



# Technical cable guide

October 2015



One stop-shop  
for all your  
cable needs

A brand of the

**Prysmian**  
Group

## DISCLAIMER

Cables must be installed according to the requirements of AS/NZS 3000, the Wiring Rules and any supplementary requirements of appropriate local Electricity Authorities, by an Electrician who holds a valid licence, appropriate to the State, Territory or Country where installation is to take place.

The Wiring Rules are applied throughout Australia by means of State and Territory Acts and Regulations.

In general these Acts and Regulations specify compliance with the Rules, however, because of local requirements, some variation to specific clauses may be called for by means of these Acts and Regulations.

Note:

Current ratings data contained in the cable selection category of this guide are based on Australian/New Zealand Standards (AS/NZS 3008.1.1).

Prysman Cables & Systems Australia Pty Ltd proudly manufactures in Australia and operates certified management systems compliant with the requirements of;

**ISO 9001:2000**  
Quality Management Systems

**AS/NZS 4801:2001**  
Occupational Health & Safety Management Systems

**OHSAS 18001:1999**  
Assessment Specification for Occupational Health & Safety Management Systems

**ISO 14001:2004**  
Environmental Management Systems



# Why do business with Prysmian?

Because it pays off.

You might ask yourself why you should choose cables from us, and not from somewhere else? It's a fair question. There are many very good reasons.

First of all we're Australians. We've been producing tailor-made cables here since 1944. We know what it takes to deal with the many different challenges that tough Australian conditions require.

Second of all we combine this local knowledge with the strength of being a global market leader. Being the world's largest producer of power and telecommunication cables means we have the muscles to innovate and customise our solutions to perfectly match your needs. At our disposal we have 97 manufacturing plants, 17 research and development centres and around 22 000 employees.

In addition we co-operate with universities, scientific institutions and, perhaps most importantly, with you. Your satisfaction is our livelihood. Based on your needs and your feedback we constantly improve to make sure our offer fits the bill.

No matter what kind of cable you need, we have it. And if not, we'll invent it. And it doesn't end there. In our offer you'll find the best technical support on the market – before, during and after.

That's why doing business with us pays off.

Please accept this latest edition of the Technical Cable Guide with our compliments.

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# One stop shop.

We have all the cables you need.



No worries. Regardless of what cables you're looking for, we have them for sure. A full market offer ranging from construction, power and telecom cables. And if not, we'll invent them. Plus, we provide you with all the services you might need - before, during and after.

Australian made? Yes, of course.

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# Only the best for True Blue Aussies.

Australian made quality cables.



We've been producing tailor-made cables in Australia since 1944. And we will continue to do so. Our great staff of highly skilled and experienced people know what it takes to make cables that withstand everything from termites to hazardous mine sites. Just fair dinkum cables, mate.

Australian made? Yes, of course.

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# Power Cables

# PVC Cables



## PVC SDI 450/750V

### Cable description:

Single Core Cable, Copper Conductor, V-90 PVC Insulated and 3V-90 PVC Sheathed, to AS/NZS 5000.2.

Catalogue Reference	Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
*1.0SSDI	1.0	4.1	2.9	15
1.5SDI	1.5	4.5	3.5	20
2.5SDI	2.5	5.2	5.1	20
4SDI	4.0	6.2	7.4	25
6SDI	6.0	6.8	9.8	25
10SDI	10	8.2	15	35
16SDI	16	9.4	22	40

\*Single Wire Conductor.

For conductors 25mm<sup>2</sup> and above please refer to XLPE/PVC product pages.

## PVC FLAT 450/750V

### Cable description:

2 & 3 Core Flat TPS Cable, Copper Conductor V-90, PVC Insulated and 3V-90 PVC Sheathed, to AS/NZS 5000.2.

Catalogue Reference		Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Dimensions mm		Approx. Mass kg/100m		Min. Installed Bending Radius mm	
2C	3C		2C	3C	2C	3C	2C	3C
*1.0ST	*1.0S3CF	1.0	6.6 x 4.3	9.0 x 4.3	5.2	7.3	15	20
1.5T	1.53CF	1.5	7.3 x 4.6	10.1 x 4.6	6.4	9.0	20	20
2.5T	2.53CF	2.5	8.9 x 5.5	12.4 x 5.5	9.9	15	20	20
4T		4.0	10.7 x 6.5		15		25	
6T		6.0	11.9 x 7.1		20		30	
10T		10	15.0 x 8.8		31		35	
16T		16	17.3 x 10.0		45		40	

\*Single Wire Conductors.

2C = 2 Core. 3C = 3 Core.

◇ The cables listed above can be made with PVC that can contribute towards achieving Green Star Certification for your building or made to order Non PVC Low Smoke Zero Halogen.

## PVC FLAT 450/750V

### Cable description:

2 & 3 Core plus Earth Flat TPS Cable, Copper Conductor, V-90 PVC Insulated and 3V-90 PVC Sheathed, to AS/NZS 5000.2.

Catalogue Reference		Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Dimensions mm		Approx. Mass kg/100m		Min. Installed Bending Radius mm	
2C+E	3C+E		2C+E	3C+E	2C+E	3C+E	2C+E	3C+E
*1.0STE	*1.0S3CEF	1.0	9.3 x 4.6	11.7 x 4.6	8	10	20	20
1.5TE	1.53CEF	1.5	10.1 x 4.6	12.8 x 4.6	9	12	20	20
2.5TE	2.53CEF	2.5	12.4 x 5.5	15.8 x 5.5	15	19	20	20
4TE	43CEF	4.0	14.1 x 6.5	18.3 x 6.5	19	26	25	25
6TE	63CEF	6.0	15.3 x 7.1	20.1 x 7.1	24	33	30	30
10TE	103CEF	10	19.2 x 8.8	25.8 x 8.8	38	52	35	35
16TE	163CEF	16	22.5 x 10.0	29.7 x 10.0	54	75	40	40

\*Single Wire Conductor.

2C+E = 2 Core + Earth. 3C+E = 3 Core + Earth.

## PVC MULTICORE CIRCULAR 450/750V

### Cable description:

2, 3 & 4 Core plus Earth Circular Cable, Copper Conductor, V-90 PVC Insulated and 5V-90 PVC Sheathed, to AS/NZS 5000.2.

Catalogue Reference			Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm			Approx. Mass kg/100m			Min. Installed Bending Radius mm		
2C+E	3C+E	4C+E		2C+E	3C+E	4C+E	2C+E	3C+E	4C+E	2C+E	3C+E	4C+E
1.52CEOC	1.53CEOC	1.54CEOC	1.5	8.3	9.0	10.0	11	13	16	35	40	40
2.52CEOC	2.53CEOC	2.54CEOC	2.5	10.0	10.9	11.9	17	20	24	40	45	50
4.2CEOC	4.3CEOC	4.4CEOC	4.0	11.2	12.3	13.7	22	27	34	45	50	55
6.2CEOC	6.3CEOC	6.4CEOC	6.0	12.2	13.6	15.1	27	35	44	50	55	60
10.2CEOC	10.3CEOC	10.4CEOC	10	15.7	17.5	19.4	40	53	65	65	70	80
16.2CEOC	16.3CEOC	16.4CEOC	16	18.0	19.8	22.2	57	75	94	75	80	90

2C+E = 2 Core + Earth. 3C+E = 3 Core + Earth. 4C+E = 4 Core + Earth.

For conductors less than 10mm<sup>2</sup> please refer to Cables to AS/NZS 5000.2.

◇ The cables listed above can be made with PVC that can contribute towards achieving Green Star Certification for your building or made to order Non PVC Low Smoke Zero Halogen.

## PVC INSULATED 0.6/1KV

### Cable description:

Single Core Cable, Copper Conductor, V-90 PVC Insulated, Unsheathed, to AS/NZS 5000.1.

Catalogue Reference	Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
*1.0SBW	1.0	2.8	1.7	10
1.5BW	1.5	3.2	2.2	15
2.5BW	2.5	3.7	3.3	15
4BW	4.0	4.6	5.3	20
6BW	6.0	5.2	7.4	20
10BW	10	6.2	12	25
16BW	16	7.3	18	30
25BW	25	8.9	28	35
35BW	35	10.1	37	40
50BW	50	11.9	50	50
70BW	70	13.5	69	55
95BW	95	15.9	96	65
120BW	120	17.3	119	70
150BW	150	19.5	146	80
185BW	185	21.7	184	85

\*Single Wire Conductor.

## PVC MULTICORE CIRCULAR 0.6/1KV

### Cable description:

2 & 3 Core plus Earth Circular Cable, Copper Conductor, V-90 PVC Insulated and 5V-90 PVC Sheathed, to AS/NZS 5000.1.

Catalogue Reference		Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm		Approx. Mass kg/100m		Min. Installed Bending Radius mm	
2C+E	3C+E		2C+E	3C+E	2C+E	3C+E	2C+E	3C+E
1.52CEOC1KV	1.53CEOC1KV	1.5	10.1	11.0	15	18	40	45
2.52CEOC1KV	2.53CEOC1KV	2.5	11.3	12.3	20	24	45	50
4.2CEOC1KV	4.3CEOC1KV	4.0	12.9	14.0	26	32	50	55
6.2CEOC1KV	6.3CEOC1KV	6.0	14.0	15.2	33	41	55	60
10.2CEOC1KV	10.3CEOC1KV	10	16.5	18.1	43	56	65	70
16.2CEOC1KV	16.3CEOC1KV	16	18.6	20.4	59	78	75	80

2C+E = 2 Core + Earth. 3C+E = 3 Core + Earth.

For conductors less than 10mm<sup>2</sup> please refer to Cables to AS/NZS 5000.2.

◇ The cables listed above can be made with PVC that can contribute towards achieving Green Star Certification for your building or made to order Non PVC Low Smoke Zero Halogen.

## PVC MULTICORE CIRCULAR 0.6/1KV

### Cable description:

4 Core plus Earth Circular Cable, Copper Conductor, V-90 PVC Insulated and SV-90 PVC Sheathed, to AS/NZS 5000.1.

Catalogue Reference	Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
1.54CEOC1KV	1.5	11.9	21	50
2.54CEOC1KV	2.5	13.3	29	55
44CEOC1KV	4.0	15.4	39	60
64CEOC1KV	6.0	16.8	50	70
104CEOC1KV	10	20.0	69	80
164CEOC1KV	16	22.6	92	90

## PVC MULTICORE SWA CIRCULAR 0.6/1KV

### Cable description:

2 & 3 Core plus Earth Circular Cable, Copper Conductor, V-90 PVC Insulated and PVC Bedded, Steel Wire Armoured, SV-90 PVC Sheathed, to AS/NZS 5000.1.

Catalogue Reference		Nominal Conductor Area mm <sup>2</sup>	Max. Diameter Under Armour mm		Approx. Overall Diameter mm		Approx. Mass kg/100m		Min. Installed Bending Radius mm	
2C+E	3C+E		2C+E	3C+E	2C+E	3C+E	2C+E	3C+E	2C+E	3C+E
1.52CEOCA1KV	1.53CEOCA1KV	1.5	9.1	10.0	15.2	16.1	47	52	185	195
2.52CEOCA1KV	2.53CEOCA1KV	2.5	10.3	11.3	16.9	17.4	56	63	195	210
42CEOCA1KV	43CEOCA1KV	4.0	11.8	13.0	17.9	19.2	67	77	215	230
62CEOCA1KV	63CEOCA1KV	6.0	13.0	14.2	19.1	20.3	77	88	230	245
102CEOCA1KV	103CEOCA1KV	10	15.5	17.1	21.6	23.2	94	111	260	280
162CEOCA1KV	163CEOCA1KV	16	17.6	19.4	23.7	26.2	117	156	285	315

2C+E = 2 Core + Earth. 3C+E = 3 Core + Earth.

◇ The cables listed above can be made with PVC that can contribute towards achieving Green Star Certification for your building or made to order Non PVC Low Smoke Zero Halogen.

## PVC MULTICORE SWA CIRCULAR 0.6/1KV

### Cable description:

4 Core plus Insulated Earth Circular Cable, Copper Conductor, V-90 PVC Insulated and PVC Bedded, Steel Wire Armoured, 5V-90 PVC Sheathed, to AS/NZS 5000.1.

Catalogue Reference	Nominal Conductor Area mm <sup>2</sup>	Approx. Diameter Over Bedding mm	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
1.54CE0CA1KV	1.5	10.9	17.0	59	205
2.54CE0CA1KV	2.5	12.3	18.5	71	225
44CE0CA1KV	4.0	14.4	20.5	87	245
64CE0CA1KV	6.0	15.8	21.9	102	265
104CE0CA1KV	10	19.0	25.8	145	310
164CE0CA1KV	16	21.6	28.4	184	340

◊ The cables listed above can be made with PVC that can contribute towards achieving Green Star Certification for your building or made to order Non PVC Low Smoke Zero Halogen.

## 4MM<sup>2</sup> TWIN SOLAR CABLE

### Cable description:

The cable complies with the requirements of 2 Pfg 1169/08.2007, Fire Performance: IEC60332-1, Smoke Density: IEC61034, EN50268-2, Halogen Acid Gas Emission: IEC60754-1, EN50267-2-1, Certificate: TUV, Sizes available: Prysmian Product Codes: 4mm<sup>2</sup> single - 5749083, 4mm<sup>2</sup> twin - 5749045, 6mm<sup>2</sup> single - 5749090, 6mm<sup>2</sup> twin - 5749069, Other sizes made to order, Colours available on request in either SDI or twin: red or blue.

Item		Specification
<b>Conductor</b>	Cross-section area (mm <sup>2</sup> )	4mm <sup>2</sup>
	Material	Stranded tinned copper
	Size (mm)	56/(0.30±0.008)
	Strand OD (mm)	2.59±0.01
<b>Insulation</b>	Material	Electron-beam cross-linked materials
	Nominal OD (mm)	4.45±0.15
	Colour	One red, one black
<b>Sheath</b>	Material	Electron-beam cross-linked materials
	Nominal OD (mm)	5.8±0.10 x 12.00±0.20
	Colour	Black
<b>Marking on cable</b>	"PRYSMIAN SOLAR CABLE (PV) PV1-F 4mm <sup>2</sup> 0.6/1KVAC -- 0.9/1.8KVDC -- FOR DC USE ONLY DO NOT DISCONNECT UNDER LOAD -- 120°C SOLAR DV TUV Cert No R (Metre Marking)" Spread over the length of a metre in between metre markings	

Nominal Voltage	Test Voltage	Temperature Rating	Ambient Temperature
U <sup>0</sup> /U=600/1000V AC, 1800V DC	6500V, 50Hz, 5min	-40°C up to +125°C	(-40°C up to +120°C): >25 years

Max. Conductor Temperature	Bending Radius	Conductor Resistance	Insulation Resistance	UV Resistant
+120°C	≥ 6 x cable OD	≤ 5.09 Ω /km at 20°C	≥ 1014 Ω .cm at 20°C	>720h

# Outstandingly obvious.

Not just another fish in the sea.



From now on, Prysmian cable reels will be wrapped in magenta so choosing and locating safe, locally made cables has now become easier than ever. Plus, the labels for our flats are now colour-coded so you can quickly identify the core sizes you need.

Australian made? Yes, of course.

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# Flexitime!

Our flexible cables save you time and money.



With our improved range of flexible cables we've brought flexibility to a completely new level. From now on it'll be a lot easier to get into those tight corners with less equipment, less people and in half the time. With a 50% decrease in installation time, imagine what you could do with those savings ...

Australian made? Yes, of course.

