Product Overview

SIP-3 / SIPn-3, also designated AAsXS / AAsXSn, is a medium-voltage self-supporting insulated overhead wire designed for overhead power transmission and distribution networks.

The wire features a stranded aluminium alloy conductor with light-stabilized, UV-resistant cross-linked polyethylene (XLPE) insulation. It is designed for overhead networks with rated voltages of 20 kV and 35 kV and a rated frequency of 50 Hz.

SIP-3 (AAsXS) uses protective XLPE insulation, while SIPn-3 (AAsXSn) features a flame-retardant insulation compound designed not to support the spread of combustion.

Compared with conventional bare overhead conductors, insulated SIP-3 wires provide additional protection against accidental contact between conductors and nearby objects. They are suitable for overhead line construction in residential, urban, rural, and other distribution network environments, subject to applicable installation requirements.

Applicable Standards

Depending on the destination market and approved product design, the following standards may be specified:

- **GOST 31946** – Self-supporting insulated and protected wires for overhead power lines, subject to the applicable product scope and edition.
- **DSTU 4743:2007** – Ukrainian national standard referenced for SIP-3 / SIPn-3 products.
- **EN 50397-1** – Covered conductors for overhead lines with rated voltages above 1kV AC and not exceeding 36kV AC, where the product design falls within its scope.
- **Relevant technical specifications (TU)** and project-specific requirements.

The applicable standard and edition must be confirmed for the exact conductor construction and target market.

Product Designations

The product family includes the following designations:

- **SIP-3 / AAsXS:** Self-supporting insulated overhead wire with an aluminium alloy conductor and UV-resistant XLPE protective insulation.
- **SIPn-3 / AAsXSn:** Flame-retardant version with an aluminium alloy conductor and UV-resistant XLPE insulation formulated to resist the spread of combustion.

The suffix "n" indicates the flame-retardant version in the supplied product designation system. The applicable flame-retardant test method and classification should be confirmed against the project specification.

Construction

- **Conductor:** Stranded aluminium alloy conductor.
- **Insulation:** Light-stabilized, UV-resistant cross-linked polyethylene (XLPE).
- **Flame-retardant option:** Available in the SIPn-3 / AAsXSn designation, subject to confirmation of the required compound and test standard.

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- **Product configuration:** Single-core insulated overhead wire.
- **Rated voltage:** 20 kV or 35 kV.
- **Rated frequency:** 50 Hz.

Applications

SIP-3 / SIPn-3 wires are designed for medium-voltage overhead power transmission and distribution networks.

Typical applications include:

- 10 kV, 15 kV, and 20 kV overhead networks using the 20 kV wire design.
- 35 kV overhead power transmission and distribution networks.
- Main overhead power line routes and branch lines.
- Rural and urban medium-voltage distribution systems.
- Overhead lines in temperate, cold, and tropical climatic regions, subject to the specified environmental and installation conditions.
- Network projects where insulated overhead conductors are preferred over conventional bare conductors.

Key Features and Benefits

UV-Resistant XLPE Insulation

Light-stabilized cross-linked polyethylene insulation is designed for outdoor overhead applications and resistance to ultraviolet exposure.

Aluminium Alloy Conductor

The aluminium alloy conductor provides a combination of electrical conductivity and mechanical strength for overhead line applications.

Additional Electrical Protection

The protective insulation helps reduce the risk of accidental contact between phase conductors and nearby objects. It can also help reduce the likelihood of conductor-to-conductor contact under certain operating conditions.

Flame-Retardant Option

The SIPn-3 / AAsXSn version uses an insulation compound designed to resist the spread of combustion. The required fire-performance classification should be confirmed for each project.

Suitable for Medium-Voltage Networks

Available in 20 kV and 35 kV designs for medium-voltage overhead transmission and distribution applications.

Flexible Network Design

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Insulated overhead wires can offer additional installation flexibility in areas where bare conductors require greater separation from surrounding objects. Actual clearances and installation methods must follow applicable electrical regulations.

Technical Specifications

Parameter	Specification
Product family	SIP-3 / SIPn-3
Alternative designations	AAsXS / AAsXSn
Product type	Medium-voltage insulated overhead wire
Conductor material	Aluminium alloy
Conductor construction	Stranded
Insulation material	Light-stabilized cross-linked polyethylene (XLPE)
Insulation option	Standard protective or flame-retardant
Rated voltage	20 kV / 35 kV
Applicable network voltage	10, 15, 20 kV / 35 kV
Rated frequency	50 Hz
Core configuration	Single-core
Installation	Overhead power transmission and distribution

Technical Data – 20 kV Design

Conductor configuration	Nominal conductor cross-section (mm^2)	Nominal overall diameter (mm)	Approx. weight (kg/km)
1×35	35	11.7	168
1×50	50	12.9	210
1×70	70	14.4	277
1×95	95	16.3	367
1×120	120	17.7	446
1×150	150	19.0	520
1×185	185	20.9	649
1×240	240	22.9	798

Technical Data – 35 kV Design

Conductor configuration	Nominal conductor cross-section (mm^2)	Nominal overall diameter (mm)	Approx. weight (kg/km)
1×35	35	14.1	219
1×50	50	15.3	266
1×70	70	16.8	339

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1×95	95	18.7	437
1×120	120	20.1	522
1×150	150	21.4	600
1×185	185	23.3	737
1×240	240	25.3	894

The dimensional and weight values above are based on the supplied reference data. Final values should be confirmed against the approved product drawings and manufacturing specifications.

Why Choose QZ Cable?

QZ Cable is a cable and conductor manufacturer established in 1969 and part of QZ Group.

We support power transmission and distribution projects with cable and conductor solutions based on customer drawings, technical specifications, and applicable project standards.

- Manufacturer-direct supply.
- Technical specification and drawing review.
- Product configurations for medium-voltage overhead networks.
- Technical documentation according to the confirmed product design.
- Support for bulk orders and infrastructure projects.

Frequently Asked Questions

1. What is SIP-3 cable used for?

SIP-3 is designed for medium-voltage overhead power transmission and distribution lines, including 10 kV, 15 kV, and 20 kV networks when using the specified 20 kV design, as well as 35 kV networks.

2. What is the difference between SIP-3 and SIPn-3?

According to the supplied designation system, SIP-3 uses protective XLPE insulation, while SIPn-3 uses a flame-retardant insulation compound designed to resist the spread of combustion. The specific fire-performance requirements should be confirmed against the applicable test standard.

3. What do AAsXS and AAsXSn mean?

AAsXS and AAsXSn are alternative product designations associated with SIP-3 and SIPn-3. They identify an aluminium alloy conductor with XLPE insulation, with the additional "n" indicating the flame-retardant version.

4. What conductor sizes are available?

The supplied technical data covers nominal conductor cross-sections from 35 mm² to 240 mm² for both 20 kV and 35 kV designs.

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5. What insulation material is used?

The wire uses light-stabilized, UV-resistant cross-linked polyethylene (XLPE). The SIPn-3 / AAsXSn version uses a flame-retardant insulation formulation.

6. Can SIP-3 replace bare overhead conductors?

SIP-3 can be used in suitable overhead line projects as an insulated alternative to bare conductors. The selection must consider electrical ratings, mechanical loading, clearances, installation methods, and applicable local regulations.

Contact QZ Cable for technical drawings, detailed specifications, and project-based quotations for SIP-3 / SIPn-3 medium-voltage overhead wires.

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