Product Overview

POLY AL, POLY AAC, and POLY ACSR are polyethylene-covered overhead line conductors designed for overhead electrical distribution networks.

These conductors combine conventional aluminium or aluminium-steel conductor constructions with a weather-resistant black polyethylene covering. The covering provides additional protection against environmental exposure and helps reduce the risk of accidental electrical contact with nearby objects.

The product range includes three conductor types:

- **POLY AL:** Polyethylene-covered solid aluminium conductor.
- **POLY AAC:** Polyethylene-covered all-aluminium conductor with concentric-lay-stranded construction.
- **POLY ACSR:** Polyethylene-covered aluminium conductor steel-reinforced, featuring stranded aluminium wires around a steel core.

These covered conductors are installed on insulators and are generally treated as bare conductors for installation and electrical safety purposes. The polyethylene covering does not make them equivalent to fully insulated power cables.

Product Types and Construction

1. POLY AL – Polyethylene-Covered Solid Aluminium Conductor

POLY AL is manufactured with a solid aluminium conductor made from 1350-H19 aluminium and covered with a weather-resistant black polyethylene compound.

The solid conductor construction provides a simple overhead line solution for applicable distribution applications.

2. POLY AAC – Polyethylene-Covered All Aluminium Conductor

POLY AAC features a concentric-lay-stranded aluminium conductor made from 1350-H19 aluminium in accordance with the applicable conductor specification.

The conductor is covered with a weather-resistant black polyethylene compound for outdoor overhead distribution applications.

3. POLY ACSR – Polyethylene-Covered Aluminium Conductor Steel Reinforced

POLY ACSR consists of concentric-lay-stranded aluminium wires surrounding a steel reinforcing core. The complete conductor is covered with a weather-resistant black polyethylene compound.

The aluminium strands provide electrical conductivity, while the steel core contributes mechanical strength for overhead line applications.

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Applications

POLY AL, POLY AAC, and POLY ACSR are primarily used in overhead electrical distribution lines.

Typical applications include:

- Overhead distribution networks.
- Existing overhead line upgrades and replacements.
- Distribution lines requiring weather-resistant covered conductors.
- Urban and rural overhead power distribution systems.
- Installations where additional protection against accidental contact with surrounding objects is required.

Installation note: These conductors are installed on insulators and must be handled according to the applicable requirements for covered overhead conductors. The polyethylene covering should not be considered equivalent to the insulation of a fully insulated power cable.

Key Features and Benefits

Weather-Resistant Polyethylene Covering

The black polyethylene compound is designed for outdoor exposure and provides a protective covering against environmental conditions.

Multiple Conductor Configurations

Available in solid aluminium, stranded all-aluminium, and aluminium-steel reinforced constructions to meet different electrical and mechanical requirements.

Mechanical Strength Options

POLY ACSR incorporates a steel reinforcing core to provide additional mechanical strength for overhead distribution applications.

Overhead Distribution Applications

The covered conductor designs are intended for installation on insulators in overhead electrical distribution networks.

Additional Protection Compared with Bare Conductors

The polyethylene covering provides an additional protective layer that can help reduce accidental contact and conductor damage under suitable operating conditions.

Applicable Standards

The supplied product information references the following standards:

- **ASTM B231:** Concentric-Lay-Stranded Aluminum Conductors.

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- **ASTM B232:** Concentric-Lay-Stranded Aluminum Conductors, Coated-Steel Reinforced (ACSR).
- **ANSI C8.35:** Specifications for Weather-Resistant Polyethylene-Covered Wire and Cable.
- **ICEA S-61-402 / NEMA WC 5-1973:** Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.

The applicable standard depends on the conductor construction and product requirements. The exact edition and applicability of each standard should be confirmed before quotation or production.