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# XLPE Cables



## FLEXIBLE XLPE COPPER SDI 0.6/1KV

### Cable description:

Flexible Single Core Cable, Class 5 Conductor, 5V-90 X-90 XLPE Insulated, PVC Sheathed, to AS/NZS 5000.1.

Note: For fixed installation.

Product Code	Conductor		Nominal Insulation Thickness mm	Cable			Min. Installed Bending Radius mm
	Nominal C.S.A. mm <sup>2</sup>	Nominal Diameter mm		Overall Diameter		Approx. Mass kg/100m	
				Minimum mm	Maximum mm		
351CFF90	35	7.7	0.9	11.9	12.7	38.7	76
501CFF90	50	9.3	1.0	13.7	14.5	53.5	87
701CFF90	70	11.1	1.0	15.7	16.5	72.9	99
951CFF90	95	12.8	1.0	17.5	18.4	94.2	110
1201CFF90	120	14.5	1.2	19.4	20.3	118.6	122
1501CFF90	150	16.3	1.4	21.7	22.7	147.4	136
1851CFF90	185	18.0	1.6	23.8	24.8	178.0	149
2401CFF90	240	20.8	1.7	26.9	28.0	231.8	168
3001CFF90	300	23.4	1.8	29.8	30.9	288.3	186
4001CFF90	400	26.8	2.0	33.8	35.0	376.2	210
5001CFF90	500	30.3	2.2	37.8	39.1	474.5	235
6301CFF90	630	35.1	2.4	43.2	44.6	628.9	268

## FLEXIBLE XLPE COPPER SDI 0.6/1KV

### Cable description:

Flexible Single Core Cable, Class 5 Conductor, RE-110 Insulated, HFS-110-TP Sheathed, LSOH, to AS/NZS 5000.1.

Note: For fixed installation.

Product Code	Conductor		Nominal Insulation Thickness mm	Cable		Approx. Mass kg/100m	Min. Installed Bending Radius mm
	Nominal C.S.A. mm <sup>2</sup>	Nominal Diameter mm		Overall Diameter			
				Minimum mm	Maximum mm		
351CFF110	35	7.7	1.2	12.5	13.3	40.3	80
501CFF110	50	9.3	1.4	14.5	15.3	55.9	92
701CFF110	70	11.1	1.4	16.4	17.2	75.0	103
951CFF110	95	12.8	1.6	18.6	19.4	97.9	116
1201CFF110	120	14.5	1.6	20.2	21.1	122.0	127
1501CFF110	150	16.3	1.8	22.6	23.6	151.1	141
1851CFF110	185	18.0	2.0	24.8	25.8	183.1	155
2401CFF110	240	20.8	2.2	28.2	29.3	239.0	176
3001CFF110	300	23.4	2.4	29.9	31.1	290.0	186
4001CFF110	400	26.8	2.6	35.2	36.5	386.2	219
5001CFF110	500	30.3	2.8	39.3	40.6	485.7	244
6301CFF110	630	35.1	2.8	44.1	45.6	637.3	273

## XLPE COPPER SDI 0.6/1KV

### Cable description:

Single Core Cable, Class 2 Conductor, Copper Conductor, X-90 XLPE Insulated, SV-90 PVC Sheathed, to AS/NZS 5000.1.

Note: Non Compacted Conductor except otherwise stated.

Catalogue Reference	Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
16CUXLP	16	9.5	21	40
25CUXLP	25	11.2	31	45
35CUXLP	35	12.4	41	50
50CUXLP	50	13.9	54	55
70CUXLP	70	15.8	73	65
95CUXLP	95	17.9	100	75
120CUXLP	120	19.6	124	80
150CUXLP	150	21.9	153	90
185CUXLP	185	24.1	190	100
240CUXLP	240	27.1	246	165
300CUXLP	300	30.0	307	180
400CUXLP	400	33.5	388	200
*500CCUXLP	*500	35.2	489	280
*630CCUXLP	*630	39.7	625	315

\* Compacted Conductor.

Note: LSOH version available.

## XLPE ALUMINIUM SDI 0.6/1KV

### Cable description:

Single Core Cable, Aluminium Conductor, X-90 XLPE Insulated, 5V-90 PVC Sheathed, to AS/NZS 5000.1.

**Note: Class 2 Compacted Conductor.**

Catalogue Reference	Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
25CALXLP	25	10.9	15	85
35CALXLP	35	11.9	18	95
50CALXLP	50	13.1	23	105
70CALXLP	70	15.0	31	120
95CALXLP	95	16.9	40	135
120CALXLP	120	18.5	48	145
150CALXLP	150	20.4	58	165
185CALXLP	185	22.6	73	180
240CALXLP	240	25.3	93	200
300CALXLP	300	28.0	114	225
400CALXLP	400	31.5	145	250
500CALXLP	500	35.2	180	280
630CALXLP	630	39.6	230	315

Note: LSOH version available.

## XLPE MULTICORE CIRCULAR 0.6/1KV

### Cable description:

2 G 3 Core plus Earth Circular Cable, Copper Conductor, X-90 XLPE Insulated, 5V-90 PVC Sheathed, to AS/NZS 5000.1.

Note: Non Compacted Conductor.

Catalogue Reference		Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm		Approx. Mass kg/100m		Min. Installed Bending Radius mm	
2C+E	3C+E		2C+E	3C+E	2C+E	3C+E	2C+E	3C+E
1.52CEXLP		1.5	10.1		14		41	
2.52CEXLP		2.5	11.3		19		46	
42CEXLP		4.0	12.2		23		49	
62CEXLP		6.0	13.2		29		53	
102CEXLP		10	15.1		41		61	
162CEXLP		16	17.4		54		70	
252CEXLP		25	21.0		75.4		85	
	253CEXLP	25		22.4		102		90
	353CEXLP	35		25.0		136		150
	503CEXLP	50		28.5		183		170
	703CEXLP	70		33.0		254		200
	953CEXLP	95		37.0		336		220
	1203CEXLP	120		41.0		422		245
	1503CEXLP	150		46.0		525		275
	1853CEXLP	185		51.6		665		310
	2403CEXLP	240		58.1		868		350
	3003CEXLP	300		64.4		1084		385

2C+E = 2 Core + Earth. 3C+E = 3 Core + Earth.

Note: LSOH version available.

## XLPE MULTICORE CIRCULAR 0.6/1KV

### Cable description:

4 Core & 4 Core plus Earth Circular Cable, Copper Conductor, X-90 XLPE Insulated, 5V-90 PVC Sheathed, to AS/NZS 5000.1.

Note: Non Compacted Conductor.

Catalogue Reference	Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
164CEXP	16	21.0	87.5	85
254CEXP	25	24.9	130	150
354CEXP	35	27.8	173	165
504CEXP	50	32.0	235	190
704CEXP	70	37.1	325	225
954CEXP	95	41.8	437	250
1204CEXP	120	46.2	547	280
1504CEXP	150	52.0	680	310
1854CEXP	185	58.3	857	350
2404CEXP	240	65.8	1122	395
3004CEXP	300	72.9	1400	440

## XLPE MULTICORE SWA CIRCULAR 0.6/1KV

### Cable description:

3 Core plus Earth Circular Cable, Copper Conductor, X-90 XLPE Insulated, PVC Bedded, Steel Wire Armoured, 5V-90 PVC Sheathed, to AS/NZS 5000.1.

Note: Non Compacted Conductor.

Catalogue Reference	Nominal Conductor Area mm <sup>2</sup>	Approx. Diameter Over Bedding mm	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
253CEXP	25	21.4	28.2	187	340
353CEXP	35	24.0	30.8	229	370
503CEXP	50	27.5	34.5	291	415
703CEXP	70	31.8	40.0	406	480
953CEXP	95	35.6	44.0	504	530
1203CEXP	120	39.3	47.9	608	575
1503CEXP	150	44.4	54.4	783	655
1853CEXP	185	49.6	59.8	949	720
2403CEXP	240	56.4	67.0	1198	805
3003CEXP	300	62.3	73.3	1447	880

Note: LSOH version available.



## XLPE MULTICORE SWA CIRCULAR 0.6/1KV

### Cable description:

4 Core plus Earth Circular Cable, Copper Conductor, X-90 XLPE Insulated, PVC Bedded, Steel Wire Armoured, 5V-90 PVC Sheathed, to AS/NZS 5000.1.

Note: Non Compacted Conductor.

Catalogue Reference	Nominal Conductor Area mm <sup>2</sup>	Approx. Diameter Over Bedding mm	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
254CEXLPA	25	23.8	30.6	223	370
354CEXLPA	35	26.8	33.8	278	405
504CEXLPA	50	30.8	38.8	379	465
704CEXLPA	70	35.7	44.1	493	530
954CEXLPA	95	40.0	48.6	624	585
1204CEXLPA	120	44.6	54.6	804	655
1504CEXLPA	150	50.0	60.4	970	725
1854CEXLPA	185	56.4	67.0	1184	805
2404CEXLPA	240	63.5	74.5	1487	895
3004CEXLPA	300	70.2	81.6	1804	980

Note: LSOH version available on request.

# Instrumentation Cables

## INFORM@X®

### Cable description:

P50-P56 cables are intrinsically safe electrically to as 2380.7 & AS 2381.7. Construction design standard according to EN 50288-7. Instrumentation cables are used in a broad range of operational conditions, they are primarily allocated to control applications where optimal protection from electrical noise is required. These cables can be used for digital and analogue data transmission at 110V in PLC and SCADA systems.

### P50 Instrumentation - Overall Screen (CS)

Product Code	Pairs	Nominal O.D		Min. Bending Radius		Max. Pulling Tension		Approx. Mass	
		Plain	SWA	Plain	SWA	Plain	SWA	Plain	SWA
		mm	mm	mm	mm	N	N	kg/km	kg/km
P5001CS	1	6.8	-	41	-	70	-	55	-
P5002CS	2	10.3	14.4	62	173	140	1390	121	344
P5004CS	4	11.8	16.6	71	200	280	2060	162	516
P5006CS	6	14.0	18.8	84	226	420	2520	196	631
P5008CS	8	14.4	19.3	87	231	560	2950	256	679
P5010CS	10	17.5	23.1	105	277	700	3360	304	972
P5012CS	12	18.0	23.6	108	284	840	4010	344	1031
P5016CS	16	19.9	25.6	120	307	1120	5060	431	1178
P5020CS	20	22.1	27.7	132	332	1400	6180	519	1343
P5024CS	24	25.0	30.6	150	367	1680	6960	634	1544
P5036CS	36	28.5	35.0	171	420	2520	9450	882	2153

### P50 Instrumentation - Element And Overall Screen (ESCS)

Product Code	Pairs	Nominal O.D		Min. Bending Radius		Max. Pulling Tension		Approx. Mass	
		Plain	SWA	Plain	SWA	Plain	SWA	Plain	SWA
		mm	mm	mm	mm	N	N	kg/km	kg/km
P5002ESCS	2	11.5	15.6	69	187	140	1550	146	391
P5004ESCS	4	13.3	18.1	80	218	280	2310	200	598
P5006ESCS	6	16.4	21.4	98	256	420	2890	266	772
P5008ESCS	8	16.8	21.7	101	261	560	3390	312	831
P5010ESCS	10	19.7	25.3	118	304	700	4170	384	1129
P5012ESCS	12	20.3	25.9	122	311	840	4980	437	1203
P5016ESCS	16	22.5	28.2	135	338	1120	5900	551	1393
P5020ESCS	20	25.4	31.1	153	373	1400	6860	691	1618
P5024ESCS	24	28.3	34.7	170	417	1680	8000	814	2084
P5036ESCS	36	32.4	39.3	194	471	2520	11160	1141	2626

## P51 Instrumentation - Overall Screen (CS)

Product Code	Pairs	Nominal O.D		Min. Bending Radius		Max. Pulling Tension		Approx. Mass	
		Plain	SWA	Plain	SWA	Plain	SWA	Plain	SWA
		mm	mm	mm	mm	N	N	kg/km	kg/km
P5102ES	1 Pair	8.1	12.4	48	149	210	1390	85	265
P5103ES	1 Triple	8.5	12.9	51	155	315	1480	107	309

## P53 Instrumentation - Overall Screen (CS)

Product Code	Triples	Nominal O.D		Min. Bending Radius		Max. Pulling Tension		Approx. Mass	
		Plain	SWA	Plain	SWA	Plain	SWA	Plain	SWA
		mm	mm	mm	mm	N	N	kg/km	kg/km
P5304CS	4	13.4	18.2	80	219	420	2520	212	610
P5306CS	6	16.5	21.5	99	258	630	3150	297	803
P5312CS	12	20.1	25.7	121	309	1260	5450	471	1233
P5316CS	16	22.3	28.0	134	335	1680	6570	596	1435
P5336CS	36	32.1	38.9	192	467	3780	13480	1249	2698

## P53 Instrumentation - Element And Overall Screen (ESCS)

Product Code	Triples	Nominal O.D		Min. Bending Radius		Max. Pulling Tension		Approx. Mass	
		Plain	SWA	Plain	SWA	Plain	SWA	Plain	SWA
		mm	mm	mm	mm	N	N	kg/km	kg/km
P5304ESCS	4	15.2	19.5	91	234	420	2920	266	680
P5306ESCS	6	18.1	23.7	109	285	630	3940	346	1034
P5308ESCS	8	18.6	24.2	112	291	840	4980	399	1105
P5312ESCS	12	22.6	28.2	135	338	1260	6470	562	1405
P5316ESCS	16	25.5	31.2	153	374	1680	8050	739	1683
P5336ESCS	36	36.2	43.1	217	517	3780	15360	1504	3140

## P55 Instrumentation - Overall Screen (CS)

Product Code	Pairs	Nominal O.D		Min. Bending Radius		Max. Pulling Tension		Approx. Mass	
		Plain	SWA	Plain	SWA	Plain	SWA	Plain	SWA
		mm	mm	mm	mm	N	N	kg/km	kg/km
P5502CS	2	12.4	17.3	75	207	420	1900	193	547
P5504CS	4	14.5	19.3	87	231	840	2700	272	686
P5506CS	6	17.9	23.5	107	282	1260	3430	373	1059
P5508CS	8	18.4	24.0	110	288	1680	4360	436	1141
P5510CS	10	21.6	27.2	130	327	2100	5320	536	1340
P5512CS	12	22.3	27.9	134	335	2520	5950	617	1458



## P55 Instrumentation - Element And Overall Screen (ESCS)

Product Code	Pairs	Nominal O.D		Min. Bending Radius		Max. Pulling Tension		Approx.Mass	
		Plain	SWA	Plain	SWA	Plain	SWA	Plain	SWA
		mm	mm	mm	mm	N	N	kg/km	kg/km
P5502ESCS	2	13.3	18.1	80	217	420	2140	215	589
P5504ESCS	4	16.7	21.6	100	260	840	3090	331	803
P5506ESCS	6	19.9	25.6	120	307	1260	4200	426	1173
P5508ESCS	8	20.4	26.1	123	313	1680	5360	501	1266
P5510ESCS	10	24.5	30.2	147	362	2100	6180	640	1546
P5512ESCS	12	25.3	31.0	152	372	2520	6960	736	1662

## P56 Instrumentation - Overall (Cs) Or Element And Overall Screen (ESCS)

Product Code	Pairs	Nominal O.D		Min. Bending Radius		Max. Pulling Tension		Approx.Mass	
		Plain	SWA	Plain	SWA	Plain	SWA	Plain	SWA
		mm	mm	mm	mm	N	N	kg/km	kg/km
P5604CS	4	171	22.0	102	264	1260	1260	390	868
P5606CS	6	20.4	26.1	122	313	1890	1890	512	1272
P5612CS	12	25.4	31.1	153	373	3780	3780	957	1816
P5604ESCS	4	18.3	24.0	110	288	1260	1260	425	1073
P5606ESCS	6	22.0	27.6	132	332	1890	1890	556	1380
P5612ESCS	12	28.1	34.5	168	414	3780	3780	989	2234

