Product Overview

QZ Cable manufactures Covered Conductors Type CC and Type CCT designed in accordance with the AS/NZS 3675 standard.

These covered overhead conductors feature an insulating covering without conductor screens or insulation screens. They are designed to operate under principles similar to bare overhead conductor systems, with additional covering to improve protection against intermittent contact, environmental exposure and certain overhead line faults.

The product range includes two main types: CC Covered Conductors and CCT Covered Conductors. Both types are available with different conductor materials and covering constructions to suit specific overhead distribution network requirements.

Applications

AS/NZS 3675 covered conductors are used in overhead power distribution networks, particularly where additional protection against environmental and external contact risks is required.

Typical applications include:

- Overhead power distribution networks from 11 kV to 33 kV, subject to the applicable conductor type and system design.
- Overhead lines installed in areas with trees and vegetation.
- Distribution networks exposed to polluted environments.
- Compact overhead line arrangements and spacer cable systems.
- Insulated Unscreened Conductor (IUC) systems, where applicable.
- Installations requiring additional protection against intermittent contact between phases or between a conductor and ground.

Covered Conductor Classification

There are two main types of covered conductors under this product range:

1. **CC – Covered Conductor**
2. **CCT – Covered Conductor with Full-Thickness Covering**

1. CC Covered Conductors

CC covered conductors have a covering with a minimum average thickness of 2.0 mm and are designed for use at working voltages up to and including 19/33 kV.

They can withstand intermittent contact with conductive materials between phases or between a phase conductor and ground, such as tree branches. However, they should not remain in permanent contact with these materials.

Construction

- **Conductor:** Aluminium, aluminium alloy or aluminium-clad steel.
- **Water Blocking:** Special water-blocking material meeting the applicable AS/NZS 3675 test requirements.
- **Covering:** Track-resistant, UV-stabilised XLPE.

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- **Marking:** The external surface is marked with "CC", manufacturer logo, year of manufacture and conductor material. Sequential six-digit numbers are printed at 1-metre intervals, with the lowest number at the inner end of the drum.

2. CCT Covered Conductors – Full-Thickness Covering

CCT covered conductors have a specified covering thickness for each nominated working voltage.

They operate under principles similar to bare conductor or CC systems, but have electrical and mechanical characteristics that allow them to remain in contact with tree limbs for extended periods. The actual duration depends on the abrasive characteristics of the tree, prevailing wind frequency and strength, and operating temperature.

CCT conductors also offer improved performance in polluted environments and are suitable for spacer cable systems and Insulated Unscreened Conductor (IUC) systems.

Construction

- **Conductor:** Aluminium, aluminium alloy or aluminium-clad steel.
- **Water Blocking:** Special water-blocking material meeting the applicable AS/NZS 3675 test requirements.
- **Covering Option 1:** Track-resistant, UV-stabilised XLPE.
- **Covering Option 2:** Inner layer of non-UV-stabilised XLPE and outer layer of UV-stabilised HDPE.
- **HDPE Layer Requirements:** For the XLPE/HDPE construction, the average HDPE thickness is not more than 40% of the specified minimum average covering thickness and not less than 1.0 mm.
- **Marking:** The external surface is marked with "CCT", manufacturer logo, year of manufacture and conductor material. Sequential six-digit numbers are printed at 1-metre intervals, with the lowest number at the inner end of the drum.

Applicable Standards

- **AS/NZS 3675:2002** – Conductors – Covered overhead – For working voltages 6.35/11 (12) kV up to and including 19/33 (36) kV.
- **AS/NZS 3808** – Insulating and sheathing materials for electric cables, where referenced by the selected covering compound.
- **AS 3607** – Conductors – Bare overhead – Aluminium and aluminium alloy, where applicable to the selected conductor material.

The final manufacturing and testing requirements should follow the applicable edition of AS/NZS 3675 and the customer's approved technical specification.

Why Choose QZ Cable?

- **Manufacturer Since 1969:** Qingzhou Cable is part of QZ Group, with experience in cable and conductor manufacturing.
- **Type CC & CCT Options:** Different covering designs to meet project-specific overhead distribution requirements.
- **Water-Blocked Construction:** Designed to meet the applicable water-blocking requirements.
- **UV-Stabilised Covering:** XLPE and optional XLPE/HDPE covering systems for outdoor applications.
- **Customized Manufacturing:** Conductor sizes, covering thicknesses and material configurations according to approved specifications.
- **Factory-Direct Supply:** Supporting power utilities, EPC contractors, distributors and international bulk buyers.

Contact QZ Cable for technical datasheets, conductor dimensions and quotations for AS/NZS 3675 Type CC and Type CCT covered conductors.

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Technical Specifications

1. AS/NZS 3675 – General Covered Conductor Performance

The following technical data covers Alloy 6201 and Alloy 1120 conductors.

