

SECTION FOUR

MEDIUM VOLTAGE

TR-XLPE LONG-LIFE CABLES

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HISTORY OF LONG-LIFE CABLES

Nexans has an impressive long history as pioneers for designing and manufacturing quality medium voltage cables in New Zealand. As the largest power cable manufacturer in NZ and the only manufacturer of MV, we pride ourselves on delivering cable that has a life expectancy of over 50 years from our state of the art facility in New Plymouth, and have been since 1967.

In 1967, CANZAC cables were the first to manufacture the first-generation cross-linked polyethylene cables in the Southern Hemisphere and again were the first to introduce extruded semi-conductive screens to replace the taped version in 1973. In 1990, Olex Cables upgraded from steam to dry-cured triple extrusion and introduced the first-generation tree-retardant cross-linked polyethylene (TR-XLPE) in New Zealand. Eight years later, an X-ray 8000 dimensional controller was installed to the machine which scans through three layers of polymer to accurately measure layer thicknesses for consistency. After an improvement on the compound which was trialled in 1998, Olex Cables then went into full production of the second-generation TR-XLPE in 2005, reducing tree-growth even further. A new advanced hi-tech X-ray is installed the same year. Nexans Olex trialled the next generation of TR-XLPE in 2011 and went into full production in 2017, making Nexans NZ leaders in long-life cable.

Don't take a chance on the unknown

Have you ever considered why some cable products are so much cheaper than others? With cable, most of the cost is in the materials. If the price looks too good to be true, it almost certainly is!

Nexans have collaborated with our compound supplier for over 50 years to provide the best TR-XLPE material available on the market today, and our testing requires special equipment to ensure AS/NZS standards are not only met but exceed.

Investing in our cable gives you the very best of design, materials, refined manufacturing processes and quality test systems.

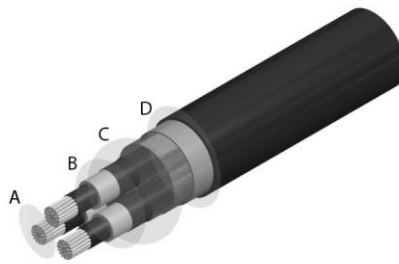
Indicative cost comparison

	<i>Nexans</i>	<i>Unbranded</i>
MDPE Sheath		-2%
PVC Sheath		-1%
Aluminium		-0%
Copper		-0%
Fillers		-0%
Certified TR-XLPE Insulation		-6%
Semi-Conductive Screen		-5%
Cost		-14%
Life Expectancy	50 Years	?

CONSTRUCTING LONG-LIFE CABLE

Nexans Medium Voltage TR-XLPE cables are designed in accordance with AS/NZS 1429.1:2006 and specific customer requirements where applicable to provide optimum performance for the end application.

The AS/NZS 1429.1:2006 is compatible with, and in some instances, exceeds, the requirements of the international standard IEC 60502.2. AS/NZS 1429.1 is also compatible with (UK) BS 6622 and (US) AEIC CS8 and ICEA S-93-639/NEMA WC74.



A – We use the highest grades of copper/aluminium and the latest technology in stranding to manufacture over 2 million metres of compacted MV cores a year.

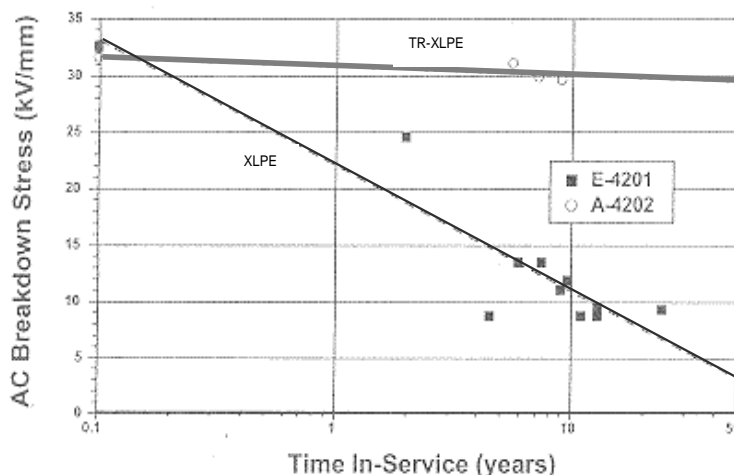
B – Utilising our state of the art machinery, our triple head extrusion process is fed raw materials from a pressurised clean room to ensure the interfaces between the materials are free of voids and contamination. The extruded core is then x-rayed to monitor wall thickness and concentricity.

C – A carefully controlled screening and cabling process using our expertise ensures the cable is manufactured to the highest standards, meeting our individual customers fault rating requirements.

D – Our sheathing is applied on our extrusion line using digitally controlled micrometres for highly accurate sheathing layers. Common sheathing materials are PVC, LLDPE, MDPE and HDPE.

Alternate designs incorporating aluminium foil laminate, steel wire armour or submarine cables can be produced upon request.

Once the construction of cable is complete, one of the most important test for medium voltage cable before it leaves our plant is the partial discharge (PD) test. This is carried out using special equipment and ensures that our MV cables are free of voids within the insulation, guaranteeing a life expectancy of over 50 years. Imported products may not meet the same quality due to testing carried out using only the equipment they have.



Projected useful life of TR-XLPE cables – more than 50 years

SCREEN DESIGNS

The standard range of Nexans Medium Voltage TR-XLPE cables rated up to and including 33 kV incorporates copper wire screens based on fault levels of either 3 kA or 10 kA for 1 second. If either of the standard screen designs does not suit a particular installation, the screen constructions can be tailored in size to meet the specific fault requirements of any operating system.

Wire Screen Cross Sectional Areas

In the case of three core cables which have screens around each individual core, the total screen cross sectional area is spread evenly over the three cores.

There are several other factors which can override the above criteria. Firstly, the screens are designed so that the average gap between the wires does not exceed 4 mm. This results in the screen area being increased above that required for the required fault level in certain cases. Secondly, the screen area is limited to a value so that its fault rating does not exceed that of the conductor. In some cases, the smaller cables in a range have fault levels of less than either 3 kA or 10 kA for 1 second respectively.

Screen Short Circuit Ratings

The screen short circuit ratings are calculated in accordance with formulae given in IEC 60949. Based on AS/NZS 1429.1 a starting temperature of 80°C and a final temperature of 250°C are used. The formulae are based on adiabatic conditions ie, no dissipation of heat during the short circuit.

The fault rating **I_{sc}** of a copper wire screen of a given cross sectional area can be calculated for any duration from the formula:

$$I_{sc} = \frac{148.6 * S}{\sqrt{t}} \quad (A)$$

Where: S = Screen Area (mm²) and t = Fault Duration (s).

Conversely, the screen area required for a given fault rating can be calculated as follows:

$$S = \frac{I_{sc} * \sqrt{t}}{148.6} \quad (mm^2)$$

For convenience, fault ratings for durations of 1 second are often quoted and this simplifies calculations since $\sqrt{t} = 1$ and this term disappears from the formulae.

TESTING

Testing of Nexans Medium Voltage TR-XLPE cables is carried out in accordance with AS/NZS 1429.1:2006. The tests performed are:

Routine tests* - "tests made by the manufacturer on all completed cable to demonstrate the integrity of the cable."

Sample tests* - "tests made by the manufacturer on samples of completed cable, or components taken from a completed cable, at a specified frequency so as to verify that the finished product meets the design specification."

Type tests# - "tests made by a manufacturer before supplying commercially a type of cable in order to demonstrate satisfactory performance characteristics to meet the intended application. These tests are of such a nature that, after they have been made, they need not be repeated unless changes are made in the cable materials, design, or method of manufacture, which might change the performance characteristics."

* All routine and sample tests are performed in the factory.

Type tests are carried out within the Nexans group, which includes a separate laboratory dedicated to EHV cable testing. The extensive facilities include high voltage test equipment which can perform partial discharge measurements at voltages up to 300 kV, high voltage break-down tests to 600 kV, cyclic ageing tests and impulse withstand tests. This allows all type tests to AS/NZS and other national standards to be performed.

Tests Performed on Cables		
Routine Tests	Sample Tests	Type Tests
Spark test on sheath.	Thicknesses of extruded components.	Insulation resistance at 20°C and 90°C.
Conductor examination and resistance.	Screen and armour wire diameters, and screen area.	Elongation at rupture of conductor screen.
Partial discharge test	Heat shock test (PVC sheaths only).	Pressure test (PVC sheaths only.)
High voltage a.c. test for 5 min.	Insulation shrinkage.	Loss of mass (PVC sheaths only).
High voltage a.c. test for 1 min on separation sheath (three core armoured cable only).	Insulation concentricity.	Volume resistivity of conductor and insulation screens
	Conductor screen projections/irregularities.	Mechanical tests (before and after ageing) of insulation and sheaths.
	Determination of voids and contaminants.	Partial discharge test after bending.
	Hot set test.	Impulse withstand test followed by high voltage a.c. test for 15 min.
	Insulation screen strip ability and adhesion.	Partial discharge test after heat cycling.
		DDF (tan δ) as a function of temperature.
		High voltage a.c. test for 4 h.
		Compatibility test for separation sheath (if any) and over sheath.

TEST VOLTAGE LEVELS

Voltage Withstand Tests				
Rated Voltage (kV)	Impulse (kV)	Type Tests		Routine Test
		High Voltage 15 min 50 Hz (after impulse test) (kV)	High Voltage 4 h 50 Hz (kV)	High Voltage 5 min 50 Hz (kV)
3.8/6.6	60	12.5	15	12.5
6.35/11	95	21	25	21
12.7/22	150	42	50	42
19/33	200	63	75	63

Partial Discharge Voltage Levels		
Rated Voltage (kV)	Permitted Maximum Discharge	
	20 pC at 200 percent U ₀ (kV)	5 pC at 150 percent U ₀ (kV)
3.8/6.6	7.6	5.7
6.35/11	13	10
12.7/22	25	19
19/33	38	29

INSTALLATION TESTS

General

After the cable, has been installed and prior to commencing terminating or jointing, it is desirable to carry out checks to establish that the cable has not been damaged during the installation process, namely a Sheath Integrity Test and an Insulation Resistance Test of Primary Insulation. After completion of the tests, if the terminating or jointing is not being commenced straight away, the cable ends should be resealed with heat shrinkable end caps or similar to prevent the ingress of moisture.

Nexans New Zealand Recommendations for Tests After Complete Installation of TR-XLPE Medium Voltage Cables

Advice Concerning Tests After Installation

If a test is carried out after installation, please note that the test is to detect defects caused during installation. After installation, the test is applied to the cable and accessories.

High Voltage D.C. Test After Installation

The D.C. testing of the primary insulation is **NOT** recommended. There are two important reasons for **NOT** using a High Voltage DC Test.

1. The DC field in the cable and accessories applies different electric stresses (both in magnitude and in physical location) to an AC field, so much so, that it is considered to be a poor process to find faults.
2. The application of High Voltage DC leads to premature failure of aged and “wet” primary insulation. This has been proven in the Laboratory and has been proven repeatedly in the field.