## Electrical Characteristics - P31 Data

Cable Type	Units	P50 CS	P50 ESCS	P51 ES	P53 CS	P53 ESCS	P55 CS	P55 ESCS	P56 CS
Conductor Size	mm	0.5	0.5	1.5	0.5	0.5	1.5	1.5	1.5
Conductor Resistance at 20°C	ohms/100m	3.84	3.84	1.36	3.84	3.84	1.36	1.36	1.36
Insulation Resistance at 20°C	mohms/km	10	10	10	10	10	10	10	10
Max Continuous Current Rating	A	3.2	3.2	12	3.2	3.2	12	12	12
Max D.C. Voltage Withstand	kV	3	3	3	3	3	3	3	3
Capacitance of pairs	pF/m	250	250	250	-	-	250	250	-
Capacitance Unbalanced between pairs	pF/100m	100	100	-	-	-	100	100	-
L/R Ratio	µH/ohms	25	25	40	25	25	40	40	40

## GLOSSARY OF TERMS - INSTRUMENTATION CABLES

**Core:** An insulated wire

**Pair:** Two cores twisted together (white & black)

**Triple:** Three cores twisted together (red, white and black)

**Element:** An assembly of cores, either paired or tripled

**Drain wire:** A bare tinned copper wire (7/0.25mm)

**Screen:** A metallic covering which may be applied over an element or a cabled assembly

**SCADA:** Supervisory control and data acquisition

**PLC:** Programmable logic control

**Noise:** Electrically generated interference causing signal distortion or loss

**EMI (EMF):** Electromagnetic interference

**RFI:** Radio frequency interference

**Cross Talk:** Interference between pairs of a cable or from one cable to another cable.

**Capacitance:** The ability of a cable or system to store an electric charge.

**Element Screened (ES) or Individual Screened:** Each element having a drain wire and screen applied

**Composite Screen (CS) or Overall Screened:** A cable where each element is UNSCREENED but a drain wire and screen is applied over the laid up elements

**Element Screened/Composite Screened (ES/CS) Individual and Overall Screened:** Each element is screened and an overall screen is applied over the laid up assembly

**Analogue Signal:** Any continuous signal for which the time varying feature of the signal is a representation of some other time varying quantity, i.e., analogous to another time varying signal

**Digital Signal:** a physical signal that is a representation of a sequence of discrete values, for example of an arbitrary bit stream, or of a digitized analogue signal

# Control Cables



## 1.5MM<sup>2</sup> MULTICORE PVC CONTROL 0.6/1KV

### Cable description:

Multicore Circular with Earth, 1.5mm<sup>2</sup> Copper Conductor, V-90 PVC Insulated and 5V-90 Sheathed Control Cable, to AS/NZS 5000.1.

Catalogue Reference	No. Of Power Cores	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
1.52CECON	2	10.1	15	40
1.53CECON	3	10.9	18	45
1.54CECON	4	11.9	21	50
1.55CECON	5	13.5	23	55
1.56CECON	6	13.5	25	55
1.57CECON	7	14.4	28	60
1.58CECON	8	15.4	31	60
1.510CECON	10	16.6	36	65
1.512CECON	12	17.3	41	70
1.515CECON	15	19.2	49	75
1.520CECON	20	21.1	61	85
1.525CECON	25	23.3	73	95
1.530CECON	30	24.6	85	100
1.540CECON	40	28.0	110	170
1.550CECON	50	31.4	135	190

## 2.5MM<sup>2</sup> MULTICORE PVC CONTROL 0.6/1KV

### Cable description:

Multicore Circular with Earth, 2.5mm<sup>2</sup> Copper Conductor, V-90 PVC Insulated and 5V-90 PVC Sheathed Control Cable, to AS/NZS 5000.1.

Catalogue Reference	No. Of Power Cores	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
2.52CECON	2	11.3	20	50
2.53CECON	3	12.3	25	50
2.54CECON	4	13.3	30	60
2.55CECON	5	15.0	31	60
2.56CECON	6	15.0	36	60
2.57CECON	7	16.1	39	70
2.58CECON	8	17.2	43	80
2.510CECON	10	18.6	50	80
2.512CECON	12	19.5	58	80
2.515CECON	15	21.6	70	90
2.520CECON	20	23.8	89	100
2.525CECON	25	26.3	107	160
2.530CECON	30	27.4	124	170
2.540CECON	40	32.0	163	200
2.550CECON	50	35.9	201	220

Note: LSOH version available on request.

## 1.5MM<sup>2</sup> MULTICORE PVC CONTROL SWA 0.6/1KV

### Cable description:

Multicore Circular with Earth, 1.5mm<sup>2</sup> Copper Conductor, V-90 PVC Insulated and PVC Bedded, Steel Wire Armoured, 5V-90 PVC Sheathed Control Cable, to AS/NZS 5000.1.

Catalogue Reference	No. Of Power Cores	Approx. Diameter Over Bedding mm	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
1.52CECONA	2	9.1	15.2	48	190
1.53CECONA	3	9.9	16.1	52	200
1.54CECONA	4	10.9	17.0	59	210
1.55CECONA	5	12.4	18.5	65	230
1.56CECONA	6	12.4	18.5	66	230
1.57CECONA	7	13.4	19.5	73	250
1.58CECONA	8	14.4	20.5	79	260
1.510CECONA	10	15.6	21.7	87	260
1.512CECONA	12	16.3	22.4	94	270
1.515CECONA	15	18.2	24.3	108	290
1.520CECONA	20	20.1	26.9	141	340
1.525CECONA	25	22.3	29.1	160	350
1.530CECONA	30	23.1	29.9	175	370
1.540CECONA	40	27.1	34.1	216	410
1.550CECONA	50	30.3	38.5	280	460

## 2.5MM<sup>2</sup> MULTICORE PVC CONTROL SWA 0.6/1KV

### Cable description:

Multicore Circular with Earth, 2.5mm<sup>2</sup> Copper Conductor, V-90 PVC Insulated and PVC Bedded, Steel Wire Armoured, 5V-90 PVC Sheathed Control Cable, to AS/NZS 5000.1.

Catalogue Reference	No. Of Power Cores	Approx. Diameter Over Bedding mm	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
2.52CECONA	2	10.3	16.4	57	200
2.53CECONA	3	11.3	17.4	65	210
2.54CECONA	4	12.3	18.4	72	220
2.55CECONA	5	14.0	20.1	80	240
2.56CECONA	6	13.5	19.6	82	240
2.57CECONA	7	15.1	21.2	95	260
2.58CECONA	8	16.2	22.3	103	270
2.510CECONA	10	17.6	23.7	109	290
2.512CECONA	12	18.5	25.3	133	300
2.515CECONA	15	20.6	27.4	151	330
2.520CECONA	20	22.8	29.6	183	360
2.525CECONA	25	25.3	32.3	207	390
2.530CECONA	30	26.4	33.4	234	400
2.540CECONA	40	30.9	39.1	313	470
2.550CECONA	50	34.6	43.0	361	520

Note: LSOH version available on request.

# Aerial Cables



## PVC AERIAL 0.6/1KV

### Cable description:

Single Core Aerial Cable, Hard Drawn Copper Conductor, V-90 PVC Insulated, Unsheathed, to AS/NZS5000.1.

Catalogue Reference	Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
Single Core				
61CAER	6.0	5.2	8	20
101CAER	10	6.2	12	20
161CAER	16	7.2	18	30
251CAER	25	9.3	28	40
351CAER	35	10.2	38	40
501CAER	50	11.9	51	50
701CAER	70	13.7	72	60
951CAER	95	15.9	98	60
1201CAER	120	17.4	120	70
1501CAER	150	19.5	148	80
1851CAER	185	21.7	189	90

## PVC AERIAL PARALLEL WEBBED 0.6/1KV

### Cable description:

2 Core Parallel Webbed Aerial Cable, Hard Drawn Copper Conductor, V-90 PVC Insulated, Unsheathed, to AS/NZS 5000.1.

Catalogue Reference	Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
2 Core				
6FIG8AER	6.0	11.2x5.2	15	20
10FIG8AER	10	13.2x6.2	24	25
16FIG8AER	16	15.3x7.2	37	30



## PVC TWISTED AERIAL 0.6/1KV

### Cable description:

2, 3 & 4 Core Twisted Aerial Cable, Hard Drawn Copper Conductor, V-90 PVC Insulated, Unsheathed, to AS/NZS 5000.1.

Catalogue Reference	Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm	Approx. Mass kg/100m	Min. Installed Bending Radius mm
2 Core				
62CTAER	6.0	10.3	15	60
102CTAER	10	12.3	24	70
162CTAER	16	14.4	37	90
252CTAER	25	18.5	57	110
3 Core				
63CTAER	6.0	11.1	23	70
103CTAER	10	13.3	36	80
163CTAER	16	15.5	55	95
253CTAER	25	20.0	85	120
4 Core				
64CTAER	6.0	12.4	30	75
104CTAER	10	14.9	48	90
164CTAER	16	17.4	73	105
254CTAER	25	22.3	112	135

# Firestop Cables

**Afumex**  
The Safe Choice



## MULTICORE FIRESTOP FS90 0.6/1KV

### Cable description:

Multicore Circular, Copper Conductor, Mica Glass Taped, X-90 XLPE Insulation, HFS-90-TP Sheathed, 0.6/1kV, to AS/NZS 5000.1 and AS/NZS 3013 WS Rating.

Code	Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm	Approx. Mass kg/100m	AS/NZS 3013 WS Rating
2 Core				
*1.02CF590	1.0	11.3	16	WS51W
1.52CF590	1.5	11.9	18	WS52W
2.52CF590	2.5	12.9	22	WS52W
2 Core + Earth				
1.52CEFS90	1.5	11.9	19	WS52W
2.52CEFS90	2.5	13.4	25	WS52W
42CEFS90	4.0	14.2	29	WS52W
62CEFS90	6.0	15.3	35	WS52W
3 Core				
1.03CF590	1.0	11.9	17	WS51W
1.53CF590	1.5	12.5	20	WS52W
2.53CF590	2.5	13.6	25	WS52W
3 Core + Earth				
1.53CEFS90	1.5	13.4	23	WS52W
2.53CEFS90	2.5	14.6	29	WS52W
43CEFS90	4.0	15.6	35	WS52W
63CEFS90	6.0	16.8	43	WS52W
4 Core				
*1.04CF590	1.0	12.9	20	WS51W
1.54CF590	1.5	13.6	23	WS52W
2.54CF590	2.5	14.8	30	WS52W
4 Core + Earth				
1.54CEFS90	1.5	14.6	26	WS52W
2.54CEFS90	2.5	16.0	34	WS52W
44CEFS90	4.0	16.8	42	WS52W
64CEFS90	6.0	18.5	53	WS52W
6 Core + Earth				
1.56CF590	1.5	16.1	28	WS52W
1.56CEFS90	1.5	16.1	29	WS52W
2.56CEFS90	2.5	17.6	39	WS52W
7 Core				
1.57CF590	1.5	16.1	29	WS52W
10 Core + Earth				
1.510CEFS90	1.5	20.2	42	WS52W
2.510CEFS90	2.5	22.2	57	WS52W
20 Core + Earth				
1.520CEFS90	1.5	25.7	72	WS52W
2.520CEFS90	2.5	28.4	99	WS52W

\* Meets CAT 3 Data Transmission Characteristics.

## FIRESTOP FS90 FLAT 250/450V & 0.6/1KV



### Cable description:

Figure 8, Copper Conductor, Mica Glass Taped, XLPE Insulation, HFS-90-TP Sheathed, to AS/NZS 5000.1 and AS/NZS 3013 WS Rating.

Code	Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Dimensions mm	Approx. Mass kg/100m	AS/NZS 3013 WS Rating
2 CORE 250/450V				
*1.02CFF90LD	1.0	5.5x9.0	7.2	WS51W
*1.52CFF90LD	1.5	5.7x9.6	8.5	WS51W
2 CORE 0.6/1KV				
*1.02CFF90HD	1.0	7.7x11.2	10.3	WS52W
*1.52CFF90HD	1.5	8.0x11.8	12.0	WS52W

\* Complies to AS/ACIF 5 008.

## SINGLE CORE FIRESTOP FS110 0.6/1KV

### Cable description:

Single Core Circular, Copper Conductor, Mica Glass Taped, R-HF-110 Insulation, HF-110-R Sheathed, to AS/NZS 5000.1.

Code	Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm	Approx. Mass kg/100m	AS/NZS 3013 WS Rating
101CFS110	10	9.9	1.9	WS51W
161CFS110	16	10.9	25	WS52W
251CFS110	25	13.1	38	WS52W
351CFS110	35	14.2	47	WS52W
501CFS110	50	16.0	62	WS52W
701CFS110	70	17.6	82	WS52W

## FLEXIBLE SINGLE CORE FIRESTOP FS110 0.6/1KV

### Cable description:

Flexible Single Core Circular, Class 5 Conductor, Mica Glass Taped Fire Barrier XHF-110, HFS-110-TP Sheathed, Colour Red, to AS/NZS 5000.1 and AS/NZS 3013 WS Rating.

Code	Nominal C.S.A. mm <sup>2</sup>	Nominal Cable O.D.	Approx. Mass kg/100m	AS/NZS 3013 WS Rating
251CFFFS110	25	13.7	36.0	WS52W
351CFFFS110	35	14.8	46.0	WS52W
501CFFFS110	50	16.4	61.0	WS52W
701CFFFS110	70	18.2	81.0	WS52W
951CFFFS110	95	20.1	103.0	WS52W
1201CFFFS110	120	21.8	128.0	WS52W
1501CFFFS110	150	24.0	157.0	WS52W
1851CFFFS110	185	26.1	189.0	WS52W
2401CFFFS110	240	29.3	245.0	WS52W
3001CFFFS110	300	32.2	303.0	WS52W
4001CFFFS110	400	36.3	394.0	WS52W
5001CFFFS110	500	40.4	495.0	WS52W
6301CFFFS110	630	45.9	654.0	WS52W



## MULTICORE FIRESTOP FS110 0.6/1KV

### Cable description:

Multicore Circular, Copper Conductor, Mica Glass Taped, R-HF-110 Insulation, HF-110-R Sheathed, to AS/NZS 5000.1 and AS/NZS 3013 WS Rating.

Code	Nominal Conductor Area mm <sup>2</sup>	Approx. Overall Diameter mm	Approx. Mass kg/100m	AS/NZS 3013 WS Rating
3 Core + Earth				
103CEFS110	10	20.1	75	WS52W
163CEFS110	16	22.4	100	WS52W
253CEFS110	25	27.0	144	WS52W
353CEFS110	35	29.2	183	WS52W
503CEFS110	50	33.3	244	WS52W
703CEFS110	70	37.4	325	WS52W
953CEFS110	95	42.3	429	WS52W
1203CEFS110	120	46.0	527	WS52W
1503CEFS110	150	51.1	651	WS52W
1853CEFS110	185	56.4	818	WS52W
2403CEFS110	240	63.8	1066	WS52W
4 Core + Earth				
104CEFS110	10	22.2	94	WS52W
164CEFS110	16	24.8	126	WS52W
254CEFS110	25	30.0	183	WS52W
354CEFS110	35	33.0	222	WS52W
504CEFS110	50	37.4	315	WS52W
704CEFS110	70	42.0	419	WS52W
954CEFS110	95	47.2	550	WS52W
1204CEFS110	120	51.2	676	WS52W
1504CEFS110	150	57.2	837	WS52W
1854CEFS110	185	63.7	1063	WS52W
2404CEFS110	240	72.2	1386	WS52W

# Safe even when the alarm goes off.

Firestop™ is there when you need it the most.



