messenger Conductor:** Insulated galvanized steel conductor.
- **Insulation:** Black cross-linked polyethylene (XLPE).

Applications

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CAAI and CAAI-S self-supporting aerial cables are designed for low-voltage secondary distribution networks in urban and rural areas.

Typical applications include:

- Low-voltage overhead electricity distribution.
- Secondary distribution networks.
- Aerial cable installations on utility poles.
- Overhead cable installations attached to building walls.
- Distribution connections in urban and rural electrification projects.

Installation requires suitable accessories for the selected supporting conductor and installation arrangement.

Key Features

- **Self-Supporting Design:** Designed for overhead installation on poles or building walls using suitable accessories.
- **Aluminium Phase Conductors:** Hard-drawn aluminium conductors with Class 2 construction.
- **XLPE Insulation:** Cross-linked polyethylene insulation for electrical and environmental protection.
- **Multiple Support Options:** Aluminium alloy support conductor or galvanized steel messenger, depending on the cable type.
- **Flexible Configurations:** Available in different phase and lighting conductor arrangements.
- **Core Identification:** Phase conductors can be identified by colour strips, ribs or numbers.
- **Urban and Rural Applications:** Suitable for low-voltage secondary distribution networks.

Applicable Standards

- **NTP 370.254:** Self-supporting XLPE-insulated cables for overhead distribution networks rated up to and including 0.6/1 kV.
- **ICEA S-76-474:** Reference standard for neutral-supported power cables, where applicable to the specified design.
- **IEC 60228:** Conductors of insulated cables.
- **ASTM A475:** Zinc-coated steel wire strand, where applicable to the galvanized steel supporting conductor.

The applicable standard and edition should be confirmed for each project. Standards should not be presented as simultaneous certifications unless the product has been evaluated and tested accordingly.

Technical Specifications

Parameter	Specification
Product Family	CAAI / CAAI-S Self-Supporting Aerial Cable
Application	Low-voltage overhead distribution
Phase Conductor	Hard-drawn aluminium
Conductor Class	Class 2
Insulation	XLPE
Support Conductor	Aluminium alloy or galvanized steel, depending on design
Lighting Conductor	Aluminium, where included
Phase Identification	Colour strip, rib or number
Standards Listed	NTP 370.254, ICEA S-76-474

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Table A – CAAI (ND) Dimensional and Electrical Characteristics

Formation	Insulation thickness (mm)	Overall diameter (mm)	Nominal weight (kg/km)
1×16+NA25	1.14	18	160
2×16+NA25	1.14	18	220
2×25+NA25	1.14	21	280
2×35+NA25	1.14	22	340
2×35+NA35	1.14	23	370
2×50+NA35	1.52	26	470
2×70+NA50	1.52	30	660
2×95+NA70	1.52	34	860
2×120+NA70	2.03	38	1,020
3×16+NA25	1.14	18	280
3×25+NA25	1.14	21	370
3×35+NA25	1.14	22	450
3×50+NA35	1.52	26	630
3×70+NA50	1.52	30	880
3×95+NA50	1.52	34	1,110
3×95+NA70	1.52	34	1,160
3×120+NA70	2.03	38	1,410

Table B – CAAI-S Dimensional and Electrical Characteristics

Formation	Insulation thickness (mm)	Support conductor (No. × mm)	Overall diameter (mm)	Nominal weight (kg/km)
2×16	1.14	7×1.03	16	210
2×25	1.14	7×1.20	18	290
2×35	1.14	7×1.20	19	360
2×50	1.52	7×2.03	23	610
2×70	1.52	7×2.03	27	730
2×95	1.52	7×2.03	31	890
2×120	2.03	7×2.03	34	1,090
3×16	1.14	7×1.03	16	290
3×25	1.14	7×1.20	18	400
3×35	1.14	7×1.20	19	500
3×50	1.52	7×2.03	23	820
3×70	1.52	7×2.03	27	1,000
3×95	1.52	7×2.03	31	1,340

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Formation	Insulation thickness (mm)	Support conductor (No. × mm)	Overall diameter (mm)	Nominal weight (kg/km)
3×120	2.03	7×2.03	34	1,540

Manufacturing and Customization

QZ Cable can discuss self-supporting aerial cable configurations according to project requirements, including phase conductor sizes, lighting conductor arrangements and supporting conductor designs.

Customers can provide their required cable formation, technical specifications or project drawings for product selection and quotation.

Frequently Asked Questions About CAAI Self-Supporting Aerial Cable

1. What is CAAI self-supporting aerial cable?

CAAI is a self-supporting aerial cable designed for low-voltage overhead electricity distribution in urban and rural areas. It features XLPE-insulated aluminium phase conductors and a supporting conductor.

2. What is the difference between CAAI and CAAI-S?

CAAI uses an aluminium alloy supporting conductor, which can be bare or insulated depending on the design. CAAI-S uses an insulated galvanized steel supporting conductor.

3. What insulation material is used in CAAI cable?

The phase conductors are insulated with cross-linked polyethylene (XLPE).

4. What conductor material is used in CAAI cable?

The phase conductors are made of hard-drawn aluminium with Class 2 construction. The supporting conductor depends on the selected cable type.

5. Can CAAI cable include a lighting conductor?

Yes. The product documentation includes configurations with an additional aluminium lighting conductor. The available conductor sizes and arrangements depend on the selected design.

6. Where is self-supporting aerial cable used?

CAAI and CAAI-S cables are designed for low-voltage secondary distribution networks in urban and rural areas. They can be installed on poles or attached to building walls using suitable accessories.

7. Does CAAI cable require conventional insulators?

The supplied product description identifies the self-supporting design as not requiring conventional line insulators. Installation must still use suitable supporting and fixing accessories in accordance with the applicable installation system.

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8. Which standards are listed for CAAI cable?

The supplied product documentation lists NTP 370.254 and ICEA S-76-474.

9. What configurations are available?

The documentation includes different phase conductor arrangements, including single-, two- and three-phase conductor configurations, as well as versions with additional lighting conductors.

10. Can QZ Cable customize CAAI and CAAI-S cables?

Product configurations can be discussed according to project requirements, including phase conductor sizes, lighting conductor arrangements and support conductor design. Customers can provide technical specifications or project drawings for evaluation.

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