Safety Requirements

As the voltages used in these tests are potentially lethal, appropriate safety measures must be employed to ensure that the safety of all people involved in the testing process is not compromised.

Cable ends to be isolated shall be disconnected from the supply and protected from contact to supply, or ground, or accidental contact. Safety measures shall include, and shall not necessarily be limited to, earthing of cable under test prior to and after test voltages are applied, erection of safety barriers with warning signs, and an open communication channel between testing personnel.

The testing guidelines outlined in this document are Nexans recommendations only, and Nexans cannot be held responsible for ensuring the safe implementation of these recommendations.

Sheath Integrity Test

A sheath integrity test (e.g., 1000 V minimum insulation resistance tester) applied between the outer-most metallic layer and earth can identify after-installation damage to the non-metallic outer sheath.

The measured value should be read after application of the voltage for 1 minute. Ideally the measured value should be corrected for temperature to a standard value at 20°C if correction factors are available. A rough guide is that the insulation resistance decreases to one half of the value for a 10°C rise in temperature. The cable temperature should be recorded along with the measured values.

Measured values of Insulation Resistance for the sheath should be greater than calculated values. Calculated values for new cable range from 1.5 MΩ/km to 4.0 MΩ/km @ 20°C for PVC sheaths and from 120 MΩ/km to 300 MΩ/km @ 20°C for PE sheaths. Values are highest for small cables and thick sheaths and lowest for large cables and thin sheaths (factory tests show that measured values are up to an order of magnitude greater than the calculated values).

Earth the screens after an Insulation Resistance Test on a sheath for at least 5 minutes before handling or performing other tests.

INSTALLATION TESTS (CONT.)

Insulation Resistance Test of Primary Insulation

DC voltages up to 5 kV, used when performing Insulation Resistance Tests on Primary Insulation, are not considered to be a "High voltage DC test".

An Insulation Resistance Test of the Primary Insulation should be carried out with an insulation resistance tester, with a minimum DC voltage of 2.5 kV for 1.9/3.3 kV cables or 5 kV for cables above 1.9/3.3 kV and up to 19/33 kV. The insulation test should be carried out in the "Guarded Mode" and the instrument should have a minimum full-scale range of 500 G Ω . Guarding should be applied at both ends and a spare core used for the connection lead to the guard at the far end. Any conductor or cable core used as a guard lead must have a resistance to ground of greater than 10 k Ω . The measured value should be read after application of the voltage for 1 minute. Ideally the measured value should be corrected for temperature to a standard value at 20°C if correction factors are available. A rough guide is that the insulation resistance decreases to one half of the value for a 10°C rise in temperature. The cable temperature should be recorded along with the measured values.

Measured values of insulation resistance for the primary insulation should be greater than calculated values. Calculated values for new cable range from 2,400 M Ω /km to 18,000 M Ω /km at 20°C. Values are highest for small conductors and higher voltages and lowest for large conductors and lower voltages (factory tests show that measured values are up to an order of magnitude greater than the calculated values).

This test should be performed prior to any high voltage tests. Short the conductors to the screens after an Insulation Resistance Test on Primary Insulation for at least 10 minutes before handling or performing other tests.

If the instrument used for the above insulation resistance testing is a "Megger," Type BM 25, or equivalent, then the two following tests should be considered.

1. A 10-minute Polarisation Index Test - this test is commonly used as a replacement for the standard insulation resistance test.
2. A 5 Minute Step Voltage Test - the test should use five equal steps up to the maximum test voltage of 2.5 kV for 1.9/3.3 kV cables or 5 kV for cables greater than 1.9/3.3 kV up to 19/33 kV. This test is becoming increasingly used on cables of 6.35/11 kV and greater.

Both the above tests can be carried out automatically with the Megger, BM 25 unit and guarding should be applied at both ends as above.

INSTALLATION TESTS (CONT.)

High Voltage A.C. Test After Installation

An A.C. voltage test at power frequency should be applied for 24 hours with the normal operating voltage of the system to the primary insulation.

Some customers have objected to a 24-hour test at only the operating voltage of the cable and would prefer a test using a higher voltage for a shorter time. This can be achieved by a Very Low Frequency (VLF) HV AC Test, and the equipment now exists for hire in New Zealand to perform this. The VLF HV AC Test is becoming recognised throughout the world as a replacement test for the old HV DC Test or the 24-hour AC test at normal operating voltage, although not many standards have details in them at this point in time. VLF Tests are carried out at a frequency in the band of 0.1 to 0.02 Hz. The VLF Test Set must be of adequate power to test the measured cable capacitance at the frequency chosen. The suggested maximum VLF test voltage for new cable is between 2.7 and 3.0 times the cable operating voltage (U_0), for a minimum of 15 minutes. Where possible, a 30-minute testing time is now recommended as international research has shown this to give a higher confidence. Refer to the test procedure of IEEE-400-2.

For existing or aged cables being recommissioned after repair or alterations, the VLF Test Voltage should be a maximum of 2.3 times the cable operating voltage (U_0), for 15 minutes.

Documentation

The values obtained in the above tests should be recorded in a cable log so that they are available for comparison purposes in the future.

CURRENT RATINGS

The continuous current ratings given in this publication have been calculated in accordance with the International Electrotechnical Commission Publication No. IEC 60287 - "Calculation of the Continuous Current Rating of Cables (100% Load factor)", based on the following environmental conditions: Ambient Air Temperature, 30°C; Ambient Soil Temperature, 15°C; Soil Thermal Resistivity, 1.2 Km/W; Depth of burial, 1.0 m; and Screens bonded both ends.

In all cases, the ratings given are the single circuit ratings corresponding to continuous loading at the maximum conductor temperature of 90°C. Where the conditions vary from those on which the ratings are based, rating factors from Tables 4.1 to 4.4 (Section 4 Medium Voltage TR-XLPE Cables) need to be applied.

Methods of Installation

The methods of installation for which the ratings are applicable are shown graphically in Figure 2.1 (Section 2 General Technical Information).

Groups of Circuits

For groups of circuits unenclosed in air, the spacings and arrangements which need to be maintained to prevent derating are given in Figure 2.2 (Section 2 General Technical Information).

Where a number of circuits are installed in close proximity in such a way that they are not thermally independent, the appropriate rating factors from Tables 4.5, 4.6, (Section 4 Medium Voltage TR-XLPE Cables) and 2.1, 2.2 (Section 2 General Technical Information) need to be applied.

Cables in Parallel

For cables operated in parallel, each parallel leg is regarded as a separate circuit for current rating purposes and the appropriate rating factors for grouping are applicable. Refer also to Figure 2.3 (Section 2 General Technical Information) for the arrangements of single core cables so as to ensure equal current sharing between parallel legs of the same phase.

Bonding of Screens

The current ratings given for single core cables assume that the copper wire screens are solidly bonded to earth at both ends. Solid bonding can result in a reduction in current ratings on larger cables due to the heating effect of circulating currents induced in the screen. This loss can be minimised, either in short runs of cable, by earthing at one end only (single point bonding) which results in a standing voltage proportional to the conductor current and the length of run being induced on the screen and in long runs of cable, by dividing the route into tri-sections and transposing or "cross bonding" the screens at every joint position in a tri-section so that the e.m.f.'s induced by the three phases cancel one another.

When these methods of bonding are employed, higher current ratings may be used, however attention must be paid to the safety aspects with respect to the induced standing voltages. This places a limitation on the length of circuit for which single point bonding can be used.

Generally, it is only considered practical to use special cross-bonding arrangements on transmission class cables (66 kV and above) as the benefits of the higher current ratings are outweighed by the costs of the extra equipment required.

Emergency Ratings

TR-XLPE insulated cables can operate under emergency conditions with a conductor temperature of 130°C for periods of up to 36 hours, not more than three times per year. In practice, however, due to the difficulty in ensuring compatibility with terminations and the high-volume expansion of TR-XLPE above 100°C, a limit of 105°C for emergency rating is specified in AS/NZS 1429.1. The 105°C emergency limit represents the following approximate percentage increase over the normal continuous ratings:

Cables in air: +12%

Cables in ground (laid direct or in ducts): +9%.

MEDIUM VOLTAGE RATING FACTORS

Table 4.1 Air Temperature Variation

	Air Temperature (°C)									
	15	20	25	30	35	40	45	50	55	60
Rating Factor	1.12	1.08	1.04	1.00	0.96	0.91	0.87	0.82	0.76	0.71

Table 4.2 Soil Temperature Variation

	Soil Temperature (°C)									
	0	5	10	15	20	25	30	35	40	45
Rating Factor	1.10	1.06	1.03	1.00	0.97	0.93	0.89	0.86	0.82	0.77

Table 4.3 Depth of Burial Variation


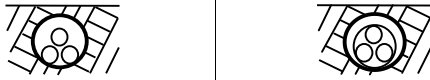
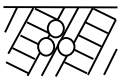
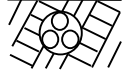
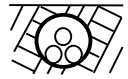

Depth of Burial (m)				
	Up to 300 mm ²	Over 300 mm ²		
0.8	1.02	1.03	1.01	1.01
1.0	1.00	1.0	1.00	1.00
1.25	0.98	0.98	0.98	0.98
1.5	0.97	0.96	0.96	0.97
1.75	0.96	0.94	0.95	0.97
2.0	0.94	0.92	0.94	0.96
2.5	0.93	0.91	0.92	0.95
3.0 (or more)	0.92	0.89	0.90	0.94

Table 4.4 Soil Thermal Resistivity Variation

Soil Thermal Resistivity (K.m/W)				
0.8	1.16	1.12	1.09	1.07
0.9	1.11	1.09	1.06	1.05
1.0	1.07	1.06	1.04	1.03
1.2	1.00	1.00	1.00	1.00
1.5	0.90	0.92	0.93	0.95
2.0	0.79	0.82	0.85	0.87
2.5	0.71	0.75	0.78	0.82
3.0	0.65	0.69	0.73	0.77

MEDIUM VOLTAGE RATING FACTORS (CONT.)