It's when the flames consume everything around them and the heat becomes intolerable that our fire-resistance cable, Firestop™, displays its best qualities. In intense heat conditions it continues to supply all the critical functions such as fire alarm, emergency lighting and fans. Low smoke and halogen-free – like all the other cables in our Afumex series. Welcome to our safe and secure cable family, Firestop™.

Australian made? Yes, of course.

A brand of the

**Prysmian**  
Group

## VaSTEC™ EMC/VARIABLE SPEED DRIVE 0.6/1KV

### Cable description:

1.5mm<sup>2</sup> & 2.5mm<sup>2</sup> cables are a flexible, 3 core and earth copper construction, X-90 XLPE insulated and 5V-90 PVC sheathed to AS/NZS 5000.1 incorporating a heavy duty tinned copper braid screen over metallised tape.

4.0mm<sup>2</sup> to 10mm<sup>2</sup> cable are a flexible, copper 3 core plus 3 split earth symmetrical construction, X-90 XLPE insulated and 5V-90 PVC sheathed to AS/NZS 5000.1 incorporating a heavy duty tinned copper braid screen over metallised tape.

Code	Nominal Conductor Area mm <sup>2</sup>	Nominal Combined Earth Area mm <sup>2</sup>	Overall Diameter mm		Weight kg/100m
			Min.	Max.	
1.5FXEMC*	1.5	1.5	11.7	12.7	21
2.5FXEMC*	2.5	2.5	11.9	13.3	27
4FXEMC	4.0	3.0	13.9	14.9	36
6FXEMC	6.0	3.0	15.7	16.7	46
10FXEMC	10	4.5	17.6	18.9	65

\* Cable has only one earth with a cross section area equal to the phase conductor.

## VaSTEC™ EMC/VARIABLE SPEED DRIVE 0.6/1KV

### Cable description:

Rigid copper 3 core plus 3 split earth copper symmetrical construction, XLPE insulated and 5V-90 PVC sheathed to AS/NZS 5000.1 incorporating a copper tape screen over 5V-90 PVC bedding.

Code	Nominal Conductor Area mm <sup>2</sup>	Nominal Combined Earth Area mm <sup>2</sup>	Nominal Overall Diameter mm	Weight kg/100m
10REMC	10	4.5	19.5	60
16REMC	16	7.5	22	90
25REMC	25	12	25.6	130
35REMC	35	18	28.1	170
50REMC	50	30	31.6	220
70REMC	70	30	35.3	290
95REMC	95	48	39.9	390
120REMC	120	48	43.6	470
150REMC	150	75	48.8	590
185REMC	185	75	54.1	720
240REMC	240	105	60.8	930
300REMC	300	150	66.9	1160

Note: LSOH version available on request.

# Other Special Cables

The energy cables in previous sections of this Guide, represent the common cables required in general markets. Prysmian however, manufacture a wide range of cables for “special markets” with specific demands. This includes:

**Mining and Industrial Markets**, where cables are generally elastomeric, and face tougher duties and higher safety requirements.

- Reeling and Trailing Cables to AS/NZS 1802 (Underground Coal Mining).
- Underground Feeder Cables to AS/NZS 1972, AS1026, AS/NZS1429.
- Machine Cables to AS/NZS 1972.
- Reeling and Trailing Cables to AS/NZS 2802.
- Composite trailing cables with fibre optics.
- Flat power and control cables.
- Festoon cables.

**Marine Environments**, where special materials have to be used to cope with hydraulic and saline conditions, and which are also required to perform exceptionally in case of fire (low smoke and toxic gas emission).

- Cables to AS/NZS 4193, IEC 60092-353, 60092-354, 60332 and other international standards.
- Cables for tough offshore oil and gas applications.

**Transport Industry**, where cables are stressed from heat, vibration and exposure to oils.

**Defence Standards**, where cables are required to many international specifications, and are installed in very tight conditions, and operate in environments of greater heat and vibration. Critical systems have to be heavily screened to cope with high requirements for electromagnetic radiation. Prysmian Cable & Systems is proud to have been the preferred supplier to the RAN's Anzac Frigates and Collins Submarine projects.

If you have a special requirement which falls outside of these areas, please do not hesitate to contact the nearest Prysmian Cable & Systems office. New cables are designed every day, and can also be sourced from the large global resources of the Prysmian Cable & Systems office Group.

# Communication Cables

# Guide For Codes

## FIBRE

Product	Fibre Count	Mode	Fibre Size	Type Of Cable/ Construction	Optional		
					Jacket	Special Sheath	Armour
F	4	M	I	LT	N	S	C
F = Fibre	4 = 4 Fibre 24 = 24 Fibre	M = Multimode S = Singlemode	S = 9/125 M1 = 62/125 M3 = 50/125 M4 = 50/125	IOR = In/Outdoor Riser IOB = In/Outdoor Breakout PAT = Simplex Patch ZIP = Zip Patch AD = ADSS (Single Sheath) ADD = ADSS (Double Sheath) LT = Loose Tube ST = Single Tube	N = Nylon	S = Sacrificial Sheath	C = Corrugated Steel Tape A = Steel Wire G = Glass Reinforced Plastic H = High Strength

## LAN CABLE

Product	Pair Count	"P"	Category	Optional			
				Patch/Outdoor	Screening	Special Materials	Colour
L	4	P	SE	P	CS	LS	BL
L = Lan	4 = 4 pair 25 = 25 pair etc	"P" for Pair	3 = Cat 3 5E = Cat 5E 6 = Cat 6 6A = Cat 6A	P = Patch O = Outdoor	CS = Screened ES = Element Screened	J = Jelly LS = low smoke zero halogen (LSOH) flame retardant	BU = Blue GR = Grey RD = Red GN = Green WH = White YE = Yellow BK = Black

## INTERNAL TELEPHONE

Product	Pair Count	"P"	Internal	Optional
				Screened or ISDN
T	2	P	I	CS
T = Telephone	2 = 2 pair 10 = 10 pair etc	"P" for pair "T" for triple "C" for core	"I" for internal	CS = Screened SDN = Balanced Pair Station Cable

## EXTERNAL TELEPHONE

Product	Pair Count	"P"	Conductor Size	Description	Optional		
					Jelly	Jacket	Screened
T	4	P	40	PE	J	N	M
T = Telephone	2 = 2 pair 10 = 10 pair etc	"P" for pair	40 = 0.40 64 = 0.64 90 = 0.90	PE = Polyethylene IB = Integral Bearer LI = Lead In	J = Jelly	N = Nylon	M = Moisture Barrier

## COAX & CONNECTING WIRE

Product	Code or Cable Type	Optional
		Colour
C	CJMP	RDWH
C = Coax or Connecting Wire	Refer relevant page for codes and product description. (e.g. CJMP = Connecting wire jumper)	RDWH = Red White BLWH = Blue White GNWH = Green White

# LAN Cables

## LAN CABLE M@XLAN®



### Category 6

#### Cable description:

Cat 6 - 1/0.57mm 24 AWG PACW, Polyolefin Insulated, Twisted Pair, Flame Retardant Low Smoke Sheath. ACMA and UL Listed. Nominal Impedance 100 ohm. Tested up to 250MHz, (Tested up to 600MHz on request). Velocity of propagation 67%. Grey Sheath.

	Code	No. Of Pairs	Description	Overall Diameter mm	Min. Bending Radius mm	Max. Pulling Tension N	Mass kg/km
Category6	L4P6	4	Unscreened	6.2	50	190	40

Std. Pack: 4 pair - 305m Box.

### Category 6A

#### Cable description:

Cat 6A - 1/0.57mm 23 AWG PACW, Polyolefin Insulated, Twisted Pair, Flame Retardant Low Smoke Sheath. ACMA and UL Verified & Listed. Nominal Impedance 100 ohm. Tested up to 500MHz, (Tested up to 750MHz on request). Velocity of propagation 67%. Grey or Blue Sheath.

	Code	No. Of Pairs	Description	Overall Diameter mm	Min. Bending Radius mm	Max. Pulling Tension N	Mass kg/km
Category6A	L4P6A	4	Screened	7.3	60	180	68

Std. Pack: 4 pair - 305m Box.

### Category 5E

#### Cable description:

Cat 5E - 1/0.5mm 24 AWG PACW, Polyolefin Insulated, Twisted Pair, Flame Retardant Low Smoke Sheath. ACMA and UL Verified. Nominal Impedance 100 ohm. Tested up to 100MHz, (Tested up to 450MHz on request). Velocity of propagation 67%. Blue Sheath.

	Code	No. Of Pairs	Description	Overall Diameter mm	Min. Bending Radius mm	Max. Pulling Tension N	Mass kg/km
Category5E	L4P5E	4	Unscreened	5.2	40	150	30.5

Std. Pack: 4 pair - 305m Box.

For Cat 3 (Category 3) LAN cables - please refer to the Prysmian M@XTEL Internal Telephone range which is now rated to Category 3. LAN Cable is also available in Low Smoke Zero Halogen Sheath.

## OptiC@t5e - Hybrid Cable - 4x 2 x 0.5+2SM BBXS

### Cable description:

Copper Pairs: Conductor: Bare Annealed copper wire,  $\phi$  0.50 mm, Insulation: PE Insulation, Core Color: white/blue; white/orange; white/green; white/brown. Optical Unit: Tight buffer: Each fibre has a LSZH buffering, Strength Member: Aramid yarn, Sheath: Blue LSZH. Outer Sheath / Core Wrapping: Core wrapping: polyester tape, Outer sheath: Pebble white LSZH.

Copper Pairs				Optical Unit		Outer Sheath/Core Wrapping	
Copper wire Diameter mm	Insulation Thickness mm	Insulation Diameter mm	Twist Pitch mm	Buffer Diameter mm	Sheath Diameter mm	Sheath Thickness	Cable Diameter
0.50 mm	Nominal 0.21 mm	0.92 $\pm$ 0.05 mm	$\leq$ 25	0.9 $\pm$ 0.05 mm	2.5 $\pm$ 0.1 mm	Nominal 0.6mm	6.1 $\pm$ 0.2 mm

Cable weight approximate Kg/km	Min. bending radius mm		Temperature Range °C			Flame Resistance
	Without Tension	Under Maximum Tension	Installation	Transport and Storage	Operation	
40	10 x Cable- $\phi$	15 x Cable- $\phi$	-15 -> +55	-40 -> +70	-30 -> +70	IEC60332-1

Electrical Characteristics								
Conductor DC resistance (20 °C)	Resistance Unbalance	Mean Characteristic Impedance	Mutual Capacitance	Insulation Resistance (20 $\pm$ 5 °C, 500 VDC)	Propagation Delay	Delay skew	Velocity propagation	Dielectric Strength (1.5kVdc)
$\leq$ 95 $\Omega$ /km	$\leq$ 2%	100 $\Omega$ $\pm$ 15 $\Omega$ (100MHz)	$\leq$ 56 nF/Km	$\geq$ 5000M $\Omega$ . km	$\leq$ 534+36/sqrt(f) ns/100m	$\leq$ 45 ns/100m	approx 67%	1kV DC 1min (core-core)

Transmission Characteristics for Copper Pair						
Frequency MHz	Attenuation dB/100m	NEXT dB/100m	PS-NEXT (only for $\geq$ 4pairs) dB/100m	ELFEXT dB/100m	PS-ELFEXT (only for $\geq$ 4pairs) dB/100m	Return Loss dB
	Max	Min	Min	Min	Min	Min
1	2.1	65	62	64	61	20
4	4.1	56	53	52	49	23
10	6.5	50	47	44	41	25
16	8.2	47	44	41	37	25
20	9.2	46	43	38	35	25
31.25	11.7	43	40	34	31	23.5
62.5	17.0	38	35	28	25	21.5
100	22.0	35	32	24	21	20.0



# Stop the rat race.

Choose rat-resistant cables.



Terminate the rat battle with heavy armour. Our all dielectric ARM@CORE fibre optic cables are fully protected against ruthless Australian rodents. Despite the solid hardware these loose tube cables are still surprisingly light-weight, flexible and easy to handle.

Australian made? Yes, of course.

A brand of the

**Prysmian**  
Group

# Optical Fibre

## OPTICAL FIBRE DESCRIPTION

### Single Mode (S) OS2 (G652.d)

Fibre Code	Fibre Size Core/Cladding (nom) $\mu\text{m}$	Outside Acrylate Coated mm	Effective Cable Cut-Off Wavelength nm	Attenuation dB/km (max) @				Mode Field Diameter @	Refractive Index (nom) @		Chromatic Dispersion ps/nm.km (max) @		
				1310 nm	1385 nm	1550 nm	1625 nm		1310nm $\mu\text{m}$	1310 and 1382nm	1550 and 1625nm	1310 nm	1550 nm
S	9/125	0.25	1260	0.35	0.35	0.21	0.24	9.2	1.467	1.468	3.5	18	22

### Tight Buffered Coating:

Core/Cladding Diameters ( $\mu\text{m}$ )		Coating Diameter ( $\mu\text{m}$ )	Attenuation dB/km (max) @	
			1310nm	1550nm
9/125	OS1/OS2	900	0.40	0.30

### Multimode (M) OM1, OM3 & OM4

Fibre Code		Fibre Size Core/Cladding (nom) $\mu\text{m}$	Outside Acrylate Coated mm	Numerical Aperture (nom)	Attenuation dB/km (max) @		Overfilled Launch Bandwidth MHz. km (min) @		Refractive Index (nom) @	
					850nm	1300nm	850nm	1300nm	850nm	1300nm
M1	OM1	62.5/125	0.25	0.275	3.2	1.0	200	500	1.496	1.491
M3	OM3	50/125	0.25	0.200	2.5	0.7	1500*	500	1.482	1.477
M4	OM4	50/125	0.25	0.200	2.5	0.7	3500**	500	1.482	1.477

### Tight Buffered Coating:

Fibre Code	Core/Cladding Diameters ( $\mu\text{m}$ )	Jacket Diameter ( $\mu\text{m}$ )	Attenuation dB/km (max) @		Overfilled Launch Bandwidth MHz. km (min) @	
			850nm	1300nm	850nm	1300nm
M1	62.5/125	900	3.5	1.0	200	500
M3	50/125	900	3.5	1.0	1500*	500
M4	50/125	900	3.5	1.0		

\*Effective laser bandwidth 2000 MHz. km.

\*\*Effective laser bandwidth 5000 MHz. km.

**OPTICAL INDOOR - SM@RTPATCH™ CORD®**

Prismian Optic Fibre Cords.

**Cable description:**

Tight Buffered fibre, reinforced with aramid yarns and sheathed with flame retardant PVC.

**Indoor Single Fibre Simplex**

Code	Description		OD mm	Mass kg/km	Min. Bend Radius mm	Max. Tensile Strength Install. kN	Operating Temp °C	Crush Resistance kN/100mm	Tight Jacket Coating Dia. µm
F1M1PAT	Simplex 2mm	OM1 1 core 62.5/125 Orange	2.0	3.6	30	0.1	0 to 60	0.5	900
F1SPAT	Simplex 2mm	S/M 1 core 9/125 Yellow	2.0	3.6	30	0.1	0 to 60	0.5	900
F1M1PAT24	Simplex	OM1 1 core 62.5/125 Orange	2.4	5.6	30	0.1	0 to 60	0.5	900
F1SPAT24	Simplex	S/M 1 core 9/125 Yellow	2.4	5.6	30	0.1	0 to 60	0.5	900

Std. Pack Size: 4km Drum &amp; Cut to Size.

