Product Overview

AER Cable is a low-voltage aerial power cable designed for overhead electricity distribution networks. It consists of one or more insulated aluminium conductors combined with a separate messenger wire that provides mechanical support during overhead installation.

The phase conductors are typically manufactured from solid or stranded electrical-grade aluminium and insulated with polyethylene (PE) or cross-linked polyethylene (XLPE), depending on the specified design.

AER cable is commonly used in rural electrification, village power distribution, and overhead low-voltage networks where underground cable installation may be costly or impractical.

QZ Cable supplies AER aerial cable solutions with customized conductor sizes, insulation materials, messenger wire specifications, and cable configurations according to project requirements.

Cable Construction

1. Phase Conductors

- Solid or stranded aluminium conductors.
- Electrical-grade aluminium, typically 1350 series, subject to design.
- Conductor cross-sections selected according to the required electrical load.
- One or multiple insulated conductors depending on the circuit configuration.

2. Conductor Insulation

- PE (Polyethylene) or XLPE (Cross-Linked Polyethylene).
- Typically black insulation for outdoor aerial applications.
- Insulation thickness according to the applicable standard and voltage rating.
- Weather-resistant compound selected according to the specified environmental requirements.

3. Messenger / Hanger Wire

- Separate supporting wire installed alongside the insulated conductor or conductors.
- Messenger material and construction selected according to mechanical requirements.
- Conductor material, diameter, minimum tensile strength, and electrical function defined by the approved design.
- Provides mechanical support for the aerial cable assembly.

4. Cable Assembly

- Insulated aluminium conductor or conductors.
- Separate messenger / hanger wire.
- Conductor and messenger arranged in the specified aerial configuration.
- Available in single-phase and multi-conductor arrangements according to project requirements.

Key Characteristics

- **Separate Messenger Support:** An independent hanger wire provides mechanical support for overhead installation.

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- **Aluminium Conductors:** Solid or stranded aluminium conductor options for low-voltage distribution.
- **PE / XLPE Insulation:** Different insulation materials can be selected according to electrical and environmental requirements.
- **Multiple Configurations:** Available in single-core and multi-core arrangements, subject to the selected design.
- **Rural Electrification Applications:** Suitable for overhead distribution networks in rural and remote areas.
- **Customized Manufacturing:** Conductor cross-sections, insulation thickness, messenger wire construction, and cable configuration can be customized.

Applications

AER aerial cables are commonly used in:

- Rural and village electrification projects.
- Low-voltage overhead distribution networks.
- Secondary power distribution systems.
- Electricity supply in residential communities.
- Overhead power networks in agricultural areas.
- Road and street lighting distribution.
- Areas where underground cable installation is costly or difficult.

Specifications

Parameter	Typical Design / Options
Product Name	AER Aerial Cable
Rated Voltage	0.6/1 kV
Phase Conductor Material	Aluminium
Conductor Construction	Solid or stranded
Insulation Material	PE or XLPE
Insulation Colour	Black (typical)
Messenger / Hanger Wire	Separate supporting wire
Messenger Material	According to project specification
Conductor Configuration	Single-core or multi-core
Installation	Outdoor overhead installation
Maximum Operating Temperature	According to insulation compound and applicable standard
Short-Circuit Temperature	According to conductor and insulation design
Applicable Standards	SFS 2200, HD 626 S1, TS 11654, where specified

Note: The listed standards are references found in AER product documentation. Their applicability depends on the cable construction and destination market. The final rated voltage, conductor sizes, messenger material, insulation type, temperature rating, and mechanical characteristics must be confirmed against the approved technical specification.

Applicable Standards

AER cables may be designed with reference to the following standards, depending on the project:

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SFS 2200

- Reference standard associated with AER aerial cable designs.
- Confirm the applicable edition and construction requirements before claiming compliance.

HD 626 S1

- Harmonized document covering insulated cables for overhead lines and related distribution applications.
- The applicable part and construction requirements must be confirmed for the specified cable.

TS 11654

- Turkish standard referenced in AER product documentation.
- Confirm the applicable product scope and edition for the target market.

IEC 60228

- Conductors of insulated cables.
- Applicable to conductor construction and resistance requirements where specified.

Standards should be selected according to the destination market and project specification. Listing a standard does not constitute certification or proof of compliance.

Technical Specifications

Number Of Conductor Cross Section	INSULATED WIRES							MESSENGER WIRE			FINISHED CABLE	
	Conductor size	Number of wires	Diameter of conductors	Resistance of 20 °C	Current Carrying Capacity	Resistance of 20 °C	Current Carrying Capacity	Diameter of Messenger Wire	Minimum Tensile Strenght	Maximum Resistance of 20 °C	App.Max. Bundle Diameter	App. Net Weight
mm²	mm²	Adet	mm	ohm/km	A	mm²	A	mm	kN	ohm/km	mm	kg/km
1x16+1x16+25	1x16	1	4.4	1.91	70	1x16	60	5.9	7.4	1.38	15	225
3x16+1x16+25	3x16	1	4.4	1.91	60	1x16	60	5.9	7.1	1.38	22	350
3x25+1x16+35	3x25	7	5.9	1.2	80	1x16	60	6.9	10.3	0.986	26	475
3x35+1x16+50	3x35	7	6.9	0.868	95	1x16	60	8x1	14.2	0.72	30	625
3x50+1x16+70	3x50	7	8.1	0.641	120	1x16	60	9.6	20.6	0.493	35	800
3x70+1x16	3x70	7	9.6	0.443	150	1x16	60	11.4	27.9	0.363	41	1100