Table 4.5 Groups of Circuits Laid Direct

No. of Circuits	Single Core Cables						Multicore Cables				
	Touching		Spacing (m)				Touching	Spacing (m)			
Trefoil	Flat	0.15	0.30	0.45	0.60	0.15		0.30	0.45	0.60	
2	0.78	0.80	0.82	0.86	0.89	0.91	0.80	0.85	0.89	0.91	0.93
3	0.66	0.68	0.71	0.77	0.80	0.83	0.68	0.76	0.81	0.84	0.87
4	0.59	0.62	0.65	0.72	0.77	0.80	0.62	0.71	0.77	0.81	0.84
5	0.55	0.58	0.61	0.68	0.74	0.78	0.57	0.66	0.73	0.78	0.82
6	0.52	0.55	0.58	0.66	0.72	0.76	0.54	0.64	0.71	0.77	0.81
7	0.49	0.52	0.56	0.64	0.70	0.75	0.51	0.61	0.69	0.75	0.79
8	0.47	0.50	0.54	0.63	0.69	0.74	0.49	0.59	0.68	0.74	0.79
9	0.45	0.48	0.52	0.61	0.68	0.74	0.47	0.58	0.67	0.73	0.78
10	0.44	0.47	0.51	0.61	0.68	0.73	0.45	0.57	0.66	0.73	0.78
11	0.43	0.46	0.50	0.60	0.67	0.73	0.44	0.55	0.65	0.72	0.77
12	0.41	0.45	0.49	0.59	0.67	0.72	0.43	0.54	0.64	0.72	0.77

Table 4.6 Groups of Circuits In Underground Ducts

No. of Circuits	Multicore Cables in Single-way Ducts or Single Core Cables in Multiway Ducts				Single Core Cables in Single-way Ducts		
	Touching	Spacing (m)			Touching	Spacing (m)	
0.30		0.45	0.60	0.45		0.60	
2	0.88	0.91	0.93	0.94	0.85	0.88	0.90
3	0.80	0.85	0.88	0.90	0.75	0.80	0.83
4	0.76	0.81	0.85	0.88	0.70	0.77	0.80
5	0.72	0.78	0.83	0.86	0.67	0.74	0.78
6	0.69	0.76	0.81	0.85	0.64	0.72	0.76
7	0.67	0.75	0.80	0.84	0.62	0.70	0.75
8	0.65	0.74	0.79	0.83	0.61	0.69	0.74
9	0.63	0.72	0.78	0.83	0.59	0.68	0.73
10	0.62	0.72	0.78	0.82	0.58	0.67	0.73
11	0.61	0.71	0.77	0.82	0.57	0.67	0.72
12	0.60	0.70	0.77	0.81	0.57	0.66	0.72

NOTES

SINGLE CORE CU 11 KV CABLES

3 kA for 1 s Wire Screens

Copper conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screen
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 231-13 A							
Conductor Size (mm ²)	Nominal Diameters		Wire Screen		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
16 *	12.5	14.1	16	28 x 0.85	1.0 / 1.0	20.3	0.58
25	13.7	15.3	20	36 x 0.85	1.0 / 1.0	21.5	0.73
35	14.7	16.3	20	36 x 0.85	1.0 / 1.0	22.5	0.84
50	16.0	17.6	20	36 x 0.85	1.0 / 1.0	23.8	0.98
70	17.4	19.0	20	36 x 0.85	1.0 / 1.0	25.2	1.21
95	19.1	20.7	20	36 x 0.85	1.0 / 1.0	26.9	1.48
120	20.5	22.1	20	36 x 0.85	1.0 / 1.0	28.3	1.74
150	21.9	23.5	20	36 x 0.85	1.0 / 1.0	29.7	2.02
185	23.7	25.3	20	36 x 0.85	1.0 / 1.0	31.5	2.40
240	25.9	27.5	20	36 x 0.85	1.0 / 1.0	33.7	2.98
300	28.2	29.8	20	36 x 0.85	1.0 / 1.1	36.2	3.60
400	31.5	33.1	20	36 x 0.85	1.1 / 1.1	39.7	4.48
500	34.9	36.5	20	36 x 0.85	1.1 / 1.2	43.3	5.50
630	38.5	40.1	20	36 x 0.85	1.2 / 1.2	47.1	6.90

Issue: June 2019
6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 3 kA for 1 s

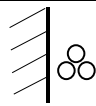
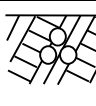
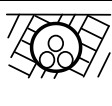
Note: Subject to confirmation, similar cables can be manufactured to other specifications.

SINGLE CORE CU 11 KV CABLES

3 kA for 1 s Wire Screens

Copper conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screen
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 231-13 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Multi Way) (mm)	Current Ratings (A)		
							
16 *	1.47	0.154	0.18	65	125	120	101
25	0.927	0.144	0.21	65	163	154	129
35	0.668	0.137	0.23	65	197	183	153
50	0.494	0.130	0.26	65	237	216	181
70	0.342	0.121	0.29	80 (NZ)	294	263	221
95	0.247	0.115	0.33	80 (NZ)	359	313	264
120	0.196	0.111	0.36	100 (NZ)	413	355	305
150	0.159	0.107	0.39	100 (NZ)	470	397	341
185	0.128	0.103	0.43	100 (NZ)	539	447	384
240	0.0981	0.099	0.47	100 (NZ)	636	516	443
300	0.0791	0.096	0.52	150	730	579	509
400	0.0632	0.093	0.59	150	847	655	575
500	0.0510	0.090	0.66	150	978	737	647
630	0.0416	0.087	0.74	150	1122	823	722

Issue: June 2019
6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 3 kA for 1 s

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C
 Soil Temperature 15 °C
 Soil Thermal Resistivity 1.2 K.m/W
 Depth of Burial 1.0 m
 Screens bonded both ends

SINGLE CORE CU 11 KV CABLES

10 kA for 1 s Wire Screens

Copper conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screen

PVC/HDPE sheath

Product Sheet No. 231-14 A

Conductor Size (mm ²)	Nominal Diameters		Wire Screen		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
25 *	13.7	15.3	24	29 x 1.03	1.0 / 1.0	21.9	0.77
35 *	14.7	16.3	34	24 x 1.35	1.0 / 1.0	23.5	0.98
50 *	16.0	17.6	49	22 x 1.69	1.0 / 1.0	25.5	1.26
70	17.4	19.0	70	31 x 1.69	1.0 / 1.0	26.9	1.68
95	19.1	20.7	70	31 x 1.69	1.0 / 1.0	28.6	1.95
120	20.5	22.1	69	48 x 1.35	1.0 / 1.0	29.3	2.20
150	21.9	23.5	69	48 x 1.35	1.0 / 1.0	30.7	2.48
185	23.7	25.3	69	48 x 1.35	1.0 / 1.0	32.5	2.86
240	25.9	27.5	69	48 x 1.35	1.0 / 1.0	34.7	3.44
300	28.2	29.8	69	48 x 1.35	1.0 / 1.1	37.2	4.06
400	31.5	33.1	69	48 x 1.35	1.1 / 1.1	40.7	4.94
500	34.9	36.5	69	48 x 1.35	1.1 / 1.2	44.3	5.95
630	38.5	40.1	69	48 x 1.35	1.2 / 1.2	48.1	7.35

Issue: June 2019

6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

Note: Subject to confirmation, similar cables can be manufactured to other specifications.

SINGLE CORE CU 11 KV CABLES

10 kA for 1 s Wire Screens

Copper conductor

SCXLPE conductor screen

TR-XLPE insulation




SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screen

PVC/HDPE sheath

Product Sheet No. 231-14 B

Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Multi Way) (mm)	Current Ratings (A)		
							
25 *	0.927	0.145	0.21	65	164	154	129
35 *	0.668	0.140	0.23	65	200	184	154
50 *	0.494	0.134	0.26	80 (NZ)	242	217	183
70	0.342	0.125	0.29	80 (NZ)	298	262	221
95	0.247	0.119	0.33	100 (NZ)	362	311	267
120	0.196	0.113	0.36	100 (NZ)	413	351	301
150	0.159	0.109	0.39	100 (NZ)	467	391	336
185	0.128	0.105	0.43	100 (NZ)	535	439	377
240	0.0980	0.101	0.47	100 (NZ)	627	503	432
300	0.0791	0.098	0.52	150	715	561	493
400	0.0631	0.094	0.59	150	823	630	553
500	0.0509	0.091	0.66	150	943	702	616
630	0.0415	0.088	0.74	150	1072	777	681

Issue: June 2019

6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C

Soil Temperature 15 °C

Soil Thermal Resistivity 1.2 K.m/W

Depth of Burial 1.0 m

Screens bonded both ends

SINGLE CORE AL 11 KV CABLES

3 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screen

PVC/HDPE sheath

Product Sheet No. 231-23 A

Conductor Size (mm ²)	Nominal Diameters		Wire Screen		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
25 *	13.7	15.3	16	28 x 0.85	1.0 / 1.0	21.5	0.53
35 ^	14.6	16.2	20	36 x 0.85	1.0 / 1.0	22.4	0.62
50	15.9	17.5	20	36 x 0.85	1.0 / 1.0	23.7	0.68
70	17.4	19.0	20	36 x 0.85	1.0 / 1.0	25.2	0.78
95 ^	19.1	20.7	20	36 x 0.85	1.0 / 1.0	26.9	0.89
120	20.5	22.1	20	36 x 0.85	1.0 / 1.0	28.3	0.99
150	21.9	23.5	20	36 x 0.85	1.0 / 1.0	29.7	1.09
185 ^	23.6	25.2	20	36 x 0.85	1.0 / 1.0	31.4	1.24
240 ^	25.8	27.4	20	36 x 0.85	1.0 / 1.0	33.6	1.45
300 ^	28.0	29.6	20	36 x 0.85	1.0 / 1.1	36.0	1.68
400	31.1	32.7	20	36 x 0.85	1.1 / 1.1	39.3	2.02
500	34.2	35.8	20	36 x 0.85	1.1 / 1.2	42.6	2.39
630	37.8	39.4	20	36 x 0.85	1.2 / 1.2	46.4	2.89
800	42.4	44.0	20	36 x 0.85	1.2 / 1.3	51.3	3.51
1000	46.3	47.9	20	36 x 0.85	1.2 / 1.3	55.4	4.22

Issue: June 2019

6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 3 kA for 1 s

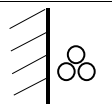
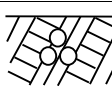
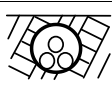
^ Also complies with AS/NZS 4026

Note: Subject to confirmation, similar cables can be manufactured to other specifications.

SINGLE CORE AL 11 KV CABLES

3 kA for 1 s Wire Screens

Aluminium conductor
 SCXLPE conductor screen }
 TR-XLPE insulation } Triple extruded, Dry-cure
 SCXLPE insulation screen }
 Copper wire screen
 PVC/HDPE sheath

Product Sheet No. 231-23 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (µF/km)	Nominal PVC Duct Size (Multi Way) (mm)	Current Ratings (A)		
							
25 *	1.54	0.144	0.21	65	127	119	100
35 ^	1.113	0.138	0.23	65	153	142	119
50	0.822	0.130	0.26	65	184	167	140
70	0.568	0.121	0.29	80 (NZ)	229	204	172
95 ^	0.411	0.115	0.33	80 (NZ)	279	243	205
120	0.325	0.111	0.36	100 (NZ)	322	276	237
150	0.265	0.107	0.39	100 (NZ)	365	309	265
185 ^	0.211	0.103	0.42	100 (NZ)	421	349	300
240 ^	0.161	0.099	0.47	100 (NZ)	497	404	347
300 ^	0.130	0.096	0.52	150	572	455	399
400	0.102	0.093	0.58	150	669	519	456
500	0.0803	0.090	0.65	150	779	590	518
630	0.0638	0.088	0.72	150	907	669	587
800	0.0518	0.085	0.82	200	1050	752	687
1000	0.0432	0.083	0.90	200	1187	830	758

Issue: June 2019
6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 3 kA for 1 s

^ Also complies with AS/NZS 4026

Note: The values in this table are for installation conditions of:

- Ambient Air Temperature 30 °C
- Soil Temperature 15 °C
- Soil Thermal Resistivity 1.2 K.m/W
- Depth of Burial 1.0 m
- Screens bonded both ends

SINGLE CORE AL 11 KV CABLES

10 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screen

PVC/HDPE sheath

Product Sheet No. 231-24 A

Conductor Size (mm ²)	Nominal Diameters		Wire Screen		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
35 *	14.6	16.2	23	40 x 0.85	1.0 / 1.0	22.4	0.64
50 *	15.9	17.5	33	39 x 1.03	1.0 / 1.0	24.1	0.80
70 *	17.4	19.0	45	54 x 1.03	1.0 / 1.0	25.6	1.00
95 *	19.1	20.7	62	43 x 1.35	1.0 / 1.0	27.9	1.28
120	20.5	22.1	69	48 x 1.35	1.0 / 1.0	29.3	1.45
150	21.9	23.5	69	48 x 1.35	1.0 / 1.0	30.7	1.55
185 ^	23.6	25.2	69	48 x 1.35	1.0 / 1.0	32.4	1.69
240 ^	25.8	27.4	69	48 x 1.35	1.0 / 1.0	34.6	1.90
300 ^	28.0	29.6	69	48 x 1.35	1.0 / 1.1	37.0	2.14
400	31.1	32.7	69	48 x 1.35	1.1 / 1.1	40.3	2.48
500	34.2	35.8	69	48 x 1.35	1.1 / 1.2	43.6	2.85
630	37.8	39.4	69	48 x 1.35	1.2 / 1.2	47.4	3.35
800	42.4	44.0	69	48 x 1.35	1.2 / 1.3	52.3	3.97
1000	46.3	47.9	69	48 x 1.35	1.3 / 1.4	56.6	4.70

Issue: June 2019

6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

^ Also complies with AS/NZS 4026

Note: Subject to confirmation, similar cables can be manufactured to other specifications.