**Indoor Figure 8 Zipcord**

Code	Description		OD mm	Mass kg/km	Min. Bend Radius mm	Max. Tensile Strength Install. kN	Operating Temp °C	Crush Resistance kN/100mm	Tight Jacket Coating Dia. µm
F2M1Z1P	Zip-Cord 2mm	OM1 2 core 62.5/125 Orange	2.0 x 4.2	6.6	30	0.2	0 to 60	0.5	900
F2S21P	Zip-Cord 2mm	S/M 2 core 9/125 Yellow	2.0 x 4.2	6.6	30	0.2	0 to 60	0.5	900
F2M1Z1P24	Zip-Cord	M/M 2 core 62.5/125 Orange	2.4 x 5.0	11.0	30	0.2	0 to 60	0.5	900
F2S21P24	Zip-Cord	S/M 2 core 9/125 Yellow	2.4 x 5.0	11.0	30	0.2	0 to 60	0.5	900

Std. Pack Size: 4km Drum &amp; Cut to Size.

OM3 and OM4 fibre types also available on request.

## OPTICAL INDOOR/OUTDOOR

Light & Heavy Duty Riser.



### Cable description:

Black UV Stabilised LSOH Sheath.

Features Tetracote for Easy Stripping, Tight Buffered 900 micron fibre, reinforced with water swellable aramid yarns and sheathed with Flame retardant, Low Smoke, Zero Halogen compound (LSOH). Black Sheath. Nylon jacket is an option.

### Multimode OM1 Distribution

Code	Description	OD mm	Mass kg/km	Min. Bend Radius Full Load mm	Max. Tensile Strength Install. kN	Operating Temp °C	Crush Resistance kN/100mm (Short term)
F2M1IOR	Light Duty Riser M/M 2 fibre	5.8	28	120	0.6	-10 to 70	0.5
F4M1IOR	Light Duty Riser M/M 4 fibre	5.8	28	120	0.6	-10 to 70	0.5
F6M1IOR	Light Duty Riser M/M 6 fibre	6.2	33	125	0.6	-10 to 70	0.5
F8M1IOR	Light Duty Riser M/M 8 fibre	6.8	36	140	0.6	-10 to 70	0.5
F12M1IOR	Light Duty Riser M/M 12 fibre	7.2	41	145	0.6	-10 to 70	0.5
F24M1IOR	Light Duty Riser M/M 24 fibre	8.0	58	160	0.9	-10 to 70	0.5
F48M1IOR	Light Duty Riser M/M 48 fibre	10.5	96	210	1.2	-10 to 70	0.5

### Singlemode OS2 Distribution

Code	Description	OD mm	Mass kg/km	Min. Bend Radius Full Load mm	Max. Tensile Strength Install. kN	Operating Temp °C	Crush Resistance kN/100mm
F6S1OR	Light Duty Riser S/M 6 fibre	6.2	33	125	0.6	-10 to 70	0.5
F12S1OR	Light Duty Riser S/M 12 fibre	7.2	41	145	0.6	-10 to 70	0.5
F24S1OR	Light Duty Riser S/M 24 fibre	8.0	58	160	0.9	-10 to 70	0.5

### Multimode OM1 Break Out

Code	Description	OD mm	Mass kg/km	Min. Bend Radius Full Load mm	Max. Tensile Strength Install. kN	Operating Temp °C	Crush Resistance kN/100mm
F4M1IOB	Heavy Duty Breakout M/M 4 fibre	8.0	80	180	0.7	-10 to 70	1.0
F6M1IOB	Heavy Duty Breakout M/M 6 fibre	8.0	80	180	0.7	-10 to 70	1.0
F8M1IOB	Heavy Duty Breakout M/M 8 fibre	9.9	95	200	1.2	-10 to 70	1.0
F12M1IOB	Heavy Duty Breakout M/M 12 fibre	12.5	150	250	1.2	-10 to 70	1.0

### Singlemode OS2 Break Out

Code	Description	OD mm	Mass kg/km	Min. Bend Radius Full Load mm	Max. Tensile Strength Install. kN	Operating Temp °C	Crush Resistance kN/100mm
F2S1IOB	Heavy Duty Breakout S/M 2 fibre	8.0	82	180	0.7	-10 to 70	1.0

OM2 & OM3 fibre types also available for Riser and Breakout cables.

## OPTICAL EXTERNAL LOOSE TUBE - SM@RTCORE®



SM@RTCORE® Range of external Loose Tube Cable

### Cable description:

Featuring reduced diameter technology.

2 to 624 optical fibres in water blocked loose tubes, and solid polyethylene fillers (if needed), laid up around a Glass Reinforce Plastic (GRP) central strength member, Dry water blocked Interstices, taped, polyethylene overall sheath and integrally bonded nylon jacket. Blue Sheath.

### Single Mode OS2 - SM@RTCORE®

Code	Description	OD mm	Mass kg/km	Min. Bend Radius Full Load mm	Max. Tensile Strength Install. kN	Operating Temp °C	Crush Resistance kN/100mm
F6SLTN	S/M 6 core Drycore Nylon	10.0	73	200	2.0	-10 to 70	2.0
F12SLTN	S/M 12 core Drycore Nylon	10.0	73	200	2.0	-10 to 70	2.0
F24SLTN	S/M 24 core Drycore Nylon	10.0	74	200	2.0	-10 to 70	2.0
F48SLTN	S/M 48 core Drycore Nylon	10.0	76	200	2.0	-10 to 70	2.0

Std. Pack Size: 2km & Cut to Size.

## OPTICAL ADSS



ADSS - All Dielectric Self Supporting Aerial Optic Fibre Cable.

In order to determine your cable requirements, please supply the following data:

- Maximum Span (metres)
- Maximum Ice Load (mm)
- Maximum Wind Loading (km/hr)
- Every day sag (metres or %)

If Maximum Span only is supplied the following characteristics are assumed:

- 1% normal sag, maximum 100 km/hr wind speed and 5mm radial ice load

### Metrosp@n® - 80 metre Span for Metropolitan Environments

80m Span - up to 60 fibres in water blocked loose tubes, dummy fillers (If needed), laid up around a Glass Reinforced Plastic (GRP) Central Strength Member, aramid yarns reinforced & polyethylene overall sheathed.

Code	Description	OD mm	Mass kg/km	Min. Bend Radius No Load mm	Min. Bend Radius Full Load mm	Max. Everyday Tension kN	Max. Working Tension kN	Operating Temp °C	Crush Resistance kN/100mm
F12SAD80	Singlemode 12 Core	10.8	80	300	400	0.8	4.2	-10° to +70°	2
F24SAD80	Singlemode 24 Core	10.8	80	300	400	0.8	4.2	-10° to +70°	2
F36SAD80	Singlemode 36 Core	10.8	80	300	400	0.8	4.2	-10° to +70°	2
F48SAD80	Singlemode 48 Core	10.8	80	300	400	0.8	4.2	-10° to +70°	2
F60SAD80	Singlemode 60 Core	10.8	80	300	400	0.8	4.2	-10° to +70°	2

Black UV Stabilised Sheath is standard. A Grey UV Resistant Sacrificial Sheath is available on request.

### 150 metre Short Span - Single Sheath

150m Span - up to 60 fibres in water blocked loose tubes, dummy fillers (If needed), laid up around a Glass Reinforced Plastic (GRP) Central Strength Member, polyethylene inner core tape, aramid yarns reinforced & polyethylene overall sheathed.

Code	Description	OD mm	Mass kg/km	Min. Bend Radius No Load mm	Min. Bend Radius Full Load mm	Max. Everyday Tension kN	Max. Working Tension kN	Operating Temp °C	Crush Resistance kN/100mm
F12SAD150	Singlemode 12 Core	10.5	76	300	400	1.4	4.1	-10 to +70	2
F24SAD150	Singlemode 24 Core	10.5	77	300	400	1.4	4.1	-10 to +70	2
F36SAD150	Singlemode 36 Core	10.5	79	300	400	1.4	4.1	-10 to +70	2
F48SAD150	Singlemode 48 Core	10.5	80	300	400	1.4	4.1	-10 to +70	2
F60SAD150	Singlemode 60 Core	10.5	81	300	400	1.4	4.1	-10 to +70	2

### 150 metre Short Span - Double Sheath

150m Span - up to 60 fibres in water blocked loose tubes, solid polyethylene fillers (If needed), laid up around a Glass Reinforced Plastic (GRP) Central Strength Member, polyethylene inner sheath, aramid yarns reinforced & polyethylene overall sheathed.

Code	Description	OD mm	Mass kg/km	Min. Bend Radius No Load mm	Min. Bend Radius Full Load mm	Max. Everyday Tension kN	Max. Working Tension kN	Operating Temp °C	Crush Resistance kN/100mm
F12SADD150	Singlemode 12 Core	13.5	13.5	400	500	1.3	5.5	-10 to +70	2
F24SADD150	Singlemode 24 Core	13.5	13.5	400	500	1.3	5.5	-10 to +70	2
F36SADD150	Singlemode 36 Core	13.5	13.5	400	500	1.3	5.5	-10 to +70	2
F48SADD150	Singlemode 48 Core	13.5	13.5	400	500	1.3	5.5	-10 to +70	2
F60SADD150	Singlemode 60 Core	13.5	13.5	400	500	1.3	5.5	-10 to +70	2

ADSS Cables also available in Multimode, higher fibre counts & Spans up to 500 metres.

Black UV Stabilised Sheath is standard. A Grey UV Resistant Sacrificial Sheath is available on request.

# Telephone Cables

## TELEPHONE INTERNAL/CAT 3 M@XTEL®



### Cable description:

M@XTEL INTERNAL/Cat 3: 1/0.50 PACW, Polyethylene Insulated, Twisted Pair, Unit Construction, Polyester Core Wrapped, PVC Sheathed, ACMA Approved. Cream Coloured Sheath.

Code	Description		OD mm	Min. Bending Radius mm	Max. Pulling Tension N	Mass kg/km	Telstra Version for Approved Contractors Telstra Part No.
0.5mm Unscreened Cat 3							
T2PI	Internal Telephone 1/0.50	2 pair	3.9	40	75	20	323/00165
T3PI	Internal Telephone 1/0.50	3 pair	4.8	50	110	27	323/00166
T6PI	Internal Telephone 1/0.50	6 pair	6.8	70	230	52	-
T10PI	Internal Telephone 1/0.50	10 pair	8.4	85	380	75	-
T25PI	Internal Telephone 1/0.50	25 pair	11.5	115	950	152	323/00167
T50PI	Internal Telephone 1/0.50	50 pair	15.8	160	1900	280	-
T100PI	Internal Telephone 1/0.50	100 pair	21.3	215	3800	540	323/00168

Std. Pack Size: T2PI & T3PI 305m and 500m Box - T6PI 500m Reel - T10PI-T100PI 500 & 1000m Drum.

## ISDN/STATION M@XDN™

(Suitable for ISDN and DSL applications)



### Cable description:

Internal Telephone Cable for 2 Mbit/s rate and 120 ohm @ 1 MHz.

1/0.5 PACW, Polyolefin Insulated, Twisted Pair, Aluminium/Laminate Screen with a 1/0.50mm Tinned Annealed Copper Drain Wire, LSOH Thermoplastic Sheathed, ACMA Approved. Off White Coloured Sheath.

Code	Description		OD mm	Min. Bending Radius mm	Max. Pulling Tension N	Mass kg/km	
ISDN/Station Cables							
T1PISDN	ISDN 1	1 pair	1/0.5 2M/Bit Primary Rate	4.5	50	40	24
T2PISDN	ISDN 2	2 pair	1/0.5 2M/Bit Primary Rate	4.9	60	75	31
T4PISDN	ISDN 4	4 pair	1/0.5 2M/Bit Primary Rate	7.2	100	150	53
T8PISDN	ISDN 8	8 pair	1/0.5 2M/Bit Primary Rate	8.9	130	300	82
T16PISDN	ISDN 16	16 pair	1/0.5 2M/Bit Primary Rate	12.2	180	600	142
T32PISDN	ISDN 32	32 pair	1/0.5 2M/Bit Primary Rate	16.2	235	1200	238

25 pair available on request. Larger Pair Counts available on request. Std. Pack Size: 250m Reel or Drum.

The above Internal Telephone Cables can be supplied with Low Smoke Zero Halogen Flame Retardant (LSOHFR) Sheath.

## TELEPHONE EXTERNAL/CAT 3 M@XTEL®



### Cable description:

Jelly Filled Category 3.

M@XTEL EXTERNAL/Cat 3 1/0.50 PACW, Polyethylene Insulated, Twisted Pair, Unit Construction. Jelly filled, Core Wrapped, PE Sheathed. ACMA Approved.

Code	Number Of Pairs	Overall Diameter mm	Min. Bending Radius mm	Max. Pulling Tension N	Mass kg/km
L25P30J	25	11.1	110	950	170
L50P30J	50	14.9	150	1900	320
L100P30J	100	20.2	200	3800	600

## TELEPHONE EXTERNAL M@XTEL®



### Cable description:

Jelly Filled.

Solid PACW, Cellular PE Insulated, Unit Twin Construction, Jelly Filled, Core wrapped, PE Sheathed. ACMA Approved.

Code	Number Of Pairs	Overall Diameter mm	Min. Bending Radius mm	Max. Pulling Tension N	Mass kg/km	Telstra Version for Approved Contractors Telstra Part No.
0.40 mm Conductor - Max Resistance 139.3 ohm/km, Max Capacitance Unbalance Pair to Pair 150pF/500m @ 800Hz						
T10P40PEJ	10	7.5	120	240	60	467/05021
T30P40PEJ	30	11.6	190	720	145	467/05023
T50P40PEJ	50	14.2	230	1200	225	467/05024
T100P40PEJ	100	19.3	310	2400	425	467/05026
0.64 mm Conductor - Max Resistance 56.4 ohm/km, Max Capacitance Unbalance Pair to Pair 150pF/500m @ 800Hz						
T10P64PEJ	10	10.2	165	600	115	-
T30P64PEJ	30	15.9	270	1800	300	-
T50P64PEJ	50	20.2	325	3100	485	-
T100P64PEJ	100	26.9	430	6200	915	-
0.90 mm Conductor - Max Resistance 27.9 ohm/km, Max Capacitance Unbalance Pair to Pair 150pF/500m @ 800Hz						
T10P90PEJ	10	13.4	220	1200	210	-
T30P90PEJ	30	21.8	350	3600	580	-
T50P90PEJ	50	27.7	450	6000	950	-
T100P90PEJ	100	36.0	580	12100	1760	-

Note:

1. Nylon jacket can be supplied as protection against ants and termites. (Code = N).
2. A Sacrificial Sheath is optional (Code = 5).
3. Moisture Barrier version available (Code = M).
4. Mutual Capacitance max 49 nF/km.



## TELEPHONE TELSTRA

## External Telephone Cable



## Cable description:

External Telephone Cable - Telstra - For Approved Contractors Only.