Conductor Alloy	Conductor Size (No./mm)	DC Resistance at 20°C (Ω/km)	AC Resistance at 80°C (Ω/km)	Reactance at 50 Hz (Ω/km)	Current Capacity at 30°C – Still Air (A)	30°C – 1.0 m/s Wind (A)	30°C – 2.0 m/s Wind (A)	Current Capacity at 40°C – Still Air (A)	40°C – 1.0 m/s Wind (A)	40°C – 2.0 m/s Wind (A)	1-sec Fault Current (kA)	Everyday Working Tension (kN)	Maximum Working Tension (kN)	Minimum Breaking Load (kN)	Minimum Bending Radius (mm)
Alloy 6201	7/2.75	0.799	0.988	0.331	125	210	235	110	185	210	3.5	1.51	5.8	11.6	200
Alloy 6201	7/3.75	0.43	0.532	0.312	180	300	345	160	270	310	6.4	2.82	10.9	21.7	245
Alloy 6201	7/4.75	0.268	0.331	0.297	245	410	465	220	365	415	10.3	4.52	17.4	34.8	290
Alloy 6201	19/3.50	0.183	0.227	0.281	315	515	595	280	460	530	15.2	6.67	25.7	51.3	340
Alloy 1120	7/2.75	0.713	0.881	0.331	130	220	250	115	195	225	3.7	1.49	4.96	9.91	200
Alloy 1120	7/3.75	0.383	0.474	0.312	190	320	365	170	285	325	6.8	2.64	8.8	17.6	245
Alloy 1120	7/4.75	0.239	0.296	0.297	260	430	485	230	385	435	11	4.07	13.6	27.1	290
Alloy 1120	19/3.50	0.163	0.202	0.281	330	545	625	295	485	560	16.2	6.26	20.9	41.7	340

2. CCT Technical Performance – Alloy 6201

11 kV Covered Conductors

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Conductor Size (No./mm)	DC Resistance at 20°C (Ω/km)	AC Resistance at 80°C (Ω/km)	Reactance at 50 Hz (Ω/km)	30° C Still Air (A)	30° C 1.0 m/s Wind (A)	30° C 2.0 m/s Wind (A)	40° C Still Air (A)	40° C 1.0 m/s Wind (A)	40° C 2.0 m/s Wind (A)	Fault Current 1 sec. (kA)	Everyday Working Tension (kN)	Maximum Working Tension (kN)	Minimum Breaking Load (kN)	Minimum Bending Radius (mm)
7/3.75	0.43	0.532	0.312	185	295	330	165	265	295	6.4	2.82	10.9	21.7	285
7/4.75	0.268	0.331	0.297	245	390	440	220	350	395	10.3	4.52	17.4	34.8	330
19/3.50	0.183	0.227	0.281	315	500	560	280	445	500	15.2	6.67	25.7	51.3	380

22 kV Covered Conductors

Conductor Size (No./mm)	DC Resistance at 20°C (Ω/km)	AC Resistance at 80°C (Ω/km)	Reactance at 50 Hz (Ω/km)	30° C Still Air (A)	30° C 1.0 m/s Wind (A)	30° C 2.0 m/s Wind (A)	40° C Still Air (A)	40° C 1.0 m/s Wind (A)	40° C 2.0 m/s Wind (A)	Fault Current 1 sec. (kA)	Everyday Working Tension (kN)	Maximum Working Tension (kN)	Minimum Breaking Load (kN)	Minimum Bending Radius (mm)
7/3.75	0.43	0.532	0.312	185	285	315	165	255	280	6.4	2.82	10.9	21.7	350
7/4.75	0.268	0.331	0.297	245	375	420	220	335	375	10.3	4.52	17.4	34.8	395
19/3.50	0.183	0.227	0.281	315	475	530	280	425	475	15.2	6.67	25.7	51.3	445

33 kV Covered Conductors

Conductor Size (No./mm)	DC Resistance at 20°C (Ω/km)	AC Resistance at 80°C (Ω/km)	Reactance at 50 Hz (Ω/km)	30° C Still Air (A)	30° C 1.0 m/s Wind (A)	30° C 2.0 m/s Wind (A)	40° C Still Air (A)	40° C 1.0 m/s Wind (A)	40° C 2.0 m/s Wind (A)	Fault Current 1 sec. (kA)	Everyday Working Tension (kN)	Maximum Working Tension (kN)	Minimum Breaking Load (kN)	Minimum Bending Radius (mm)
7/3.75	0.43	0.532	0.312	185	270	295	165	240	265	6.4	2.82	10.9	21.7	425
7/4.75	0.268	0.331	0.297	245	360	400	220	320	355	10.3	4.52	17.4	34.8	470
19/3.50	0.183	0.227	0.281	315	455	505	280	405	450	15.2	6.67	25.7	51.3	520

3. XLPE Covered Aerial Cables – Alloy 1120 Conductors

The source also provides the following voltage-specific technical data for XLPE covered aerial cables using Alloy 1120 conductors.