SINGLE CORE AL 11 KV CABLES

10 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

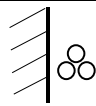
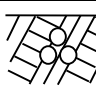
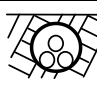
TR-XLPE insulation

SCXLPE insulation screen

Triple extruded, Dry-cure

Copper wire screen

PVC/HDPE sheath

Product Sheet No. 231-24 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Multi Way) (mm)	Current Ratings (A)		
							
35 *	1.113	0.138	0.23	65	153	142	119
50 *	0.822	0.131	0.26	80 (NZ)	185	168	141
70 *	0.568	0.122	0.29	80 (NZ)	229	204	172
95 *	0.411	0.117	0.33	80 (NZ)	281	243	205
120	0.325	0.113	0.36	100 (NZ)	323	275	236
150	0.265	0.109	0.39	100 (NZ)	366	307	263
185 ^	0.211	0.105	0.42	100 (NZ)	420	346	297
240 ^	0.161	0.101	0.47	100 (NZ)	495	398	342
300 ^	0.130	0.098	0.52	150	566	446	392
400	0.102	0.095	0.58	150	659	507	445
500	0.0802	0.092	0.65	150	763	572	502
630	0.0637	0.089	0.72	150	881	644	565
800	0.0517	0.086	0.82	200	1013	718	656
1000	0.0430	0.084	0.90	200	1136	786	718

Issue: June 2019
6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

^ Also complies with AS/NZS 4026

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C

Soil Temperature 15 °C

Soil Thermal Resistivity 1.2 K.m/W

Depth of Burial 1.0 m

Screens bonded both ends

THREE CORE CU 11 KV CABLES

3 kA for 1 s Wire Screens

Copper conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screens
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 233-13 A							
Conductor Size (mm ²)	Nominal Diameters		Wire Screen (Per Core)		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
16 *	12.5	14.1	5.7	10 x 0.85	1.1 / 1.1	39.0	1.46
25	13.7	15.3	6.8	12 x 0.85	1.1 / 1.2	41.8	1.86
35	14.7	16.3	6.8	12 x 0.85	1.1 / 1.2	43.9	2.20
50	16.0	17.6	6.8	12 x 0.85	1.2 / 1.2	46.9	2.67
70	17.4	19.0	7.4	13 x 0.85	1.3 / 1.3	50.4	3.42
95	19.1	20.7	7.9	14 x 0.85	1.3 / 1.4	54.2	4.32
120	20.5	22.1	8.5	15 x 0.85	1.4 / 1.4	57.8	5.20
150	21.9	23.5	8.5	15 x 0.85	1.4 / 1.5	61.0	6.10
185	23.7	25.3	9.6	17 x 0.85	1.5 / 1.5	65.1	7.35
240	25.9	27.5	10.2	18 x 0.85	1.6 / 1.6	70.2	9.20
300	28.2	29.8	11.3	20 x 0.85	1.6 / 1.7	75.4	11.20
400	31.5	33.1	11.9	21 x 0.85	1.8 / 1.8	83.2	14.00

Issue: June 2019
6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 3 kA for 1 s

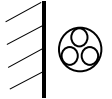
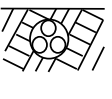
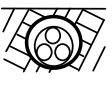
Note: Subject to confirmation, similar cables can be manufactured to other specifications.

THREE CORE CU 11 KV CABLES

3 kA for 1 s Wire Screens

Copper conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screens
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 233-13 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Single Way) (mm)	Current Ratings (A)		
							
16 *	1.47	0.141	0.18	65	111	112	93
25	0.927	0.132	0.21	65	145	143	119
35	0.668	0.126	0.23	65	175	171	143
50	0.494	0.119	0.26	65	210	202	168
70	0.342	0.111	0.29	80 (NZ)	259	246	206
95	0.247	0.105	0.33	80 (NZ)	315	294	246
120	0.196	0.102	0.36	100 (NZ)	360	333	284
150	0.159	0.099	0.39	100 (NZ)	408	373	318
185	0.128	0.095	0.43	100 (NZ)	466	421	358
240	0.0984	0.091	0.47	100 (NZ)	545	486	414
300	0.0796	0.089	0.52	150	622	547	474
400	0.0638	0.086	0.59	150	713	618	536

Issue: June 2019
6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 3 kA for 1 s

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C
 Soil Temperature 15 °C
 Soil Thermal Resistivity 1.2 K.m/W
 Depth of Burial 1.0 m

THREE CORE CU 11 KV CABLES

10 kA for 1 s Wire Screens

Copper conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 233-14 A							
Conductor Size (mm ²)	Nominal Diameters		Wire Screens (per core)		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
35 *	14.7	16.3	11.3	20 x 0.85	1.2 / 1.2	44.1	2.35
50 *	16.0	17.6	16.5	29 x 0.85	1.2 / 1.3	47.1	2.95
70	17.4	19.0	22.7	40 x 0.85	1.3 / 1.3	50.4	3.85
95	19.1	20.7	22.7	40 x 0.85	1.3 / 1.4	54.2	4.74
120	20.5	22.1	22.7	40 x 0.85	1.4 / 1.4	57.8	5.60
150	21.9	23.5	22.7	40 x 0.85	1.4 / 1.5	61.0	6.50
185	23.7	25.3	22.7	40 x 0.85	1.5 / 1.5	65.1	7.70
240	25.9	27.5	22.7	40 x 0.85	1.6 / 1.6	70.2	9.55
300	28.2	29.8	22.7	40 x 0.85	1.6 / 1.7	75.4	11.50
400	31.5	33.1	22.7	40 x 0.85	1.8 / 1.8	83.2	14.35

Issue: June 2019
6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

Note: Subject to confirmation, similar cables can be manufactured to other specifications.

THREE CORE CU 11 KV CABLES

10 kA for 1 s Wire Screens

Copper conductor

SCXLPE conductor screen

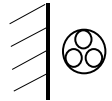
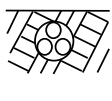
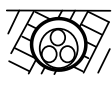
TR-XLPE insulation

SCXLPE insulation screen

Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 233-14 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Single Way) (mm)	Current Ratings (A)		
							
35 *	0.668	0.126	0.23	65	175	171	143
50 *	0.494	0.119	0.26	80 (NZ)	210	202	169
70	0.342	0.111	0.29	80 (NZ)	259	246	206
95	0.247	0.105	0.33	80 (NZ)	315	294	246
120	0.196	0.102	0.36	100 (NZ)	360	333	284
150	0.159	0.099	0.39	100 (NZ)	408	373	318
185	0.128	0.095	0.43	100 (NZ)	466	421	358
240	0.0984	0.091	0.47	100 (NZ)	545	486	414
300	0.0796	0.089	0.52	150	622	547	474
400	0.0638	0.086	0.59	150	713	618	536

Issue: June 2019
6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C

Soil Temperature 15 °C

Soil Thermal Resistivity 1.2 K.m/W

Depth of Burial 1.0 m

THREE CORE AL 11 KV CABLES

3 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 233-23 A

Conductor Size (mm ²)	Nominal Diameters		Wire Screens (per core)		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
25 *	13.7	15.3	5.7	10 x 0.85	1.1 / 1.1	41.6	1.33
35 ^	14.6	16.2	6.8	12 x 0.85	1.1 / 1.2	43.7	1.52
50	15.9	17.5	6.8	12 x 0.85	1.2 / 1.2	46.7	1.75
70	17.4	19.0	7.4	13 x 0.85	1.3 / 1.3	50.4	2.11
95 ^	19.1	20.7	7.9	14 x 0.85	1.3 / 1.4	54.2	2.51
120	20.5	22.1	8.5	15 x 0.85	1.4 / 1.4	57.5	2.89
150	21.9	23.5	8.5	15 x 0.85	1.4 / 1.5	60.7	3.26
185 ^	23.6	25.2	9.6	17 x 0.85	1.5 / 1.5	64.6	3.79
240 ^	25.8	27.4	10.2	18 x 0.85	1.6 / 1.6	69.7	4.56
300 ^	28.0	29.6	10.8	19 x 0.85	1.6 / 1.7	74.7	5.35
400	31.1	32.7	11.9	21 x 0.85	1.8 / 1.8	82.3	6.55
500							

Issue: June 2019

6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 3 kA for 1 s

^ Also complies with AS/NZS 4026

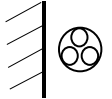
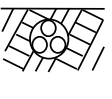
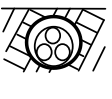
Note: Subject to confirmation, similar cables can be manufactured to other specifications.