Telstra Serial/Item Number	Prysmian Material Code	Material Description	Number of Pairs	kg/km	Min Bending Diameter mm	Overall Diameter mm	Standard Pack Length mm	Stock/ MTO	Nominal Drum Dimensions mm	Max Hauling Tension N
467/05021	5412055	CABLE, TEL EXT 10/0.40 CPFUT PE	10	60	120	7.5	1000	Stock	LW1 - 600/250/480	240
467/08121	5432763	CABLE, TEL EXT 10/0.40 CPFUT PEHJC	10	65	165	8.1	1000	Stock	LW1 - 600/250/480	240
467/05023	5412116	CABLE, TEL EXT 30/0.40 CPFUT PE	30	145	190	11.7	1000	Stock	LW2 - 750/250/600	720
467/08123	5432770	CABLE, TEL EXT 30/0.40 CPFUT PEHJC	30	160	245	12.2	1000	Stock	LW2 - 750/250/600	720
467/05024	5412123	CABLE, TEL EXT 50/0.40 CPFUT PE	50	225	230	14.2	1000	Stock	LW3 - 1000/350/600	1200
467/08124	5432787	CABLE, TEL EXT 50/0.40 CPFUT PEHJC	50	240	300	14.8	1000	Stock	LW3 - 1000/350/600	1200
467/05026	5412130	CABLE, TEL EXT 100/0.40 CPFUT PE	100	425	310	19.3	1000	Stock	LW4 - 1100/400/600	2400
467/08226	5432794	CABLE, TEL EXT 100/0.40 CPFUT MBHJC	100	465	400	20.0	1000	Stock	LW4 - 1100/400/600	2400
467/09226	5441178	CABLE, TEL EXT 100/0.40 CPFUT MBHJC (AIR TUBE)	100	495	440	21.9	1000	8 weeks	STEEL - 1200/600/1000	2400
467/07028	5412222	CABLE, TEL EXT 200/0.40 CPFUT MB	200	770	380	23.8	1000	Stock	STEEL - 1200/600/1000	4800
467/09228	5442083	CABLE, TEL EXT 200/0.40 CPFUT MBHJ (AIR TUBE)	200	850	520	25.8	1000	8 weeks	STEEL - 1200/600/1000	4800
467/07328	5414721	CABLE, TEL EXT 200/0.40 CPFUT MBHJS	200	860	525	26.2	500	8 weeks	STEEL - 1200/600/1000	4800
467/07030	5412239	CABLE, TEL EXT 400/0.40 CPFUT MB	400	1480	530	32.7	500	6 weeks	STEEL - 1600/800/900	9600
467/09230	5442069	CABLE, TEL EXT 400/0.40 CPFUT MBHJ (AIR TUBE)	400	1535	690	34.4	500	8 weeks	STEEL - 1800/1000/900	9600
467/07330	5414738	CABLE, TEL EXT 400/0.40 CPFUT MBHJS	400	1595	705	35.1	500	8 weeks	STEEL - 1800/1000/900	9600
467/07032	5412253	CABLE, TEL EXT 800/0.40 CPFUT MB	800	2915	750	46.6	100	6 weeks	STEEL - 2400/1400/1000	19200
467/07332	5414745	CABLE, TEL EXT 800/0.40 CPFUT MBHJS	800	3100	985	49.1	100	8 weeks	STEEL - 1800/1000/900	19200

COMMUNICATION CABLES

Telstra Serial/ Item Number	Prysmian Material Code	Material Description	Number of Pairs	kg/ km	Min Bending Diameter mm	Overall Diameter mm	Standard Pack Length mm	Stock/ MTO	Nominal Drum Dimensions mm	Max Hauling Tension N
467/08241	5432800	CABLE, TEL EXT 10/0.64 CPFUT MBHJC	10	145	230	11.4	1000	Stock	LW2 - 750/250/600	600
467/08243	5432817	CABLE, TEL EXT 30/0.64 CPFUT MBHJC	30	340	340	17.1	1000	Stock	LW3 - 1000/350/600	1800
467/08244	5432824	CABLE, TEL EXT 50/0.64 CPFUT MBHJC	50	540	430	21.4	1000	Stock	LW5 - 1250/450/600	3000
467/08246	5432831	CABLE, TEL EXT 100/0.64 CPFUT MBHJC	100	980	575	28.7	1000	Stock	STEEL - 1600/800/900	6100
467/09246	5442106	CABLE, TEL EXT 100/0.64 CPFUT MBHJC (AIR TUBE)	100	1006	600	29.9	1000	8 weeks	STEEL - 1600/800/900	6100
467/07048	5414813	CABLE, TEL EXT 200/0.64 CPFUT MB	200	1760	580	35.7	500	6 weeks	STEEL - 1800/1000/900	12200
467/09248	5442113	CABLE, TEL EXT 200/0.64 CPFUT MBHJ (AIR TUBE)	200	1825	750	37.4	1000	8 weeks	STEEL - 2000/1200/1000	12200
467/07348	5414882	CABLE, TEL EXT 200/0.64 CPFUT MBHJS	200	1885	760	38.1	500	8 weeks	STEEL - 2000/1200/1000	12200
467/07050	5414820	CABLE, TEL EXT 400/0.64 CPFUT MB	400	3520	830	51.4	500	6 weeks	STEEL - 2400/1200/1000	24500
467/09250	5442076	CABLE, TEL EXT 400/0.64 CPFUT MBHJ (AIR TUBE)	400	3615	1060	53.0	500	8 weeks	STEEL - 2400/1200/1000	24500
467/07350	5414899	CABLE, TEL EXT 400/0.64 CPFUT MBHJS	400	3715	1080	54.0	500	8 weeks	STEEL - 2400/1200/1000	24500
467/08261	5432848	CABLE, TEL EXT 10/0.90 CPFUT MBHJC	10	245	290	14.5	1000	Stock	LW3 - 1000/350/600	1200
467/08263	5432855	CABLE, TEL EXT 30/0.90 CPFUT MBHJC	30	640	460	22.9	500	6 weeks	STEEL - 1200/600/1000	3600
467/08264	5414943	CABLE, TEL EXT 50/0.90 CPFUT MBHJC	50	1025	580	29.0	500	6 weeks	STEEL - 1600/800/900	6000
467/08266	5414950	CABLE, TEL EXT 100/0.90 CPFUT MBHJC	100	1885	760	37.9	500	6 weeks	STEEL - 2000/1200/1000	12000

## TELEPHONE AERIAL IB

Aerial IB - Integral Bearer Wire - Dry Core.



### Cable description:

Solid PACW, Solid PE Insulated, Unit Twin Construction, Core wrapped, Al/Laminate Tape Screened plus Drain Wire, PE Sheathed, Integral Bearer Construction with High Tensile Galvanised Steel Bearer Wire. ACMA Approved. Black UV Stabilised Sheath.

Code	Number Of Pairs	Bearer Wire No./mm	Overall Diameter* mm	Min. Bending Radius mm	Max. Pulling** Tension N	Mass kg/km	Telstra Version for Approved Contractors Telstra Part No.
0.40 mm Conductor - Max Resistance 139 ohm/km, Max Capacitance Unbalance Pair to Pair 150pF/500m @ 800Hz							
T10P40IB	10 Quad	1/2.50	7.8	160	2000	115	465/05221
T50P40IB	50	1/2.50	13.9	280	2000	260	465/05224
T100P40IB	100	7/1.25	19.7	400	3500	510	465/05226
0.64 mm Conductor - Max Resistance 56.4 ohm/km, Max Capacitance Unbalance Pair to Pair 120pF/1000m @ 800Hz							
T10P64IB	10	1/2.50	10.4	210	2000	165	465/05241
T30P64IB	30	7/1.25	16.7	340	3500	390	465/05243
T50P64IB	50	7/1.25	21.0	420	3500	570	465/05244
T100P64IB	100	7/1.60	29.2	580	5800	1080	465/05246
0.90 mm Conductor - Max Resistance 27.9 ohm/km, Max Capacitance Unbalance Pair to Pair 150pF/500m @ 800Hz							
T10P90IB	10	1/2.50	12.0	240	2000	240	-
T30P90IB	30	7/1.25	20.6	420	3500	650	-
T50P90IB	50	7/1.60	27.8	560	5800	1050	-
T100P90IB	100	7/1.60	38.4	770	9000	1970	-

Note:

\*O/D measured over sheath excluding bearer wire. Mutual Capacitance max 52 nF/km.

\*\*Tensile applied to the bearer wire.

## TELEPHONE LEAD IN U/G M@XTEL®

Lead In Cables - Underground.



### Cable description:

Solid PACW, Solid PE Insulated, PE Sheathed. Available with an optional Nylon Termite Resistant Jacket. ACMA Approved.

Telstra Serial/ Item Number	Prysmian Material Code	Material Description	Number of Pairs	kg/ km	Min Bending Diameter mm	Overall Diameter mm	Standard Pack Length mm	Stock Vs MTO	Nominal Drum Dimensions mm	Max Hauling Tension N
490/05023	5414776	CABLE, TEL LEAD-IN 2/0.40 PEIFLI PE	2	18.5	80	4.6	500	Stock	REELEX - 415/415/225 (MAGENTA)	50
490/08123	5432879	CABLE, TEL LEAD-IN 2/0.40 PEIFLI PEHJC	2	20	100	4.7	500	Stock	1xREEL (338/102/230), CRTN (340/340/245)	50
490/05741	5414790	CABLE, TEL LEAD-IN 2/0.64 PEILI PEIB	2	38	100	4.4	500	Stock	1xREEL (338/102/230), CRTN (340/340/245)	1000
490/08142	5432886	CABLE, TEL LEAD-IN 2/0.64MM CPFLI PEHJC	2	37	100	6.3	500	Stock	1xREEL (422/102/306), CRTN (435/435/320)	120
490/05024	5407211	CABLE, TEL LEAD-IN 5/0.40 PEIFLI PE	5	29	100	5.2	500	Stock	REELEX - 415/415/225 (MAGENTA)	120
490/08124	5432916	CABLE, TEL LEAD-IN 5/0.40 PEIFLI PEHJC	5	34	100	5.8	500	Stock	1xREEL (422/102/306), CRTN (435/435/320)	120

## CONNECTING WIRE

### Jumper Wire



Solid PACW, PVC Insulated, Max Resist 94.5, Capacitance Unbalance max 300/500m @ 800hz.

Code	Description	Number Of Wires	Overall Diameter mm	No./Dia. Wire mm	Max. Pulling Tension N	Mass kg/km	Telstra Version For Approved Contractors Telstra Part No.
CJMP2RDWH	Red-White	2 PACW	1.8	1/0.50	38	4.5	003/00250
CJMP2GRWH	Green-White	2 PACW	1.8	1/0.50	38	4.5	003/00249

# Cables Selection

# Cable Selection

The following are some simplified procedures for cable selection. Refer to the Wiring Rules AS/NZS 3000 and AS/NZS 3008.1.1 for detailed information. The four main electrical criteria for cable selection are:

- a. Current rating.
- b. Voltage drop.
- c. Short-circuit capacity.
- d. Earth loop impedance.

Generally speaking, for:

- a. Short route length, current-carrying capacity requirement will dictate the cable size selection.
- b. Long route length, voltage drop or earth loop impedance requirement will dictate the cable size selection.
- c. The short-circuit capacity of a cable shall be such that all short-circuit current occurring at any point of a circuit shall not cause the cable conductor temperature to exceed the maximum permissible limit.

## **A) Current rating:**

Current rating of a cable depends on:

- a. Installation method, eg., In air or ground, enclosed or unenclosed, etc.
- b. Installation environment, eg., ambient temperature, depth of laying, presence of other cables or circuits nearby, etc.
- c. Limiting temperatures of the cables for normal use, eg., PVC and XLPE insulated cables are 75°C and 90°C respectively.
- d. Type of overcurrent protective device used, appropriate derating factor:
  - 0.9 for fuses, e.g. AS/NZS 60269 series fuses, with  $I_2 = 1.6 \times I_N$ .Where:  $I_2$  = conventional overcurrent fusing or tripping current.  
 $I_N$  = nominal current of the fuse or circuit breaker.
- e. Current in neutral conductor.

“4 core” shall mean 3 phase cores plus one neutral core. 4 core cables can have the same current rating as 3 core cables only if the neutral core is lightly loaded, i.e. less than 35% of the rated current of the phase conductor, and the harmonic content in the current is not significant, e.g. less than 15% for 3rd and 10% for 9th, 12th, etc, higher harmonics. For other situations, de-rating may be required in order to take the additional heating effect due to the neutral current into consideration.

Current ratings in this technical manual are based on AS/NZS 3008.1.1 with the following typical Australian installation conditions. If other installation conditions are necessary, refer to derating/rating factors in the General Information section or/and AS/NZS 3008.1.1 for appropriate derating/rating factors.

- Not exposed to direct sunlight unless otherwise specified
- Single circuit
- Solar radiation (for cables exposed to sun only) = 1000W/m<sup>2</sup>
- Ambient air temperature = 40°C
- Ambient soil temperature = 25°C
- Depth of laying\* = 0.5m
- Soil thermal resistivity = 1.2°C.m/W
- Supply frequency = 50Hz

\*Measured to (a) centre of cable or trefoil group of cables or  
(b) centre of enclosure or trefoil group of enclosures

### B) Voltage drop:

Wiring Rules in general stipulate a maximum voltage drop of 5% of the nominal voltage between the point of supply and any point in the installation when the conductors are carrying maximum demand. Voltage drops in this technical manual are based on:

- a. Maximum conductor temperatures of 75°C, 90°C and 110°C as indicated
- b. Load power factor to give maximum voltage drop
- c. Single core cables are in trefoil or flat formation and touching or spaced apart
- d. Supply frequency of 50Hz

Equation to determine minimum required cable size due to voltage drop

$$V_c = \frac{V_d \times 1000}{I \times L} \quad \text{millivolts/ampere metre}$$

Where:  $V_c$  Calculated maximum permissible voltage drop in millivolts/ampere metre  
 $V_d$  Maximum permissible voltage drop in volts  
 $I$  Current in Amperes  
 $L$  Route length in metres

Now select a cable such that  $V_c$  is equal to or less than the voltage drop value given in the relevant table, and check that it will carry the current.

**C) Short-circuit capacity:**

During a short-circuit, the conductor temperature will increase due to the heat energy produced. To satisfy this requirement, short-circuit permissible temperature limit of the conductor of cable must not be exceeded. This may require the time current curves of the short-circuit protective device to be checked against the cable damage curves.

**D) Maximum earth loop impedance:**

The earth loop impedance has to be low enough to allow sufficient current to flow in the fault loop to cause the protective device to operate and disconnect the supply within the specified time when a fault of negligible impedance occurs between an active and a protective earthing conductor. To accurately calculate the earth loop impedance is not easy and requires information of the HV supply system that may or may not be available. As the internal impedance of an earth loop may be expressed in terms of circuit length, a simplified method is listed below to provide a reasonably accurate calculation of the maximum route length to ensure correct operation of protective devices to provide protection against indirect contact:

$$L_{\max} = \frac{0.8U_0 \text{ SphSpe}}{I_a \rho(\text{Sph} + \text{Spe})}$$

- Where:
- $L_{\max}$  Maximum route length (m).
  - $U_0$  Nominal phase voltage (230V).
  - $\rho$  Resistivity at normal working temperature ( $\Omega \cdot \text{mm}^2/\text{m}$ ).  
 =  $22.5 \times 10^{-3}$  for copper.  
 =  $36 \times 10^{-3}$  for aluminium.
  - $I_a$  (mean) trip current setting for the instantaneous operation of a circuit breaker (A) in the specified time; or the current that assures operation of the protective fuse (A); in the specified time.
  - $\text{Sph}$  Size of the active conductor ( $\text{mm}^2$ ).
  - $\text{Spe}$  Size of the protective earthing conductor ( $\text{mm}^2$ ).