11 kV Covered Conductors

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Conductor Size (No./mm)	DC Resistance at 20°C (Ω/km)	AC Resistance at 80°C (Ω/km)	Reactance at 50 Hz (Ω/km)	30° C Still Air (A)	30° C 1.0 m/s Wind (A)	30° C 2.0 m/s Wind (A)	40° C Still Air (A)	40° C 1.0 m/s Wind (A)	40° C 2.0 m/s Wind (A)	Fault Current 1 sec. (kA)	Everyday Working Tension (kN)	Maximum Working Tension (kN)	Minimum Breaking Load (kN)	Minimum Bending Radius (mm)
7/2.75	0.713	0.881	0.331	130	215	240	115	190	215	3.7	1.49	4.96	9.9	230
7/3.75	0.383	0.474	0.312	190	315	345	170	280	310	6.8	2.64	8.8	17.6	285
7/4.75	0.239	0.296	0.297	26()	415	470	230	370	420	11	4.07	13.6	27.1	330
19/3.50	0.163	0.202	0.281	330	525	595	295	470	530	16.2	6.26	20.9	41.7	380

22 kV Covered Conductors

Conductor Size (No./mm)	DC Resistance at 20°C (Ω/km)	AC Resistance at 80°C (Ω/km)	Reactance at 50 Hz (Ω/km)	30° C Still Air (A)	30° C 1.0 m/s Wind (A)	30° C 2.0 m/s Wind (A)	40° C Still Air (A)	40° C 1.0 m/s Wind (A)	40° C 2.0 m/s Wind (A)	Fault Current 1 sec. (kA)	Everyday Working Tension (kN)	Maximum Working Tension (kN)	Minimum Breaking Load (kN)	Minimum Bending Radius (mm)
7/2.75	0.713	0.881	0.331	135	205	225	120	185	200	3.7	1.49	4.96	9.9	300
7/3.75	0.383	0.474	0.312	190	295	330	170	265	295	6.8	2.64	8.8	17.6	350
7/4.75	0.239	0.296	0.297	260	400	440	230	355	395	11	4.07	13.6	27.1	395
19/3.50	0.163	0.202	0.281	330	505	560	295	450	500	16.2	6.26	20.9	41.7	445

33 kV Covered Conductors

Conductor Size (No./mm)	DC Resistance at 20°C (Ω/km)	AC Resistance at 80°C (Ω/km)	Reactance at 50 Hz (Ω/km)	30° C Still Air (A)	30° C 1.0 m/s Wind (A)	30° C 2.0 m/s Wind (A)	40° C Still Air (A)	40° C 1.0 m/s Wind (A)	40° C 2.0 m/s Wind (A)	Fault Current 1 sec. (kA)	Everyday Working Tension (kN)	Maximum Working Tension (kN)	Minimum Breaking Load (kN)	Minimum Bending Radius (mm)
7/2.75	0.713	0.881	0.331	135	195	215	120	175	190	3.7	1.49	4.96	9.9	385
7/3.75	0.383	0.474	0.312	195	285	315	175	255	280	6.8	2.64	8.8	17.6	425
7/4.75	0.239	0.296	0.297	260	380	420	230	340	375	11	4.07	13.6	27.1	470
19/3.50	0.163	0.202	0.281	330	480	530	295	430	475	16.2	6.26	20.9	41.7	520

Technical Notes

- Current-carrying capacities are listed for ambient temperatures of 30°C and 40°C under the stated wind conditions.
- Fault current ratings are based on an initial conductor temperature of 80°C and a final temperature of 210°C.
- The constant K is 83.0 for Alloy 6201 and 88.4 for Alloy 1120.
- Everyday working tension is listed as 13% MBL for Alloy 6201 and 15% MBL for Alloy 1120.

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- The technical values should be checked against the original manufacturer data and applicable project conditions before final engineering use.

Product Features

- **Two covered conductor types:** CC and CCT constructions for different overhead line requirements.
- **Track-resistant XLPE covering:** UV-stabilised covering materials for outdoor overhead applications.
- **Water-blocking construction:** Special water-blocking material meeting the stated AS/NZS 3675 test requirements.
- **Multiple conductor materials:** Aluminium, aluminium alloy and aluminium-clad steel options.
- **CCT full-thickness covering:** Voltage-specific covering thickness and construction options.
- **Spacer cable compatibility:** CCT conductors can be used in suitable spacer cable and IUC systems.
- **Voltage-specific technical data:** Technical information is available for 11 kV, 22 kV and 33 kV CCT configurations in the supplied data.

Manufacturing and Customization

QZ Cable can review requirements for CC and CCT covered conductors according to project specifications.

For a technical quotation, please provide:

- Conductor type: CC or CCT.
- Rated working voltage.
- Conductor material and size.
- Required conductor stranding.
- Covering material and thickness.
- Applicable standard and project requirements.
- Required quantity and delivery length.

Contact QZ Cable for product information, technical documentation and project quotations.

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