THREE CORE AL 11 KV CABLES

3 kA for 1 s Wire Screens

Aluminium conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screens
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 233-23 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Single Way) (mm)	Current Ratings (A)		
							
25 *	1.54	0.132	0.21	65	112	111	93
35 ^	1.11	0.126	0.23	65	135	133	110
50	0.822	0.120	0.26	65	162	157	130
70	0.568	0.111	0.29	80 (NZ)	201	191	160
95 ^	0.411	0.105	0.33	80 (NZ)	244	228	191
120	0.325	0.102	0.36	100 (NZ)	280	259	220
150	0.265	0.099	0.39	100 (NZ)	317	290	246
185 ^	0.211	0.095	0.42	100 (NZ)	363	328	279
240 ^	0.162	0.092	0.47	100 (NZ)	425	379	323
300 ^	0.130	0.089	0.52	150	486	428	371
400	0.102	0.087	0.58	150	562	487	423
500							

Issue: June 2019
6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 3 kA for 1 s

^ Also complies with AS/NZS 4026

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C
 Soil Temperature 15 °C
 Soil Thermal Resistivity 1.2 K.m/W
 Depth of Burial 1.0 m

THREE CORE AL 11 KV CABLES

10 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 233-24 A							
Conductor Size (mm ²)	Nominal Diameters		Wire Screens (per core)		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
25 *	13.7	15.3	5.7	10 x 0.85	1.1 / 1.1	41.6	1.33
35 *	14.6	16.2	7.9	14 x 0.85	1.1 / 1.2	43.7	1.55
50 *	15.9	17.5	10.8	19 x 0.85	1.2 / 1.3	46.9	1.88
70 *	17.4	19.0	15.3	27 x 0.85	1.3 / 1.3	50.4	2.34
95 *	19.1	20.7	20.4	36 x 0.85	1.3 / 1.4	54.2	2.86
120	20.5	22.1	22.7	40 x 0.85	1.4 / 1.4	57.5	3.29
150	21.9	23.5	22.7	40 x 0.85	1.4 / 1.5	60.7	3.66
185 ^	23.6	25.2	22.7	40 x 0.85	1.5 / 1.5	64.6	4.16
240 ^	25.8	27.4	22.7	40 x 0.85	1.6 / 1.6	69.7	4.91
300 ^	28.0	29.6	22.7	40 x 0.85	1.6 / 1.7	75.0	5.65
400	31.1	32.7	22.7	40 x 0.85	1.8 / 1.8	82.3	6.85
500							

Issue: June 2019
6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

^ Also complies with AS/NZS 4026

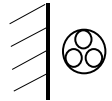
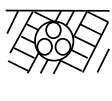
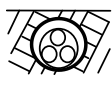
Note: Subject to confirmation, similar cables can be manufactured to other specifications.

THREE CORE AL 11 KV CABLES

10 kA for 1 s Wire Screens

Aluminium conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screens
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 233-24 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Single Way) (mm)	Current Ratings (A)		
							
25 *	1.54	0.132	0.21	65	112	111	93
35 *	1.11	0.126	0.23	65	135	133	110
50 *	0.822	0.120	0.26	65	162	157	130
70 *	0.568	0.111	0.29	80 (NZ)	201	191	160
95 *	0.411	0.105	0.33	80 (NZ)	244	228	191
120	0.325	0.102	0.36	100 (NZ)	280	259	220
150	0.265	0.099	0.39	100 (NZ)	317	290	246
185 ^	0.211	0.095	0.42	100 (NZ)	363	328	279
240 ^	0.162	0.092	0.47	100 (NZ)	425	379	323
300 ^	0.130	0.089	0.52	150	486	427	370
400	0.102	0.087	0.58	150	562	487	423
500							

Issue: June 2019
6.35/11 (12) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

^ Also complies with AS/NZS 4026

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C
 Soil Temperature 15 °C
 Soil Thermal Resistivity 1.2 K.m/W
 Depth of Burial 1.0 m

SINGLE CORE CU 22 KV CABLES

3 kA for 1 s Wire Screens

Copper conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screen
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 241-13 A							
Conductor Size (mm ²)	Nominal Diameters		Wire Screen		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
35	18.5	20.1	20	36 x 0.85	1.0 / 1.0	26.3	0.98
50	19.8	21.4	20	36 x 0.85	1.0 / 1.0	27.6	1.12
70	21.2	22.8	20	36 x 0.85	1.0 / 1.0	29.0	1.35
95	22.9	24.5	20	36 x 0.85	1.0 / 1.0	30.7	1.64
120	24.3	25.9	20	36 x 0.85	1.0 / 1.0	32.1	1.91
150	25.7	27.3	20	36 x 0.85	1.0 / 1.0	33.5	2.20
185	27.5	29.1	20	36 x 0.85	1.0 / 1.1	35.5	2.60
240	29.7	31.3	20	36 x 0.85	1.0 / 1.1	37.7	3.18
300	32.0	33.6	20	36 x 0.85	1.1 / 1.1	40.2	3.83
400	35.3	36.9	20	36 x 0.85	1.1 / 1.2	43.7	4.73
500	38.7	40.3	20	36 x 0.85	1.2 / 1.2	47.3	5.75
630	42.3	43.9	20	36 x 0.85	1.2 / 1.3	51.2	7.20

Issue: June 2019
12.7/22 (24) kV. Made to AS/NZS 1429.1

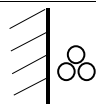
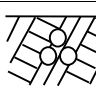
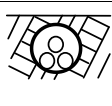
Note: Subject to confirmation, similar cables can be manufactured to other specifications.

SINGLE CORE CU 22 KV CABLES

3 kA for 1 s Wire Screens

Copper conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screen
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 241-13 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Multi Way) (mm)	Current Ratings (A)		
							
35	0.668	0.147	0.17	80 (NZ)	202	183	156
50	0.494	0.139	0.19	80 (NZ)	242	216	183
70	0.342	0.130	0.21	100 (NZ)	299	263	227
95	0.247	0.123	0.23	100 (NZ)	365	314	271
120	0.196	0.119	0.25	100 (NZ)	419	355	307
150	0.159	0.115	0.27	100 (NZ)	476	398	343
185	0.128	0.110	0.29	100 (NZ)	546	448	386
240	0.0978	0.106	0.32	150	644	517	455
300	0.0789	0.103	0.35	150	737	581	511
400	0.0629	0.099	0.40	150	854	657	578
500	0.0505	0.095	0.44	150	986	740	651
630	0.0411	0.092	0.49	200	1132	829	758

Issue: June 2019
12.7/22 (24) kV. Made to AS/NZS 1429.1

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C
 Soil Temperature 15 °C
 Soil Thermal Resistivity 1.2 K.m/W
 Depth of Burial 1.0 m
 Screens bonded both ends

SINGLE CORE CU 22 KV CABLES

10 kA for 1 s Wire Screens

Copper conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screen

PVC/HDPE sheath

Product Sheet No. 241-14 A

Conductor Size (mm ²)	Nominal Diameters		Wire Screen		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
35 *	18.5	20.1	34	41 x 1.03	1.0 / 1.0	26.7	1.10
50 *	19.8	21.4	49	34 x 1.35	1.0 / 1.0	28.6	1.39
70	21.2	22.8	69	48 x 1.35	1.0 / 1.0	30.0	1.81
95	22.9	24.5	69	48 x 1.35	1.0 / 1.0	31.7	2.10
120	24.3	25.9	69	48 x 1.35	1.0 / 1.0	33.1	2.37
150	25.7	27.3	69	48 x 1.35	1.0 / 1.0	34.5	2.65
185	27.5	29.1	69	48 x 1.35	1.0 / 1.1	36.5	3.06
240	29.7	31.3	69	48 x 1.35	1.1 / 1.1	38.9	3.66
300	32.0	33.6	69	48 x 1.35	1.1 / 1.1	41.2	4.29
400	35.3	36.9	69	48 x 1.35	1.2 / 1.2	44.9	5.20
500	38.7	40.3	69	48 x 1.35	1.2 / 1.2	48.3	6.25
630	42.3	43.9	69	48 x 1.35	1.3 / 1.3	52.4	7.70

Issue: June 2019

12.7/22 (24) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s




Note: Subject to confirmation, similar cables can be manufactured to other specifications.

SINGLE CORE CU 22 KV CABLES

10 kA for 1 s Wire Screens

Copper conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screen
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 241-14 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Multi Way) (mm)	Current Ratings (A)		
							
35 *	0.668	0.148	0.17	80 (NZ)	202	183	156
50 *	0.494	0.141	0.19	100 (NZ)	244	216	187
70	0.342	0.132	0.21	100 (NZ)	301	262	226
95	0.247	0.125	0.23	100 (NZ)	365	311	269
120	0.196	0.121	0.25	100 (NZ)	419	351	303
150	0.159	0.117	0.27	100 (NZ)	474	392	338
185	0.128	0.112	0.29	150	541	440	387
240	0.0978	0.108	0.32	150	634	504	444
300	0.0788	0.104	0.35	150	722	563	496
400	0.0628	0.101	0.40	150	831	632	556
500	0.0505	0.097	0.44	150	953	707	621
630	0.0409	0.094	0.49	200	1083	783	716

Issue: June 2019
12.7/22 (24) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C
 Soil Temperature 15 °C
 Soil Thermal Resistivity 1.2 K.m/W
 Depth of Burial 1.0 m
 Screens bonded both ends

SINGLE CORE AL 22 KV CABLES

3 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screen

PVC/HDPE sheath

Product Sheet No. 241-23 A

Conductor Size (mm ²)	Nominal Diameters		Wire Screen		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
35 ^	18.4	20.0	20	36 x 0.85	1.0 / 1.0	26.2	0.75
50	19.7	21.3	20	36 x 0.85	1.0 / 1.0	27.5	0.82
70	21.2	22.8	20	36 x 0.85	1.0 / 1.0	29.0	0.92
95 ^	22.9	24.5	20	36 x 0.85	1.0 / 1.0	30.7	1.04
120	24.3	25.9	20	36 x 0.85	1.0 / 1.0	32.1	1.15
150	25.7	27.3	20	36 x 0.85	1.0 / 1.0	33.5	1.27
185 ^	27.4	29.0	20	36 x 0.85	1.0 / 1.1	35.4	1.43
240 ^	29.6	31.2	20	36 x 0.85	1.0 / 1.1	37.6	1.65
300 ^	31.8	33.4	20	36 x 0.85	1.1 / 1.1	40.0	1.90
400	34.9	36.5	20	36 x 0.85	1.1 / 1.2	43.3	2.26
500	38.0	39.6	20	36 x 0.85	1.2 / 1.2	46.6	2.65
630	41.6	43.2	20	36 x 0.85	1.2 / 1.3	50.5	3.17
800	46.2	47.8	20	36 x 0.85	1.3 / 1.3	55.3	3.83
1000	50.1	51.7	20	36 x 0.85	1.4 / 1.4	59.6	4.58

Issue: June 2019

12.7/22 (24) kV. Made to AS/NZS 1429.1

^ Also complies with AS/NZS 4026

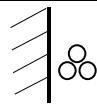
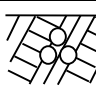
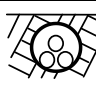
Note: Subject to confirmation, similar cables can be manufactured to other specifications.