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mm²	mm²	Adet	mm	ohm/km	A	mm²	A	mm	kN	ohm/km	mm	kg/km
+95												
4x16+1x16 +25	4x16	1	4.4	1.91	60	1x16	60	5.9	7.4	1.38	25	410
4x25+1x16 +35	4x25	7	5.9	1.2	80	1x16	60	6.9	10.3	0.986	30	610
4x35+1x16 +50	4x35	7	6.9	0.868	95	1x16	60	8.1	14.2	0.72	34	810
4x50+1x16 +70	4x50	7	8.1	0.641	120	1x16	60	9.63	20.6	0.493	40	1060
4x70+1x16 +95	4x70	7	9.3	0.443	150	1x16	60	11.4	27.9	0.363	47	1420

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mm²	mm²	Adet	mm	ohm/km	A	mm²	A	mm	kN	ohm/km	mm	kg/km
1x16 + 25	1x16	1	4.4	1.91	75	-	-	5.9	7.4	1.38	15	140
1x25+35	1x25	7	5.9	1.2	10	-	-	6.9	10.3	0.986	17	200
1x35+50	1x35	7	6.9	0.868	125	-	-	8.1	14.2	0.72	20	275
3x16+25	3x16	1	4.4	1.91	70	-	-	5.9	7.4	1.38	22	275
3x25+35	3x25	7	5.9	1.2	90	-	-	6.9	10.3	0.986	26	400
3x35+50	3x35	7	6.9	0.868	115	-	-	8.1	14.2	0.72	30	575
3x50+70	3x50	7	8.1	0.641	140	-	-	9.6	20.6	0.493	35	750
3x70+95	3x70	7	9.6	0.443	180	-	-	11.4	27.9	0.363	41	1050
3x120+95	3x120	19	12.8	0.253	250	-	-	11.4	27.9	0.363	47	1550
4x16+25	4x16	1	4.4	1.91	70	-	-	5.9	7.4	1.38	24	375
4x25+35	4x25	7	5.9	1.2	90	-	-	6.9	10.3	0.986	28	500
4x35+50	4x35	7	6.9	0.868	115	-	-	8.1	14.2	0.72	32	680

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	Conductorsize	Numberofwires	Diameterofconductors	Resistanceof 20 °C	Current Carrying Capacity	Numberofwires	Current Carrying Capacity	Diameter ofMessenger Wire	Minimum Tensile Strenght	Maximum Resistance of 20 °C	App. Max.BundleDiameter	App. NetWeight
mm²	mm²	Adet	mm	ohm/km	A	mm²	A	mm	kN	ohm/km	mm	kg/km
4x50+70	4x50	7	8.1	0.641	140	-	-	9.6	20.6	0.493	38	900
4x70+95	4x70	7	9.6	0.443	180	-	-	11.4	27.9	0.363	45	1350

Frequently Asked Questions About AER Cable

1. What is an AER cable?

AER cable is a low-voltage aerial power cable designed for overhead electricity distribution networks. It typically consists of solid or stranded aluminium conductors, PE or XLPE insulation, and a supporting messenger wire. It is commonly used as an alternative to bare overhead conductors in suitable distribution applications.

2. What is the rated voltage of AER cable?

The typical rated voltage of AER cable is 0.6/1 kV, making it suitable for low-voltage overhead distribution systems.

3. What materials are used in AER cable?

AER cable generally uses electrical-grade aluminium for the phase conductors, PE or XLPE for insulation, and a specified messenger wire for mechanical support. The messenger material and construction depend on the applicable standard and project requirements.

4. What is the difference between PE and XLPE insulation?

PE (Polyethylene) is a thermoplastic insulation material, while XLPE (Cross-Linked Polyethylene) has a cross-linked structure that provides different thermal and mechanical properties. The appropriate insulation type and operating temperature must be selected according to the required cable specification.

5. What is the maximum operating temperature of AER cable?

The maximum continuous operating temperature depends on the insulation material and applicable standard. AER designs with XLPE insulation commonly have a 90°C conductor temperature rating. PE-insulated designs may have a lower rating. The exact value should be confirmed in the approved datasheet.

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6. What is the maximum short-circuit temperature of AER cable?

For typical XLPE-insulated designs, the maximum short-circuit conductor temperature can reach 250°C for a maximum duration of 5 seconds. The applicable value must be verified against the insulation material and governing standard.

7. Where is AER cable commonly used?

AER cable is commonly used in:

- Low-voltage overhead distribution networks.
- Rural and village electrification projects.
- Residential and community power distribution.
- Areas where underground cable installation is economically or technically difficult.
- Overhead distribution network upgrades and extensions.

8. What is the function of the messenger wire in AER cable?

The messenger wire provides mechanical support for the aerial cable assembly and helps withstand the tensile loads associated with overhead installation. Its material, cross-section, and minimum tensile strength must be selected according to the required span and installation conditions.

9. What standards apply to AER cable?

AER cable designs may be manufactured with reference to SFS 2200 and HD 626 S1. Other standards may be considered depending on the destination market and project specification. The applicable standard and edition should be confirmed before ordering.

10. Can AER cable be customized?

Yes. QZ Cable can evaluate customized AER cable designs according to customer requirements, including conductor cross-sections, conductor construction, insulation material, messenger wire specifications, and cable configuration.

11. Is AER cable suitable for underground installation?

AER cable is primarily designed for overhead installation. Direct burial or underground installation should not be assumed to be permitted. Any underground application must be specifically approved by the applicable cable specification and installation requirements.

12. How can I request a quotation for AER cable?

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Please provide the required conductor cross-section, number of insulated conductors, messenger wire size and material, insulation type, applicable standard, and required quantity. QZ Cable can review your specifications and provide technical documentation and a quotation.

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