Technical Specifications – POLY AL & POLY AAC

Code Name	Conductor Size (AWG/MCM)	Stranding (No./mm)	Insulation Thickness (mm)	Approx. Overall Diameter (mm)	Rated Strength (kg)	Approx. Weight (kg/km)	Allowable Ampacity (A)
Apple	6	4.155*	0.76	5.68	201.85	46.77	105
Pear	4	5.189*	Not specified	6.71	321.15	70.38	135
Cherry	2	6.543*	1.14	8.83	500.32	116.481	180
Plum	6	7/1.56	0.76	6.20	229.97	51.37	105
Apricot	4	7/1.96	Not specified	7.40	359.70	77.70	140
Peach	2	7/2.47	1.14	9.70	551.12	128.44	180
Nectarine	1	7/2.78	Not specified	10.63	669.51	158.22	210
Quince	1/0	7/3.12	1.52	12.41	812.39	207.82	240
Orange	2/0	7/3.50	Not specified	13.55	1,024.68	254.11	280
Fig	3/0	7/3.93	Not specified	14.84	1,241.05	312.21	320
Olive	4/0	7/4.42	Not specified	16.31	1,563.56	385.81	370
Pomegranate	4/0	19/2.68*	Not specified	16.45	1,641.12	381.39	370
Mulberry	266.8	19/3.01	Not specified	18.10	2,028.95	471.12	430
Anona	336.4	19/3.38	Not specified	19.95	2,510.67	583.09	495
Mollies	397.5	19/3.67	2.03	22.41	2,902.58	711.60	545
Huckleberry	477.0	37/2.88	Not specified	24.22	3,547.60	833.20	610
Pawpaw	556.5	37/3.12	Not specified	25.90	4,075.90	965.02	670
Breadfruit	636.0	61/2.59	2.41	28.14	4,723.33	1,110.61	720
Persimmon	795.0	61/2.90	Not specified	30.67	5,837.80	1,354.82	825
Grapefruit	1,033.5	61/3.31	Not specified	34.36	7,470.79	1,732.41	970

The original source contains ambiguous stranding entries for some solid-conductor sizes and the Pomegranate entry. These values must be checked against the original manufacturer table before publication.

Technical Specifications – POLY ACSR

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Code Name	Conductor Size (AWG/MCM)	Aluminium Stranding (No./mm)	Steel Strand Diameter (mm)	Insulation Thickness (mm)	Approx. Overall Diameter (mm)	Rated Strength (kg)	Approx. Weight (kg/km)	Allowable Ampacity (A)
Walnut	6	6/1.68	1.68	0.76	6.56	513.02	70.37	105
Butternut	4	6/2.12	2.12	Not specified	7.88	801.51	107.36	135
Hickory	4	7/1.96	2.61	Not specified	8.01	1,016.97	126.40	135
Pignut	2	6/2.67	2.67	1.14	10.30	1,228.35	175.69	180
Beech	2	7/2.47	3.30	Not specified	10.53	1,568.55	207.41	180
Chestnut	1	6/3.00	3.00	Not specified	11.28	1,529.99	215.79	210
Almond	1/0	6/3.37	3.37	1.52	13.16	1,887.43	282.97	235
Pecan	2/0	6/3.78	3.78	Not specified	14.39	2,288.41	347.03	270
Filbert	3/0	6/4.25	4.25	Not specified	15.80	2,852.69	429.97	305
Buckeye	4/0	6/4.77	4.77	Not specified	17.36	3,598.41	532.19	345
Hackberry	266.8	18/3.09	3.09	Not specified	18.50	2,964.73	532.34	435

The POLY ACSR table above includes only the entries supplied in the source material. Additional sizes should be added only after the complete technical schedule is verified.

Technical Notes

- The listed ampacity values are reference figures. Actual current-carrying capacity depends on ambient temperature, installation conditions, conductor temperature limits, and applicable design standards.
- Rated strength values should be checked against the original unit definitions and conductor test documentation.
- The polyethylene covering thickness is not specified for every size in the supplied tables. Final values should be confirmed from approved drawings.
- The product should be installed on suitable insulators and should not be treated as a fully insulated cable.

Why Choose QZ Cable?

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

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

- Manufacturer-direct supply.

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- Solid aluminium, stranded AAC, and ACSR conductor options.
- Technical specification and drawing review.
- Product configurations for overhead distribution networks.
- Technical documentation according to the confirmed product design.

Frequently Asked Questions

1. What is a polyethylene-covered overhead conductor?

It is an overhead conductor covered with a weather-resistant polyethylene compound. Unlike a fully insulated power cable, it is normally installed on insulators and treated as a covered conductor.

2. What is the difference between POLY AL, POLY AAC, and POLY ACSR?

POLY AL uses a solid aluminium conductor, POLY AAC uses a stranded all-aluminium conductor, and POLY ACSR uses aluminium strands around a steel reinforcing core.

3. Is POLY ACSR suitable for overhead distribution lines?

Yes. POLY ACSR combines aluminium conductivity with the mechanical reinforcement of a steel core and is designed for overhead distribution applications.

4. Does the polyethylene covering provide full electrical insulation?

No. The polyethylene covering provides additional protection, but the conductor must still be installed and operated according to the requirements for covered overhead conductors.

5. What standards apply to polyethylene-covered conductors?

The supplied reference information includes ASTM B231, ASTM B232, ANSI C8.35, and ICEA S-61-402 / NEMA WC 5-1973. The applicable standards depend on the conductor type and project specification.

Contact QZ Cable for product drawings, technical data, and quotations for polyethylene-covered overhead line conductors.

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