SINGLE CORE AL 22 KV CABLES

3 kA for 1 s Wire Screens

Aluminium conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screen
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 241-23 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Multi Way) (mm)	Current Ratings (A)		
							
35 ^	1.113	0.148	0.17	80 (NZ)	156	142	120
50	0.822	0.140	0.19	80 (NZ)	187	167	142
70	0.568	0.130	0.21	100 (NZ)	233	204	176
95 ^	0.411	0.123	0.23	100 (NZ)	283	244	210
120	0.325	0.119	0.25	100 (NZ)	326	277	239
150	0.265	0.115	0.27	100 (NZ)	370	309	267
185 ^	0.211	0.110	0.29	100 (NZ)	426	350	301
240 ^	0.161	0.106	0.32	150	503	404	356
300 ^	0.130	0.103	0.35	150	577	455	401
400	0.102	0.099	0.39	150	673	520	458
500	0.0800	0.096	0.43	150	783	592	520
630	0.0634	0.093	0.48	200	912	672	615
800	0.0513	0.090	0.54	200	1054	756	691
1000	0.0427	0.088	0.60	200	1192	836	763

Issue: June 2019
12.7/22 (24) kV. Made to AS/NZS 1429.1

^ Also complies with AS/NZS 4026

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C
 Soil Temperature 15 °C
 Soil Thermal Resistivity 1.2 K.m/W
 Depth of Burial 1.0 m
 Screens bonded both ends

SINGLE CORE AL 22 KV CABLES

10 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screen

PVC/HDPE sheath

Product Sheet No. 241-24 A

Conductor Size (mm ²)	Nominal Diameters		Wire Screen		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
35 *	18.4	20.0	23	40 x 0.85	1.0 / 1.0	26.2	0.77
50 *	19.7	21.3	33	39 x 1.03	1.0 / 1.0	27.9	0.94
70 *	21.2	22.8	46	32 x 1.35	1.0 / 1.0	30.0	1.17
95 *	22.9	24.5	61	27 x 1.69	1.0 / 1.0	32.4	1.43
120	24.3	25.9	69	48 x 1.35	1.0 / 1.0	33.1	1.61
150	25.7	27.3	69	48 x 1.35	1.0 / 1.0	34.5	1.72
185 ^	27.4	29.0	69	48 x 1.35	1.0 / 1.1	36.4	1.89
240 ^	29.6	31.2	69	48 x 1.35	1.1 / 1.1	38.8	2.13
300	31.8	33.4	69	48 x 1.35	1.1 / 1.1	41.0	2.36
400	34.9	36.5	69	48 x 1.35	1.2 / 1.2	44.5	2.74
500	38.0	39.6	69	48 x 1.35	1.2 / 1.2	47.6	3.11
630	41.6	43.2	69	48 x 1.35	1.3 / 1.3	51.7	3.66
800	46.2	47.8	69	48 x 1.35	1.3 / 1.4	56.5	4.31
1000	50.1	51.7	69	48 x 1.35	1.4 / 1.4	60.6	5.05

Issue: June 2019

12.7/22 (24) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

^ Also complies with AS/NZS 4026

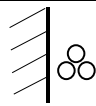

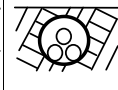
Note: Subject to confirmation, similar cables can be manufactured to other specifications.

SINGLE CORE AL 22 KV CABLES

10 kA for 1 s Wire Screens

Aluminium conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screen
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 241-24 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Multi Way) (mm)	Current Ratings (A)		
							
35 *	1.113	0.148	0.17	80 (NZ)	156	142	120
50 *	0.822	0.141	0.19	80 (NZ)	188	168	142
70 *	0.568	0.132	0.21	100 (NZ)	235	204	177
95 *	0.411	0.127	0.23	100 (NZ)	286	243	210
120	0.325	0.121	0.25	100 (NZ)	327	275	237
150	0.265	0.117	0.27	100 (NZ)	370	307	265
185 ^	0.211	0.112	0.29	150	425	346	305
240 ^	0.161	0.108	0.32	150	500	399	351
300	0.130	0.104	0.35	150	571	447	394
400	0.102	0.101	0.39	150	663	508	447
500	0.0800	0.097	0.43	150	768	574	505
630	0.0633	0.095	0.48	200	886	647	592
800	0.0512	0.091	0.54	200	1019	722	660
1000	0.0425	0.089	0.60	200	1143	792	723

Issue: June 2019
12.7/22 (24) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

^ Also complies with AS/NZS 4026

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C
 Soil Temperature 15 °C
 Soil Thermal Resistivity 1.2 K.m/W
 Depth of Burial 1.0 m
 Screens bonded both ends

THREE CORE CU 22 KV CABLES

3 kA for 1 s Wire Screens

Copper conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screens
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 243-13 A							
Conductor Size (mm ²)	Nominal Diameters		Wire Screens (per core)		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
35	18.5	20.1	7.4	13 x 0.85	1.3 / 1.4	52.9	2.76
50	19.8	21.4	7.9	14 x 0.85	1.4 / 1.4	56.0	3.28
70	21.2	22.8	8.5	15 x 0.85	1.4 / 1.5	59.2	4.04
95	22.9	24.5	9.1	16 x 0.85	1.5 / 1.5	63.1	4.99
120	24.3	25.9	9.6	17 x 0.85	1.5 / 1.6	66.6	5.90
150	25.7	27.3	10.2	18 x 0.85	1.6 / 1.6	69.8	6.85
185	27.5	29.1	10.8	19 x 0.85	1.6 / 1.7	73.9	8.10
240	29.7	31.3	11.3	20 x 0.85	1.7 / 1.8	79.1	10.05
300	32.0	33.6	12.5	22 x 0.85	1.8 / 1.9	84.4	12.10
400	35.3	36.9	13.6	24 x 0.85	1.9 / 2.0	92.0	14.70

Issue: June 2019
12.7/22 (24) kV. Made to AS/NZS 1429.1

Note: Subject to confirmation, similar cables can be manufactured to other specifications.

THREE CORE CU 22 KV CABLES

3 kA for 1 s Wire Screens

Copper conductor

SCXLPE conductor screen

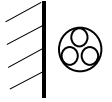
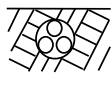
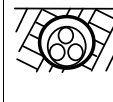
TR-XLPE insulation

SCXLPE insulation screen

Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 243-13 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Single Way) (mm)	Current Ratings (A)		
							
35	0.668	0.138	0.17	80 (NZ)	177	170	144
50	0.494	0.131	0.19	100 (NZ)	212	201	173
70	0.342	0.122	0.21	100 (NZ)	261	245	210
95	0.247	0.116	0.23	100 (NZ)	317	293	251
120	0.196	0.111	0.25	100 (NZ)	363	333	285
150	0.159	0.108	0.27	100 (NZ)	411	373	319
185	0.128	0.103	0.29	150	469	421	366
240	0.0981	0.099	0.32	150	549	486	423
300	0.0792	0.096	0.35	150	625	547	476
400	0.0633	0.093	0.40	150	718	620	539

Issue: June 2019
12.7/22 (24) kV. Made to AS/NZS 1429.1

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C

Soil Temperature 15 °C

Soil Thermal Resistivity 1.2 K.m/W

Depth of Burial 1.0 m

THREE CORE CU 22 KV CABLES

10 kA for 1 s Wire Screens

Copper conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 243-14 A

Conductor Size (mm ²)	Nominal Diameters		Wire Screens (per core)		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
35 *	18.5	20.1	11.3	20 x 0.85	1.3 / 1.4	52.9	2.87
50 *	19.8	21.4	16.5	29 x 0.85	1.4 / 1.4	56.0	3.51
70	21.2	22.8	22.7	40 x 0.85	1.4 / 1.5	59.2	4.44
95	22.9	24.5	22.7	40 x 0.85	1.5 / 1.5	63.4	5.40
120	24.3	25.9	22.7	40 x 0.85	1.5 / 1.6	66.6	6.25
150	25.7	27.3	22.7	40 x 0.85	1.6 / 1.6	69.8	7.20
185	27.5	29.1	22.7	40 x 0.85	1.6 / 1.7	73.9	8.45
240	29.7	31.3	22.7	40 x 0.85	1.7 / 1.8	79.1	10.35
300	32.0	33.6	22.7	40 x 0.85	1.8 / 1.9	84.4	12.40
400	35.3	36.9	22.7	40 x 0.85	1.9 / 2.0	92.0	15.25

Issue: June 2019

12.7/22 (24) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

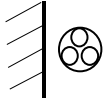
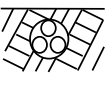
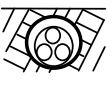
Note: Subject to confirmation, similar cables can be manufactured to other specifications.

THREE CORE CU 22 KV CABLES

10 kA for 1 s Wire Screens

Copper conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screens
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 243-14 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Single Way) (mm)	Current Ratings (A)		
							
35 *	0.668	0.138	0.17	80 (NZ)	177	170	144
50 *	0.494	0.131	0.19	100 (NZ)	212	201	173
70	0.342	0.122	0.21	100 (NZ)	261	245	210
95	0.247	0.116	0.23	100 (NZ)	317	293	251
120	0.196	0.111	0.25	100 (NZ)	363	333	285
150	0.159	0.108	0.27	100 (NZ)	411	373	319
185	0.128	0.103	0.29	150	469	421	366
240	0.0981	0.099	0.32	150	549	486	423
300	0.0792	0.096	0.35	150	625	547	476
400	0.0633	0.093	0.40	150	717	620	539

Issue: June 2019
12.7/22 (24) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C
 Soil Temperature 15 °C
 Soil Thermal Resistivity 1.2 K.m/W
 Depth of Burial 1.0 m

THREE CORE AL 22 KV CABLES

3 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 243-23 A							
Conductor Size (mm ²)	Nominal Diameters		Wire Screens (per core)		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
35 ^	18.4	20.0	7.4	13 x 0.85	1.3 / 1.4	52.7	2.07
50	19.7	21.3	7.9	14 x 0.85	1.4 / 1.4	55.7	2.36
70	21.2	22.8	8.5	15 x 0.85	1.4 / 1.5	59.2	2.73
95 ^	22.9	24.5	9.1	16 x 0.85	1.5 / 1.5	63.1	3.18
120	24.3	25.9	9.6	17 x 0.85	1.5 / 1.6	66.3	3.58
150	25.7	27.3	10.2	18 x 0.85	1.6 / 1.6	69.5	4.02
185 ^	27.4	29.0	10.8	19 x 0.85	1.6 / 1.7	73.4	4.57
240 ^	29.6	31.2	11.3	20 x 0.85	1.7 / 1.8	78.5	5.40
300	31.8	33.4	12.5	22 x 0.85	1.8 / 1.9	84.0	6.30
400	34.9	36.5	13.6	24 x 0.85	1.9 / 2.0	91.1	7.55

Issue: June 2019
12.7/22 (24) kV. Made to AS/NZS 1429.1

^ Also complies with AS/NZS 4026

Note: Subject to confirmation, similar cables can be manufactured to other specifications.

