Product Overview

AAAC (All Aluminium Alloy Conductor), designated as AL59, is a high-performance bare overhead conductor manufactured from aluminium-magnesium-silicon (Al-Mg-Si) alloy wires.

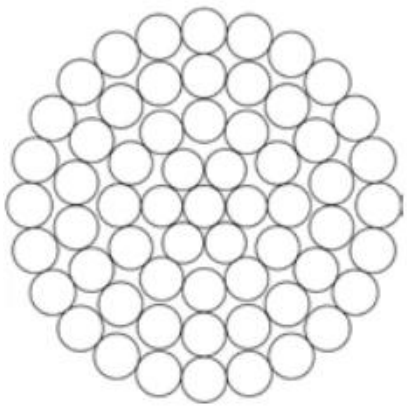
Designed to combine good electrical conductivity with enhanced mechanical strength, AL59 provides an effective balance between current-carrying capacity, tensile performance, and conductor weight. Compared with conventional AAC conductors made from pure aluminium, AL59 offers improved mechanical strength while maintaining good electrical conductivity.

Its excellent corrosion resistance makes it particularly suitable for overhead power networks in coastal regions and other demanding outdoor environments.

AL59 conductors are widely used in power distribution and transmission networks where electrical efficiency, mechanical reliability, and long-term service performance are important considerations.

For additional corrosion protection, grease filling can be applied during the stranding process according to project requirements.

Conductor Construction





AAAC (AL59) conductors are manufactured using aluminium-magnesium-silicon alloy wires in a concentric-lay stranded construction.

Conductor Material

- Aluminium-magnesium-silicon (Al-Mg-Si) alloy
- Material designation: AL59
- Alloy wires designed to provide a balance of electrical conductivity and mechanical strength

Stranding

- Round aluminium-alloy wires
- Concentric-lay stranded construction

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- Customized conductor sizes and stranding arrangements

Optional Protection

- Grease filling during the stranding process
- Additional protection for applications requiring enhanced corrosion resistance

Applications

AAAC (AL59) conductors are suitable for a wide range of overhead power network applications, including:

- **Coastal Power Networks:** Suitable for environments exposed to salt-laden air and corrosive conditions.
- **Power Transmission Lines:** Used in overhead transmission networks where conductivity and mechanical strength are important.
- **Power Distribution Networks:** Suitable for regional and urban electricity distribution systems.
- **Renewable Energy Transmission:** Applicable to overhead connections for renewable energy power networks.
- **Grid Expansion and Upgrading:** Suitable for projects requiring reliable overhead conductors with balanced electrical and mechanical properties.
- **Industrial Power Networks:** Used in outdoor electrical networks exposed to demanding environmental conditions.

Key Features & Benefits

1. High Electrical Conductivity

The AL59 aluminium-magnesium-silicon alloy is designed to provide good electrical conductivity and efficient power transmission.

2. Enhanced Mechanical Strength

Compared with pure aluminium AAC conductors, AL59 offers improved tensile strength, supporting overhead line designs that require greater mechanical performance.

3. Excellent Corrosion Resistance

The aluminium-alloy construction provides good resistance to atmospheric corrosion, making AL59 suitable for coastal and other challenging environments.

4. Lightweight Conductor Design

Its all-aluminium-alloy construction provides a favorable strength-to-weight balance for overhead power line applications.

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5. Efficient Power Transmission

Good electrical conductivity helps reduce conductor resistance and associated power losses, subject to the selected conductor size and operating conditions.

6. Optional Grease Filling

Grease can be applied during stranding to provide additional corrosion protection according to project requirements.

Available Variants

AL59 conductors can be supplied in different conductor sizes and stranding configurations according to project requirements.

The final conductor design can be selected based on:

- Required cross-sectional area
- Rated tensile strength
- Electrical resistance
- Current-carrying capacity
- Conductor diameter and weight
- Installation span and mechanical loading
- Applicable technical standard

Equivalent conductor designations and configurations should be confirmed against the customer's technical specifications.

Applicable Standards

AAAC (AL59) conductors can be manufactured according to the following standards specified in the product documentation:

- **SS 424 08 14:** Aluminium-alloy conductor requirements for AL59.
- **SS EN 50182:** Conductors for overhead lines – Round wire concentric lay stranded conductors.

Other standards or project-specific requirements can be reviewed upon request.

Technical Specifications

Name	Cross section	Number of strands	Strand diameter	Conductor diameter	Total weight	Maximum breaking load	DC resistance
62-AL59	62 mm^2	7	3.37 mm	10.1 mm	170 kg/km	15.6 kN	0.47 Ω/km
99-AL59	99 mm^2	7	4.25 mm	12.8 mm	271 kg/km	22.8 kN	0.296 Ω/km

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Name	Cross section	Number of strands	Strand diameter	Conductor diameter	Total weight	Maximum breaking load	DC resistance
159-AL59	158 mm^2	19	3.26 mm	16.3 mm	436 kg/km	39.7 kN	0.186 Ω/km
241-AL59	241 mm^2	19	4.02 mm	20.1 mm	663 kg/km	55.5 kN	0.123 Ω/km
329-AL59	330 mm^2	37	3.37 mm	23.6 mm	910 kg/km	82.5 kN	0.0899 Ω/km
454-AL59	454 mm^2	61	3.08 mm	27.7 mm	1260 kg/km	113 kN	0.0654 Ω/km
593-AL59	593 mm^2	61	3.52 mm	31.7 mm	1640 kg/km	143 kN	0.0501 Ω/km
774-AL59	774 mm^2	61	4.02 mm	36.2 mm	2140 kg/km	178 kN	0.0384 Ω/km
910-AL59	907 mm^2	61	4.36 mm	39.2 mm	2520 kg/km	209 kN	0.0326 Ω/km

Detailed electrical and mechanical data can be provided based on the required conductor size and project specifications.

Why Choose QZ Cable?

QZ Cable manufactures bare overhead conductors for power transmission and distribution projects.

Our AAAC (AL59) conductors are designed to provide a practical balance of electrical conductivity, mechanical strength, and corrosion resistance. Different conductor sizes and stranding configurations can be reviewed according to applicable standards and customer requirements.

We support bulk orders and project-specific manufacturing requirements.

Contact QZ Cable with your required conductor size, technical standard, and order quantity to request a quotation and technical datasheet.

Frequently Asked Questions

1. What is an AL59 conductor?

AL59 is an aluminium-magnesium-silicon alloy conductor used in overhead power transmission and distribution networks. It combines good electrical conductivity with enhanced mechanical strength.

2. What is the difference between AAC AL1 and AAAC AL59?

AAC AL1 is manufactured from pure aluminium, prioritizing electrical conductivity. AAAC AL59 uses aluminium alloy to provide higher mechanical strength while maintaining good electrical performance.

3. Is AAAC AL59 suitable for coastal environments?

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Yes. Its aluminium-alloy construction provides good corrosion resistance, making it suitable for coastal and other outdoor environments.

4. Can AL59 conductors be supplied with grease filling?

Yes. Grease filling can be applied during the stranding process when additional corrosion protection is required.

5. Which standards apply to AAAC AL59?

The product documentation specifies SS 424 08 14 and SS EN 50182. The applicable standard should be confirmed for each project.

6. Can AL59 conductor sizes and configurations be customized?

Yes. Conductor sizes and stranding configurations can be specified according to project requirements and applicable standards.

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