## Notes:

1. This method is only reliable where the conductors that make up the earth-fault-current loop are in close proximity to each other and are not separated by ferromagnetic materials.
2. This calculation method is considered valid for cable sizes up to  $120\text{mm}^2$ . For larger sizes, maximum length and fault loop impedance should be calculated by other methods taking account of cable inductance.



Maximum Route Lengths, in metres, for different sizes of Conductors and Protective Devices using Mean Tripping Currents ( $I_a$ )\* for a disconnection time of 0.4 sec.

Conductor Size mm <sup>2</sup>		Protective Device Rating Amps	Circuit-breaker (see Note 1) m			Fuses (see Note 2) m
Active	Earth		Type B	Type C	Type D	
1	1	6	170	91	55	204
1	1	10	102	55	33	114
1.5	1.5	10	153	82	49	170
1.5	1.5	16	96	51	31	82
2.5	2.5	16	160	85	51	136
2.5	2.5	20	128	68	41	93
4	2.5	25	126	67	40	90
4	2.5	32	98	52	31	70
6	2.5	40	90	48	29	60
10	4	50	117	62	37	73
16	6	63	142	76	45	85
16	6	80	112	59	36	59
25	6	80	124	66	40	66
25	6	100	99	53	32	47
35	10	100	159	85	51	75
35	10	125	127	68	41	58
50	16	125	198	106	63	90
50	16	160	155	83	50	71
70	25	160	235	126	75	108
70	25	200	188	100	60	84

Notes:

- \*  $I_a$  for circuit-breakers are mean tripping currents as follows:  
 Type B = 4 times rated current.  
 Type C = 7.5 times rated current.  
 Type D = 12.5 times rated current.
- Fuses based on AS/NZS 60269.1 also known as BS 88 type fuses.
- When the nominal phase voltage of the electrical installation is not 230V, the maximum length may be determined by multiplying by a factor of  $U_0/230$ . For a nominal phase voltage of 240V, the factor would be approximately 1.04.
- The above table is for guidance only. In many cases, other requirements such as loading, short circuit and voltage drop will need to be considered in the selection of active and earth conductor sizes.



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









# Current Carrying Capacities & Voltage Drops

# Current Ratings

## CURRENT RATINGS 2 SINGLE CORE (CU) 75°C

### Cable description:

2 Single Core LV, Non Flexible, Copper Conductor, Sheathed and Unsheathed Non-Armoured Cables with V-75, V-90, V-90HT PVC , HFI-75-TP or HFI-90-TP LSOH Insulation. Based on AS/NZS 3008.1.1.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed				Enclosed	Thermal Insulation		Buried Direct	Underground Wiring Enclosure		Single Phase Voltage Drop (@ 50Hz & 75°C) mV/A.m
	Spaced	Spaced from Surface	Touching	Exposed to Sun	Wiring Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation				
											∞
1.0	16	16	13	8	13	11	6	18	18	21	51.6
1.5	21	21	16	10	18	14	8	23	23	26	33.0
2.5	30	29	23	13	24	20	12	32	32	36	18.0
4	40	39	31	18	32	25	16	41	41	47	11.2
6	51	49	40	22	41	33	20	52	52	58	7.49
10	69	67	54	30	54	44	27	69	69	77	4.46
16	92	89	72	39	70	56	36	122	89	99	2.81
25	124	119	97	50	94	75	48	158	116	129	1.78
35	153	145	119	61	112	90	59	190	139	155	1.29
50	187	177	146	72	138	110	-	225	168	186	0.963
70	238	223	184	89	170	136	-	277	206	228	0.680
95	295	276	230	107	212	169	-	332	252	278	0.507
120	344	321	267	122	242	193	-	378	287	316	0.415
150	395	367	308	137	282	225	-	424	329	354	0.352
185	459	424	358	154	320	256	-	480	373	408	0.301
240	549	505	428	177	381	305	-	556	438	472	0.255
300	636	582	495	198	-	-	-	628	496	546	0.229
400	744	676	577	221	-	-	-	713	575	621	0.209
500	867	780	668	245	-	-	-	805	649	721	0.194
630	1014	897	770	269	-	-	-	904	750	816	0.181











Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS 2 SINGLE CORE (CU) 90°C

### Cable description:

2 Single Core LV, Non Flexible, Copper Conductor, Sheathed and Unsheathed Non-Armoured Cables with X-90 XLPE, R-EP-90 EPR, R-CPE-90, R-CSP-90, or R-HF-90 LS0H Insulation. Based on AS/NZS 3008.1.1.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed				Enclosed	Thermal Insulation		Buried Direct	Underground Wiring Enclosure		Single Phase Voltage Drop (@ 50Hz & 90°C) mV/A.m
	Spaced	Spaced from Surface	Touching	Exposed to Sun	Wiring Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation				
											∞
1.0	20	20	16	12	16	13	8	20	20	24	54.0
1.5	26	25	20	15	21	16	10	26	26	30	34.6
2.5	36	36	28	21	30	24	14	36	36	41	18.9
4	48	47	37	28	38	30	19	46	46	53	11.8
6	61	60	47	36	47	38	24	58	58	66	7.86
10	84	82	65	48	65	52	32	78	78	87	4.68
16	112	108	86	64	84	67	43	139	100	112	2.94
25	151	145	117	86	113	90	58	179	131	146	1.87
35	186	177	144	105	135	108	72	215	157	175	1.35
50	228	216	176	127	166	133	-	255	189	211	1.01
70	291	273	224	160	204	164	-	313	233	258	0.710
95	361	338	278	197	255	204	-	375	285	309	0.528
120	422	393	325	229	292	233	-	427	325	358	0.431
150	486	451	375	262	329	263	-	480	365	401	0.365
185	565	522	436	303	387	309	-	543	423	463	0.311
240	678	622	522	359	461	369	-	630	497	536	0.262
300	787	718	605	413	-	-	-	711	562	620	0.233
400	923	836	708	478	-	-	-	808	653	706	0.211
500	1078	966	821	550	-	-	-	913	739	800	0.196
630	1261	1113	950	629	-	-	-	1026	856	930	0.184











Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS 2 SINGLE CORE (AL) 90°C

### Cable description:

2 Single Core LV, Aluminium Conductor, Sheathed and Unsheathed Non-Armoured Cables with X-90 XLPE, R-EP-90 EPR, R-CPE-90, R-CSP-90, or R-HF-90 LSOH Insulation. Based on AS/NZS 3008.1.1.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed				Enclosed	Thermal Insulation		Buried Direct	Underground Wiring Enclosure		Single Phase Voltage Drop (@ 50Hz & 90°C) mV/A.m
	Spaced	Spaced from Surface	Touching	Exposed to Sun	Wiring Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation				
											
16	87	84	67	50	65	52	33	107	78	87	4.91
25	117	112	91	66	87	70	45	139	102	114	3.08
35	144	137	111	81	105	84	56	167	122	136	2.24
50	177	167	136	99	129	103	-	198	147	164	1.65
70	226	212	174	124	159	127	-	243	181	200	1.15
95	280	262	216	153	198	158	-	291	221	239	0.839
120	328	305	253	178	226	181	-	332	252	278	0.672
150	377	350	291	204	255	204	-	372	283	311	0.557
185	439	406	340	236	301	241	-	423	329	359	0.455
240	527	485	408	280	360	288	-	492	388	417	0.363
300	612	562	473	323	-	-	-	556	440	482	0.307
400	723	660	559	377	-	-	-	638	516	553	0.261
500	850	772	656	439	-	-	-	729	590	632	0.227
630	1003	904	772	511	-	-	-	833	695	740	0.204











Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS 2 SINGLE CORE (CU) 110°C

### Cable description:

2 Single-Core LV, Non Flexible, Copper Conductor, Sheathed and Unsheathed Non-Armoured Cables with R-HF-110 or R-E-110 Insulation. Based on AS/NZS 3008.1.1.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed				Enclosed	Thermal Insulation		Buried Direct	Underground Wiring Enclosure		Single Phase Voltage Drop (@ 50Hz & 110°C) mV/A.m
	Spaced	Spaced from Surface	Touching	Exposed to Sun	Wiring Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation				
											∞
1.0	25	24	20	17	20	16	10	21	23	26	57.4
1.5	32	31	25	21	25	20	13	26	29	33	36.8
2.5	45	44	36	30	35	28	18	36	40	46	20.1
4	59	58	47	39	46	37	23	48	53	59	12.5
6	75	73	59	50	58	46	30	60	66	74	8.35
10	103	99	81	68	78	62	40	80	88	97	4.97
16	137	131	107	89	104	83	53	154	115	127	3.12
25	183	175	143	119	137	109	72	198	148	163	1.99
35	225	214	176	146	165	132	88	238	177	195	1.43
50	276	261	215	178	205	164	-	282	214	236	1.07
70	349	328	272	224	255	204	-	346	262	288	0.751
95	434	406	339	277	321	257	-	416	321	352	0.555
120	505	471	394	321	369	296	-	473	366	400	0.453
150	581	540	454	369	430	344	-	531	420	448	0.382
185	673	624	527	427	493	394	-	601	477	517	0.323
240	806	743	630	508	594	476	-	698	561	600	0.271
300	934	857	730	586	-	-	-	789	648	694	0.240
400	1094	998	853	682	-	-	-	898	738	790	0.216
500	1278	1155	990	789	-	-	-	1018	837	921	0.199
630	1498	1334	1146	909	-	-	-	1148	973	1045	0.185











Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS 3 SINGLE CORE (CU) 75°C

### Cable description:

3 Single Core LV, Non Flexible, Copper Conductor, Sheathed and Unsheathed Non-Armoured Cables with V-75, V-90, V-90HT PVC, HFI-75-TP or HFI-90-TP LSOH Insulation. Based on AS/NZS 3008.1.1.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed				Enclosed	Thermal Insulation		Buried Direct	Underground Wiring Enclosure		Three Phase Voltage Drop (@ 50Hz & 75 °C) mV/A.m	
	Spaced	Spaced from Surface	Touching	Exposed to Sun	Wiring Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation					
												
11.0	16	14	13	8	12	10	6	16	16	19	44.7	44.7
1.5	20	17	16	10	15	12	8	20	20	24	28.6	28.6
2.5	29	25	23	13	21	17	12	27	27	33	15.6	15.6
4	38	33	31	18	28	23	16	36	36	43	9.71	9.71
6	49	42	40	22	35	28	20	45	45	53	6.49	6.49
10	67	58	54	30	47	37	27	59	59	70	3.86	3.86
16	89	77	72	39	62	50	36	104	78	90	2.43	2.43
25	120	103	97	50	81	64	48	134	100	117	1.54	1.55
35	148	127	119	61	100	80	59	160	122	140	1.12	1.12
50	181	156	146	72	119	95	-	190	144	168	0.834	0.840
70	230	197	184	89	152	122	-	233	180	205	0.589	0.597
95	287	246	230	107	183	147	-	279	217	250	0.439	0.449
120	335	287	267	122	217	173	-	317	252	283	0.359	0.371
150	385	330	308	137	244	195	-	356	283	317	0.305	0.319
185	447	383	357	154	284	227	-	402	325	365	0.261	0.277

Note:










Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.



## CURRENT RATINGS 3 SINGLE CORE (CU) 90°C

### Cable description:

3 Single Core LV, Non Flexible, Copper Conductor, Sheathed and Unsheathed Non-Armoured Cables with X-90 XLPE, R-EP-90 EPR, R-CPE-90, R-CSP-90 or R-HF-90 LSOH Insulation. Based on AS/NZS 3008.1.1.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed				Enclosed	Thermal Insulation		Buried Direct	Underground Wiring Enclosure	Three Phase Voltage Drop (@ 50Hz & 90 °C) mV/A.m		
	Spaced	Spaced from Surface	Touching	Exposed to Sun	Wiring Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation					
												
1.0	19	16	16	12	15	12	8	18	18	22	46.8	46.8
1.5	25	21	20	15	18	15	10	22	22	27	30.0	30.0
2.5	35	30	28	21	25	20	14	31	31	38	16.4	16.4
4	46	40	37	28	33	26	19	40	40	49	10.2	10.2
6	59	50	47	36	42	34	24	50	50	60	6.81	6.81
10	81	69	65	48	56	45	32	67	67	79	4.05	4.05
16	108	92	86	64	72	58	43	117	86	101	2.55	2.55
25	146	125	117	86	97	77	58	151	113	132	1.62	1.62
35	180	154	144	105	120	96	72	180	137	158	1.17	1.18
50	221	188	176	127	143	114	-	214	163	190	0.872	0.878
70	282	240	224	160	183	146	-	262	203	232	0.615	0.623
95	350	298	278	197	220	176	-	313	244	276	0.457	0.467
120	410	349	325	229	261	209	-	356	284	320	0.373	0.385
150	472	403	375	262	295	236	-	400	320	358	0.316	0.330
185	550	468	435	302	335	268	-	452	363	413	0.269	0.285
240	660	560	521	358	399	320	-	523	426	477	0.227	0.245
300	766	648	602	410	469	375	-	589	491	552	0.202	0.222
400	899	756	702	474	534	427	-	668	557	626	0.183	0.205
500	1051	874	812	544	633	506	-	752	648	707	0.170	0.193
630	1230	1010	938	621	714	571	-	843	727	820	0.159	0.182













Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS 3 SINGLE CORE (AL) 90°C

### Cable description:

3 Single Core LV, Aluminium Conductor, Sheathed and Unsheathed Non-Armoured Cables with X-90 XLPE, R-EP-90 EPR, R-CPE-90, R-CSP-90, or R-HF-90 LSOH Insulation. Based on AS/NZS 3008.1.1.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed				Enclosed	Thermal Insulation		Buried Direct	Underground Wiring Enclosure		Three Phase Voltage Drop (@ 50Hz & 90 °C) mV/A.m	
	Spaced	Spaced from Surface	Touching	Exposed to Sun	Wiring Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation					
												
16	84	71	67	50	56	45	33	91	66	79	4.25	4.25
25	113	97	91	66	75	60	45	117	87	103	2.67	2.67
35	140	119	111	81	93	75	56	140	106	122	1.94	1.94
50	171	146	136	99	111	89	-	166	126	147	1.43	1.44
70	219	186	174	124	142	114	-	203	158	180	0.997	1.00
95	271	232	216	153	171	137	-	243	190	214	0.727	0.733
120	318	271	253	178	203	162	-	277	221	248	0.582	0.589
150	366	313	291	203	229	183	-	310	249	277	0.482	0.491
185	427	365	339	235	261	209	-	352	283	321	0.394	0.404
240	513	438	407	280	312	250	-	409	333	371	0.314	0.327
300	596	508	472	322	368	294	-	463	385	430	0.266	0.281
400	705	599	557	376	424	339	-	530	442	491	0.226	0.243
500	829	703	652	437	509	407	-	604	520	559	0.197	0.216
630	978	824	765	507	583	466	-	688	593	654	0.177	0.198



Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS 3 SINGLE CORE (CU) 110°C

### Cable description:

3 Single Core LV, Non Flexible, Copper Conductor, Sheathed and Unsheathed Non-Armoured Cables with R-HF-110 or R-E-110 Insulation. Based on AS/NZS 3008.1.1.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed				Enclosed	Thermal Insulation		Buried Direct	Underground Wiring Enclosure		Three Phase Voltage Drop (@ 50Hz & 110 °C) mV/A.m	
	Spaced	Spaced from Surface	Touching	Exposed to Sun	Wiring Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation					
												