THREE CORE AL 22 KV CABLES

3 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

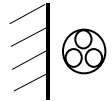
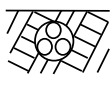
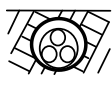
TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 243-23 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Single Way) (mm)	Current Ratings (A)		
							
35 ^	1.11	0.139	0.17	80 (NZ)	136	132	111
50	0.822	0.131	0.19	100 (NZ)	164	156	134
70	0.568	0.122	0.21	100 (NZ)	203	190	163
95 ^	0.411	0.116	0.23	100 (NZ)	246	227	195
120	0.325	0.111	0.25	100 (NZ)	282	259	221
150	0.265	0.108	0.27	100 (NZ)	319	289	247
185 ^	0.211	0.104	0.29	150	365	327	285
240 ^	0.161	0.099	0.32	150	428	379	330
300	0.130	0.096	0.35	150	487	427	371
400	0.102	0.093	0.39	150	564	488	424

Issue: June 2019
12.7/22 (24) kV. Made to AS/NZS 1429.1

^ Also complies with AS/NZS 4026

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C

Soil Temperature 15 °C

Soil Thermal Resistivity 1.2 K.m/W

Depth of Burial 1.0 m

THREE CORE AL 22 KV CABLES

10 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 243-24 A							
Conductor Size (mm ²)	Nominal Diameters		Wire Screens (per core)		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
35 *	18.4	20.0	7.9	14 x 0.85	1.3 / 1.4	52.7	2.09
50 *	19.7	21.3	10.8	19 x 0.85	1.4 / 1.4	55.7	2.44
70 *	21.2	22.8	15.3	27 x 0.85	1.4 / 1.5	59.2	2.92
95 *	22.9	24.5	20.4	36 x 0.85	1.5 / 1.5	63.1	3.50
120	24.3	25.9	22.7	40 x 0.85	1.5 / 1.6	66.3	3.95
150	25.7	27.3	22.7	40 x 0.85	1.6 / 1.6	69.5	4.37
185 ^	27.4	29.0	22.7	40 x 0.85	1.6 / 1.7	73.4	4.90
240 ^	29.6	31.2	22.7	40 x 0.85	1.7 / 1.8	78.8	5.70
300	31.8	33.4	22.7	40 x 0.85	1.8 / 1.9	84.0	6.55
400	34.9	36.5	22.7	40 x 0.85	1.9 / 2.0	91.1	7.80

Issue: June 2019
12.7/22 (24) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

^ Also complies with AS/NZS 4026

Note: Subject to confirmation, similar cables can be manufactured to other specifications.

THREE CORE AL 22 KV CABLES

10 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

TR-XLPE insulation

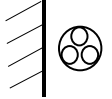
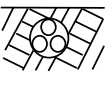
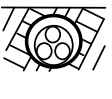
SCXLPE insulation screen

Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 243-24 B

Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Single Way) (mm)	Current Ratings (A)		
							
35 *	1.11	0.139	0.17	80 (NZ)	136	132	111
50 *	0.822	0.131	0.19	100 (NZ)	164	156	134
70 *	0.568	0.122	0.21	100 (NZ)	203	190	163
95 *	0.411	0.116	0.23	100 (NZ)	246	227	195
120	0.325	0.111	0.25	100 (NZ)	282	259	221
150	0.265	0.108	0.27	100 (NZ)	319	289	247
185 ^	0.211	0.104	0.29	150	365	327	285
240 ^	0.161	0.099	0.32	150	427	379	330
300	0.130	0.096	0.35	150	487	427	371
400	0.102	0.093	0.39	150	564	488	424

Issue: June 2019

12.7/22 (24) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

^ Also complies with AS/NZS 4026

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C

Soil Temperature 15 °C

Soil Thermal Resistivity 1.2 K.m/W

Depth of Burial 1.0 m

SINGLE CORE CU 33 KV CABLES

3 kA for 1 s Wire Screens

Copper conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screens
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 251-13 A							
Conductor Size (mm ²)	Nominal Diameters		Wire Screen		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
50	24.6	26.2	20	36 x 0.85	1.0 / 1.0	32.4	1.33
70	26.0	27.6	20	36 x 0.85	1.0 / 1.0	33.8	1.57
95	27.7	29.3	20	36 x 0.85	1.0 / 1.1	35.7	1.88
120	29.1	30.7	20	36 x 0.85	1.0 / 1.1	37.1	2.16
150	30.5	32.1	20	36 x 0.85	1.1 / 1.1	38.7	2.47
185	32.3	33.9	20	36 x 0.85	1.1 / 1.1	40.5	2.88
240	34.5	36.1	20	36 x 0.85	1.1 / 1.2	42.9	3.49
300	36.8	38.4	20	36 x 0.85	1.2 / 1.2	45.4	4.16
400	40.1	41.7	20	36 x 0.85	1.2 / 1.3	49.0	5.10
500	43.5	45.1	20	36 x 0.85	1.3 / 1.3	52.6	6.15
630	47.1	48.7	20	36 x 0.85	1.3 / 1.4	56.4	7.60

Issue: June 2019
19/33 (36) kV. Made to AS/NZS 1429.1

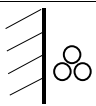

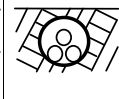
Note: Subject to confirmation, similar cables can be manufactured to other specifications.

SINGLE CORE CU 33 KV CABLES

3 kA for 1 s Wire Screens

Copper conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screens
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 251-13 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Multi Way) (mm)	Current Ratings (A)		
							
50	0.494	0.149	0.14	100 (NZ)	246	216	188
70	0.342	0.139	0.16	100 (NZ)	304	263	228
95	0.247	0.133	0.17	100 (NZ)	370	314	272
120	0.196	0.128	0.19	150	425	356	315
150	0.159	0.124	0.20	150	482	398	352
185	0.127	0.119	0.22	150	552	448	396
240	0.0977	0.114	0.24	150	649	518	457
300	0.0786	0.110	0.26	150	743	582	514
400	0.0625	0.106	0.29	150	860	659	581
500	0.0501	0.102	0.32	200	993	744	682
630	0.0406	0.098	0.36	200	1139	835	764

Issue: June 2019
19/33 (36) kV. Made to AS/NZS 1429.1

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C
 Soil Temperature 15 °C
 Soil Thermal Resistivity 1.2 K.m/W
 Depth of Burial 1.0 m
 Screens bonded both ends

SINGLE CORE CU 33 KV CABLES

10 kA for 1 s Wire Screens

Copper conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 251-14 A

Conductor Size (mm ²)	Nominal Diameters		Wire Screen		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
50 *	24.6	26.2	49	34 x 1.35	1.0 / 1.0	33.4	1.60
70	26.0	27.6	69	48 x 1.35	1.0 / 1.1	35.0	2.04
95	27.7	29.3	69	48 x 1.35	1.0 / 1.1	36.7	2.34
120	29.1	30.7	69	48 x 1.35	1.1 / 1.1	38.3	2.63
150	30.5	32.1	69	48 x 1.35	1.1 / 1.1	39.7	2.93
185	32.3	33.9	69	48 x 1.35	1.1 / 1.2	41.7	3.35
240	34.5	36.1	69	48 x 1.35	1.1 / 1.2	43.9	3.95
300	36.8	38.4	69	48 x 1.35	1.2 / 1.2	46.4	4.62
400	40.1	41.7	69	48 x 1.35	1.2 / 1.3	50.0	5.55
500	43.5	45.1	69	48 x 1.35	1.3 / 1.3	53.6	6.60
630	47.1	48.7	69	48 x 1.35	1.3 / 1.4	57.4	8.05

Issue: June 2019

19/33 (36) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

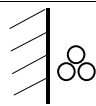
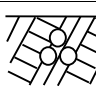
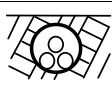
Note: Subject to confirmation, similar cables can be manufactured to other specifications.

SINGLE CORE CU 33 KV CABLES

10 kA for 1 s Wire Screens

Copper conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screens
 PVC/HDPE sheath

} Triple extruded, Dry-cure

Product Sheet No. 251-14 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Multi Way) (mm)	Current Ratings (A)		
							
50 *	0.494	0.151	0.14	100 (NZ)	248	216	188
70	0.342	0.142	0.16	100 (NZ)	305	262	227
95	0.247	0.134	0.17	150	370	311	276
120	0.196	0.130	0.19	150	424	352	311
150	0.159	0.125	0.20	150	479	392	347
185	0.127	0.120	0.22	150	547	441	389
240	0.0976	0.115	0.24	150	640	506	447
300	0.0786	0.112	0.26	150	729	565	499
400	0.0625	0.107	0.29	200	839	636	583
500	0.0501	0.103	0.32	200	961	711	651
630	0.0405	0.100	0.36	200	1094	790	723

Issue: June 2019
19/33 (36) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C
 Soil Temperature 15 °C
 Soil Thermal Resistivity 1.2 K.m/W
 Depth of Burial 1.0 m
 Screens bonded both ends

SINGLE CORE AL 33 KV CABLES

3 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 251-23 A

Conductor Size (mm ²)	Nominal Diameters		Wire Screen		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
50	24.5	26.1	20	36 x 0.85	1.0 / 1.0	32.3	1.03
70	26.0	27.6	20	36 x 0.85	1.0 / 1.0	33.8	1.14
95	27.7	29.3	20	36 x 0.85	1.0 / 1.1	35.7	1.28
120	29.1	30.7	20	36 x 0.85	1.0 / 1.1	37.1	1.40
150	30.5	32.1	20	36 x 0.85	1.1 / 1.1	38.7	1.54
185	32.2	33.8	20	36 x 0.85	1.1 / 1.1	40.4	1.71
240	34.4	36.0	20	36 x 0.85	1.1 / 1.2	42.8	1.96
300	36.6	38.2	20	36 x 0.85	1.2 / 1.2	45.2	2.23
400	39.7	41.3	20	36 x 0.85	1.2 / 1.3	48.6	2.61
500	42.8	44.4	20	36 x 0.85	1.3 / 1.3	51.9	3.04
630	46.4	48.0	20	36 x 0.85	1.3 / 1.4	55.7	3.58
800	51.0	52.6	20	36 x 0.85	1.4 / 1.4	60.5	4.28
1000	54.9	56.5	21	37 x 0.85	1.5 / 1.5	64.8	5.05

Issue: June 2019

19/33 (36) V. Made to AS/NZS 1429.1

Note: Subject to confirmation, similar cables can be manufactured to other specifications.

SINGLE CORE AL 33 KV CABLES

3 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

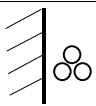


TR-XLPE insulation

SCXLPE insulation screen

Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 251-23 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Multi Way) (mm)	Current Ratings (A)		
							
50	0.822	0.150	0.14	100 (NZ)	190	167	146
70	0.568	0.139	0.16	100 (NZ)	236	204	177
95	0.411	0.133	0.17	100 (NZ)	287	244	211
120	0.325	0.128	0.19	150	330	277	245
150	0.265	0.124	0.20	150	374	309	274
185	0.211	0.119	0.22	150	430	350	309
240	0.161	0.114	0.24	150	507	405	357
300	0.129	0.110	0.26	150	580	456	402
400	0.101	0.107	0.29	150	677	521	459
500	0.0797	0.103	0.32	200	787	593	544
630	0.0630	0.099	0.35	200	914	674	617
800	0.0509	0.095	0.39	200	1057	759	694
1000	0.0421	0.093	0.43	200	1195	841	767

Issue: June 2019
19/33 (36) kV. Made to AS/NZS 1429.1

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C

Soil Temperature 15 °C

Soil Thermal Resistivity 1.2 K.m/W

Depth of Burial 1.0 m

Screens bonded both ends

SINGLE CORE AL 33 KV CABLES

10 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

TR-XLPE insulation

SCXLPE insulation screen

} Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 251-24 A

Conductor Size (mm ²)	Nominal Diameters		Wire Screen		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
50 *	24.5	26.1	33	39 x 1.03	1.0 / 1.0	32.7	1.14
70 *	26.0	27.6	46	32 x 1.35	1.0 / 1.1	35.0	1.39
95 *	27.7	29.3	62	43 x 1.35	1.0 / 1.1	36.7	1.68
120	29.1	30.7	69	48 x 1.35	1.1 / 1.1	38.3	1.88
150	30.5	32.1	69	48 x 1.35	1.1 / 1.1	39.7	2.00
185	32.2	33.8	69	48 x 1.35	1.1 / 1.2	41.6	2.18
240	34.4	36.0	69	48 x 1.35	1.1 / 1.2	43.8	2.42
300	36.6	38.2	69	48 x 1.35	1.2 / 1.2	46.2	2.69
400	39.7	41.3	69	48 x 1.35	1.2 / 1.3	49.6	3.07
500	42.8	44.4	69	48 x 1.35	1.3 / 1.3	52.9	3.50
630	46.4	48.0	69	48 x 1.35	1.3 / 1.4	56.7	4.05
800	51.0	52.6	69	48 x 1.35	1.4 / 1.5	61.7	4.76
1000	54.9	56.5	69	48 x 1.35	1.5 / 1.5	65.8	5.55

Issue: June 2019

19/33 (36) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

Note: Subject to confirmation, similar cables can be manufactured to other specifications.

SINGLE CORE AL 33 KV CABLES

10 kA for 1 s Wire Screens

Aluminium conductor

SCXLPE conductor screen

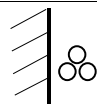
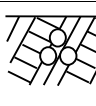
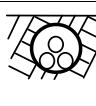
TR-XLPE insulation

SCXLPE insulation screen

Triple extruded, Dry-cure

Copper wire screens

PVC/HDPE sheath

Product Sheet No. 251-24 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Multi Way) (mm)	Current Ratings (A)		
							
50 *	0.822	0.151	0.14	100 (NZ)	191	168	146
70 *	0.568	0.142	0.16	100 (NZ)	238	204	178
95 *	0.411	0.134	0.17	150	288	243	215
120	0.325	0.130	0.19	150	331	275	244
150	0.265	0.125	0.20	150	374	307	272
185	0.211	0.121	0.22	150	429	346	306
240	0.161	0.115	0.24	150	504	399	353
300	0.129	0.112	0.26	150	575	448	395
400	0.101	0.108	0.29	150	668	509	449
500	0.0797	0.104	0.32	200	772	576	528
630	0.0630	0.100	0.35	200	891	650	595
800	0.0508	0.097	0.39	200	1023	726	663
1000	0.0421	0.094	0.43	200	1149	798	727

Issue: June 2019
19/33 (36) kV. Made to AS/NZS 1429.1

* Short circuit rating less than 10 kA for 1 s

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C

Soil Temperature 15 °C

Soil Thermal Resistivity 1.2 K.m/W

Depth of Burial 1.0 m

Screens bonded both ends

THREE CORE CU 33 KV CABLES

Copper conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screens
 PVC/HDPE sheath

} Triple extruded, Dry-cure

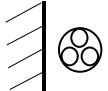
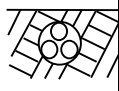
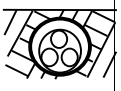
Product Sheet No. 253-11 A							
Conductor Size (mm ²)	Nominal Diameters		Wire Screens (per core)		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
3 kA for 1 s Wire Screens							
50	24.6	26.2	9.6	17 x 0.85	1.5 / 1.6	66.9	4.15
70	26.0	27.6	10.2	18 x 0.85	1.6 / 1.7	70.4	4.99
95	27.7	29.3	10.8	19 x 0.85	1.7 / 1.7	74.5	6.00
120	29.1	30.7	11.3	20 x 0.85	1.7 / 1.8	77.8	6.90
150	30.5	32.1	11.9	21 x 0.85	1.8 / 1.8	81.0	7.95
185	32.3	33.9	12.5	22 x 0.85	1.8 / 1.9	85.1	9.25
240	34.5	36.1	13.1	23 x 0.85	1.9 / 2.0	90.2	11.25
300	36.8	38.4	14.2	25 x 0.85	2.0 / 2.0	95.4	13.40
400							
10 kA for 1 s Wire Screens							
50 *	24.6	26.2	16.5	29 x 0.85	1.6 / 1.6	67.1	4.37
70	26.0	27.6	22.7	40 x 0.85	1.6 / 1.7	70.4	5.35
95	27.7	29.3	22.7	40 x 0.85	1.7 / 1.7	74.5	6.35
120	29.1	30.7	22.7	40 x 0.85	1.7 / 1.8	77.8	7.25
150	30.5	32.1	22.7	40 x 0.85	1.8 / 1.8	81.0	8.25
185	32.3	33.9	22.7	40 x 0.85	1.8 / 1.9	85.1	9.55
240	34.5	36.1	22.7	40 x 0.85	1.9 / 2.0	90.2	11.50
300	36.8	38.4	22.7	40 x 0.85	2.0 / 2.0	95.4	13.60
400							
Issue: June 2019							
19/33 kV. (36) Made to AS/NZS 1429.1							

* Short circuit rating less than 10 kA for 1 s

Note: Subject to confirmation, similar cables can be manufactured to other specifications.

THREE CORE CU 33 KV CABLES

Copper conductor
 SCXLPE conductor screen } Triple extruded, Dry-cure
 TR-XLPE insulation }
 SCXLPE insulation screen }
 Copper wire screens
 PVC/HDPE sheath

Product Sheet No. 253-11 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Single Way) (mm)	Current Ratings (A)		
							
3 kA for 1 s Wire Screens							
50	0.494	0.143	0.14	100 (NZ)	212	200	173
70	0.342	0.133	0.16	100 (NZ)	262	244	211
95	0.247	0.126	0.17	150	317	292	256
120	0.196	0.122	0.19	150	364	331	290
150	0.159	0.118	0.20	150	411	372	325
185	0.128	0.113	0.22	150	470	420	367
240	0.0978	0.108	0.24	150	550	486	424
300	0.0789	0.104	0.26	150	626	547	478
400							
10 kA for 1 s Wire Screens							
50 *	0.494	0.143	0.14	100 (NZ)	212	200	173
70	0.342	0.133	0.16	100 (NZ)	262	244	211
95	0.247	0.126	0.17	150	317	292	256
120	0.196	0.122	0.19	150	364	331	290
150	0.159	0.118	0.20	150	411	372	325
185	0.128	0.113	0.22	150	470	420	367
240	0.0978	0.108	0.24	150	550	486	424
300	0.0789	0.104	0.26	150	626	547	478
400							
Issue: June 2019							
19/33 (36) kV. Made to AS/NZS 1429.1							

* Short circuit rating less than 10 kA for 1 s

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C
 Soil Temperature 15 °C
 Soil Thermal Resistivity 1.2 K.m/W
 Depth of Burial 1.0 m

THREE CORE AL 33 KV CABLES

Aluminium conductor
 SCXLPE conductor screen
 TR-XLPE insulation
 SCXLPE insulation screen
 Copper wire screens
 PVC/HDPE sheath

} Triple extruded, Dry-cure

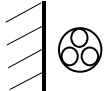
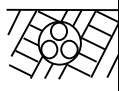
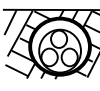
Product Sheet No. 253-21 A							
Conductor Size (mm ²)	Nominal Diameters		Wire Screens (per core)		Thickness of Sheath PVC/HDPE (mm)	Nominal Overall Diameter (mm)	Linear Mass (kg/m)
	Insulation (mm)	Insulation Screen (mm)	Area (mm ²)	No. & Size (No. x mm)			
3 kA for 1 s Wire Screens							
50	24.5	26.1	9.6	17 x 0.85	1.5 / 1.6	66.7	3.22
70	26.0	27.6	10.2	18 x 0.85	1.6 / 1.7	70.4	3.67
95	27.7	29.3	10.8	19 x 0.85	1.7 / 1.7	74.2	4.18
120	29.1	30.7	11.3	20 x 0.85	1.7 / 1.8	77.5	4.63
150	30.5	32.1	11.9	21 x 0.85	1.8 / 1.8	80.7	5.10
185	32.2	33.8	12.5	22 x 0.85	1.8 / 1.9	84.9	5.70
240	34.4	36.0	13.1	23 x 0.85	1.9 / 2.0	90.0	6.60
300	36.6	38.2	14.2	25 x 0.85	2.0 / 2.0	95.0	7.55
400							
10 kA for 1 s Wire Screens							
50 *	24.5	26.1	10.8	19 x 0.85	1.6 / 1.6	66.9	3.28
70 *	26.0	27.6	15.3	27 x 0.85	1.6 / 1.7	70.4	3.82
95 *	27.7	29.3	20.4	36 x 0.85	1.7 / 1.7	74.2	4.45
120	29.1	30.7	22.7	40 x 0.85	1.7 / 1.8	77.5	4.94
150	30.5	32.1	22.7	40 x 0.85	1.8 / 1.8	80.7	5.40
185	32.2	33.8	22.7	40 x 0.85	1.8 / 1.9	84.9	6.00
240	34.4	36.0	22.7	40 x 0.85	1.9 / 2.0	90.0	6.90
300	36.6	38.2	22.7	40 x 0.85	2.0 / 2.0	95.0	7.75
400							
Issue: June 2019							
19/33 (36) kV. Made to AS/NZS 1429.1							

* Short circuit rating less than 10 kA for 1 s

Note: Subject to confirmation, similar cables can be manufactured to other specifications.

THREE CORE AL 33 KV CABLES

Aluminium conductor
 SCXLPE conductor screen } Triple extruded, Dry-cure
 TR-XLPE insulation }
 SCXLPE insulation screen }
 Copper wire screens
 PVC/HDPE sheath

Product Sheet No. 253-21 B							
Conductor Size (mm ²)	Conductor AC Resistance at 50 Hz and 90°C (Ohm/km)	Inductive Reactance at 50 Hz (Ohm/km)	Conductor to Screen Capacitance (μF/km)	Nominal PVC Duct Size (Single Way) (mm)	Current Ratings (A)		
							
3 kA for 1 s Wire Screens							
50	0.822	0.143	0.14	100 (NZ)	164	155	134
70	0.568	0.133	0.16	100 (NZ)	203	189	163
95	0.411	0.126	0.17	150	246	226	198
120	0.325	0.122	0.19	150	283	257	226
150	0.265	0.118	0.20	150	319	288	252
185	0.211	0.113	0.22	150	365	326	285
240	0.161	0.108	0.24	150	428	378	330
300	0.130	0.105	0.26	150	488	427	372
400							
10 kA for 1 s Wire Screens							
50 *	0.822	0.143	0.14	100 (NZ)	164	155	134
70 *	0.568	0.133	0.16	100 (NZ)	203	189	163
95 *	0.411	0.126	0.17	150	246	226	198
120	0.325	0.122	0.19	150	283	257	226
150	0.265	0.118	0.20	150	319	288	252
185	0.211	0.113	0.22	150	365	326	285
240	0.161	0.108	0.24	150	428	378	330
300	0.130	0.105	0.26	150	488	427	372
400							
Issue: June 2019							
19/33 (36) kV. Made to AS/NZS 1429.1							

* Short circuit rating less than 10 kA for 1 s

Note: The values in this table are for installation conditions of:

Ambient Air Temperature 30 °C
 Soil Temperature 15 °C
 Soil Thermal Resistivity 1.2 K.m/W
 Depth of Burial 1.0 m

NOTES