10	99	86	81	68	71	57	40	71	77	88	4.30	4.30
16	132	114	107	89	93	74	53	130	99	115	2.70	2.71
25	177	153	143	119	125	100	72	168	130	148	1.72	1.72
35	218	188	176	146	151	121	88	201	155	176	1.24	1.25
50	267	230	215	178	182	146	-	237	184	212	0.924	0.929
70	339	291	272	224	234	187	-	291	230	259	0.650	0.657
95	422	363	339	277	285	228	-	348	277	315	0.481	0.491
120	492	422	394	321	337	269	-	396	322	357	0.392	0.403
150	565	486	453	368	382	306	-	445	362	400	0.331	0.344
185	656	564	526	426	449	359	-	503	415	461	0.280	0.296
240	786	674	629	507	548	439	-	583	492	533	0.235	0.252
300	912	780	727	584	626	501	-	657	556	617	0.208	0.227
400	1069	910	847	678	718	575	-	746	631	700	0.187	0.208
500	1248	1053	981	782	865	692	-	843	736	815	0.172	0.195
630	1462	1217	1132	898	983	787	-	947	827	920	0.160	0.184









Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS 2 CORE (CU) 75°C

### Cable description:

2 Core LV, Non Flexible, Copper Conductor, Insulated and Sheathed (including neutral screened) Cables with or without Earth Conductor, Armoured or Non-Armoured Cables with V-75, V-90, V-90HT PVC, HFI-75-TP or HFI-90-TP LSOH Insulation. Based on AS/NZS 3008.1.1.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed			Enclosed	Unenclosed Thermal Insulation		Buried Direct	Underground Wiring Enclosure	Single Phase Voltage Drop (@ 50Hz & 75 °C) mV/A.m
	Spaced	Touching	Exposed to Sun	Wiring Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation			
									
1.0	15	14	11	13	11	7	17	17	51.6
1.5	19	18	14	16	14	9	21	21	33.0
2.5	27	26	20	23	20	13	30	30	18.0
4	37	34	27	30	27	17	39	39	11.2
6	46	44	34	39	35	22	50	50	7.49
10	64	60	46	52	48	30	66	66	4.46
16	85	80	60	68	64	40	114	86	2.81
25	113	107	79	90	85	53	147	112	1.78
35	139	131	97	112	105	65	178	136	1.28
50	170	159	116	133	127	-	211	162	0.957
70	215	201	145	170	161	-	259	202	0.673
95	265	248	175	204	198	-	311	243	0.498
120	307	288	202	241	230	-	355	282	0.405
150	351	328	227	271	263	-	398	317	0.342
185	403	377	258	313	302	-	449	363	0.290
240	477	446	300	364	357	-	520	421	0.242
300	547	511	339	424	409	-	586	483	0.215
400	631	589	384	482	471	-	663	548	0.194
500	716	668	429	561	534	-	741	628	0.180









Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS 2 CORE (CU) 90°C

### Cable description:

2 Core LV, Non Flexible, Copper Conductor, Insulated and Sheathed (including neutral screened) Cables with or without Earth Conductor, Armoured or Non-Armoured Cables with X-90 XLPE, R-EP-90 EPR, R-CPE-90, R-CSP-90, or R-HF-90 LSOH Insulation. Based on AS/NZS 3008.1.1.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed			Enclosed	Unenclosed Thermal Insulation		Buried Direct	Underground Wiring Enclosure	Single Phase Voltage Drop (@ 50Hz & 90 °C) mV/A.m
	Spaced	Touching	Exposed to Sun	Wiring Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation			
									
1.0	18	17	15	16	14	9	19	19	54.0
1.5	24	22	19	20	18	11	24	24	34.6
2.5	34	31	27	28	25	16	34	34	18.9
4	45	42	36	37	33	21	45	45	11.8
6	57	53	46	46	42	27	56	56	7.85
10	78	73	63	63	58	36	75	75	4.68
16	104	97	83	82	78	49	132	98	2.94
25	140	131	111	110	105	66	170	128	1.86
35	173	162	136	132	129	81	205	154	1.35
50	211	197	165	162	158	-	244	185	1.00
70	268	250	208	200	200	-	300	228	0.703
95	331	309	255	250	247	-	360	279	0.520
120	385	359	295	285	287	-	410	318	0.423
150	441	411	336	332	328	-	460	365	0.354
185	509	473	385	377	379	-	520	413	0.299
240	604	562	454	448	449	-	603	485	0.249
300	694	645	518	523	516	-	680	558	0.219
400	804	745	594	596	596	-	771	633	0.197
500	915	848	671	695	678	-	862	728	0.182









Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS 2 CORE (CU) 110°C

### Cable description:

2 Core LV, Non Flexible, Copper Conductor, Insulated and Sheathed (including neutral screened) Cables with or without Earth Conductor, Armoured or Non-Armoured Cables with R-HF-110 or R-E-110 Insulation. Based on AS/NZS 3008.1.1.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed			Enclosed	Thermal Insulation		Buried Direct	Underground Wiring Enclosure	Single Phase Voltage Drop (@ 50Hz & 110 °C) mV/A.m
	Spaced	Touching	Exposed to Sun	Wiring Metallic Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation			
									
1.0	23	22	20	19	15	11	22	22	57.4
1.5	29	28	25	24	19	14	28	28	36.8
2.5	41	39	36	33	27	19	39	39	20.1
4	55	51	47	45	36	26	51	51	12.5
6	69	65	59	56	45	33	64	64	8.34
10	95	89	81	76	60	45	85	85	4.95
16	126	118	107	102	81	59	145	111	3.12
25	168	158	142	133	107	79	188	144	1.97
35	206	194	174	166	133	97	226	175	1.43
50	251	236	211	200	160	-	268	208	1.06
70	317	298	265	256	205	-	330	260	0.745
95	392	367	326	312	250	-	396	313	0.548
120	455	426	377	368	294	-	452	363	0.445
150	519	486	429	417	333	-	507	409	0.372
185	598	559	491	486	389	-	573	468	0.313
240	708	662	580	588	470	-	665	554	0.259
300	815	760	664	670	536	-	751	626	0.226
400	941	878	763	768	615	-	853	711	0.202
500	1074	1000	866	905	724	-	957	819	0.185









Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS 3 & 4 CORE (CU) 75°C

### Cable description:

3 & 4 Core LV, Non Flexible, Copper Conductor, Insulated and Sheathed (including neutral screened) Cables with or without Earth Conductor, Armoured or Non-Armoured Cables with V-75, V-90, V-90HT PVC, HFI-75-TP or HFI-90-TP LSOH Insulation. Based on AS/NZS 3008.1.1.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed			Enclosed	Unenclosed Thermal Insulation		Buried Direct	Underground Wiring Enclosure	Three Phase Voltage Drop (@ 50Hz & 75 °C) mV/A.m
	Spaced	Touching	Exposed to Sun	Wiring Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation			
									
1.0	13	12	9	11	9	6	14	14	44.7
1.5	16	15	12	14	12	8	18	18	28.6
2.5	23	22	17	20	17	11	25	25	15.6
4	31	29	23	25	23	15	33	33	9.71
6	40	37	29	33	30	19	42	42	6.49
10	54	51	39	44	41	25	55	55	3.86
16	72	68	51	58	54	34	96	73	2.43
25	97	91	67	76	73	46	125	94	1.54
35	120	112	82	94	90	56	150	114	1.11
50	146	137	99	112	109	-	178	136	0.829
70	185	172	123	142	138	-	219	170	0.583
95	228	213	150	177	170	-	263	208	0.431
120	265	247	172	202	198	-	300	237	0.351
150	303	282	194	228	226	-	336	266	0.296
185	348	324	220	263	259	-	379	304	0.251
240	412	383	256	316	307	-	438	359	0.210
300	472	438	288	-	-	-	493	404	0.186
400	544	504	326	-	-	-	557	468	0.168
500	616	571	363	-	-	-	620	522	0.156









Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS 3 & 4 CORE (CU) 90°C

### Cable description:

3 & 4 Core LV, Non Flexible, Copper Conductor, Insulated and Sheathed (including neutral screened) Cables with or without Earth Conductor, Armoured or Non-Armoured Cables with X-90 XLPE, R-EP-90 EPR, R-CPE-90, R-CSP-90, or R-HF-90 LSOH Insulation. Based on AS/NZS 3008.1.1.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed			Enclosed	Unenclosed Thermal Insulation		Buried Direct	Underground Wiring Enclosure	Three Phase Voltage Drop (@ 50Hz & 90 °C) mV/A.m
	Spaced	Touching	Exposed to Sun	Wiring Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation			
									
1.0	16	14	13	13	12	7	16	16	46.8
1.5	20	19	16	16	15	9	20	20	30.0
2.5	28	26	23	24	21	13	29	29	16.4
4	38	35	30	30	28	18	37	37	10.2
6	48	45	39	38	36	22	46	46	6.80
10	66	62	53	53	49	31	63	63	4.05
16	88	83	70	68	66	41	110	81	2.55
25	119	111	94	91	89	56	143	107	1.61
35	147	137	115	114	110	69	172	130	1.17
50	180	168	140	136	134	-	204	155	0.868
70	229	213	177	173	170	-	251	193	0.609
95	283	263	217	209	210	-	302	233	0.450
120	330	306	251	246	245	-	344	270	0.366
150	377	350	285	277	280	-	385	304	0.307
185	436	404	327	322	323	-	435	348	0.259
240	517	479	385	386	383	-	504	411	0.216
300	594	549	439	-	-	-	567	463	0.190
400	685	632	502	-	-	-	640	524	0.171
500	779	718	566	-	-	-	714	601	0.158

Note:









Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.



## CURRENT RATINGS 3 & 4 CORE (CU) 110°C

### Cable description:

3 & 4 Core LV, Non Flexible, Copper Conductor, Insulated and Sheathed (including neutral screened) Cables with or without Earth Conductor, Armoured or Non-Armoured Cables with R-HF-110 or R-E-110 Insulation. Based on AS/NZS 3008.1.1.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed			Enclosed	Thermal Insulation		Buried Direct	Underground Wiring Enclosure	Three Phase Voltage Drop (@ 50Hz & 110 °C) mV/A.m
	Spaced	Touching	Exposed to Sun	Wiring Metallic Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation			
									
1.0	20	18	17	16	13	9	17	19	49.7
1.5	25	24	22	20	16	12	21	24	31.9
2.5	35	33	30	29	23	17	30	33	17.4
4	47	44	40	38	30	22	39	43	10.8
6	59	56	50	47	38	28	49	53	7.22
10	81	76	69	64	51	38	65	71	4.29
16	107	101	91	86	68	50	122	93	2.70
25	144	135	121	116	93	67	158	122	1.71
35	177	166	148	140	112	83	190	146	1.24
50	216	202	180	174	139	-	226	177	0.920
70	272	255	227	217	173	-	277	217	0.645
95	337	314	278	270	216	-	333	267	0.475
120	391	364	322	311	249	-	379	304	0.385
150	447	416	367	360	288	-	426	346	0.322
185	515	479	421	411	329	-	481	391	0.271
240	611	567	496	498	398	-	558	463	0.224
300	701	650	567	-	-	-	629	522	0.196
400	810	751	651	-	-	-	713	608	0.175
500	921	852	737	-	-	-	797	680	0.160

Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS AERIAL COPPER CONDUCTOR

### Cable description:

LV Aerial Cables, with Copper Conductor and PVC Insulation.

Nominal Conductor Area mm <sup>2</sup>	PVC Insulated, exposed to sun			Voltage Drop (@50Hz & 75°C) mV/A.m	
	Single Core 2 m/s wind	2 Core Twisted, and 2 or 3 Core Parallel Webbed Cable 2 m/s wind	3 and 4 Core Twisted Cable 2 m/s wind	Single Phase	Three Phase
6	79	59	56	7.75	6.71
10	109	80	76	4.63	4.01
16	145	107	100	2.94	2.55
25	191	142	133	1.93	1.67
35	232	171	160	1.45	1.26
50	276	205	192	1.14	0.988
70	347	257	242	0.886	0.767

Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS FLEXIBLE CORDS

Nominal Conductor Area mm <sup>2</sup>	Current Carrying Capacity A	Single Phase Voltage Drop (@50Hz & 75°C) mV/A.m	Three Phase Voltage Drop (@50Hz & 75°C) mV/A.m
0.5 (See Note 2)	3	94.9	82.2
0.75	7.5	63.3	54.8
1.0	10	47.5	41.1
1.5	16	32.3	28.0
2.5	20	19.4	16.8
4.0	25	12.0	10.4

Note:

- Where a flexible cord is wound on a drum, multiply current-carrying capacity by the appropriate factor, as follows:
 

Number of layers:	1	2	3	4
Derating factor:	0.76	0.58	0.47	0.40
- Not applicable for tinsel conductor.
- Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS FLEXIBLE CABLE 90°C

### Cable description:

3 Single Core LV, Copper Conductor, Sheathed and Unsheathed, Non-Armoured Cables with X-90 Insulation.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed				Enclosed	Thermal Insulation		Buried Direct	Underground Wiring Enclosure		Three Phase Voltage Drop (@ 50Hz & 90°C) mV/A.m	
	Spaced	Spaced from Surface	Touching	Exposed to Sun	Wiring Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation					
												
10	80	69	64	48	55	45	32	67	66	79	4.22	4.22
16	106	91	85	63	73	58	43	117	85	101	2.68	2.68
25	142	121	114	83	94	77	58	151	109	132	1.73	1.74
35	177	151	141	103	118	96	72	180	134	158	1.24	1.24
50	223	191	178	128	144	114	-	214	163	190	0.869	0.875
70	283	241	225	161	183	146	-	262	203	232	0.622	0.630
95	341	290	271	192	214	176	-	313	237	276	0.483	0.492
120	406	346	322	226	256	209	-	356	279	320	0.388	0.399
150	470	400	372	260	291	236	-	400	316	358	0.325	0.338
185	540	459	427	296	334	268	-	452	357	413	0.280	0.295
240	651	553	514	352	391	320	-	523	416	477	0.233	0.251
300	752	637	591	402	458	375	-	589	479	552	0.207	0.227
400	909	764	709	477	533	427	-	668	554	626	0.183	0.204
500	1062	884	821	546	630	506	-	752	642	707	0.169	0.192
630	1256	1030	956	630	719	571	-	843	729	820	0.157	0.181

Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS FLEXIBLE CABLE 110°C

### Cable description:

3 Single Core LV, Copper Conductor, Sheathed and Unsheathed, Non-Armoured Cables with X-HF-110 or R-E-110 Insulation.

Nominal Conductor Area mm <sup>2</sup>	Unenclosed				Enclosed	Thermal Insulation		Buried Direct	Underground Wiring Enclosure		Three Phase Voltage Drop (@ 50Hz & 110°C) mV/A.m	
	Spaced	Spaced from Surface	Touching	Exposed to Sun	Wiring Enclosure in Air	Partially Surrounded by Thermal Insulation	Completely Surrounded by Thermal Insulation					
												
10	99	85	80	67	70	57	40	77	76	88	4.48	4.48
16	130	112	105	88	91	74	53	130	97	115	2.84	2.85
25	173	149	139	116	121	100	72	168	125	148	1.84	1.84
35	214	184	172	143	148	121	88	201	151	176	1.31	1.31
50	270	233	217	179	190	146	-	237	188	212	0.921	0.926
70	340	292	273	224	234	187	-	291	229	259	0.658	0.665
95	410	353	329	269	277	228	-	348	268	315	0.509	0.518
120	487	418	390	317	331	269	-	396	316	357	0.408	0.419
150	562	482	450	365	378	306	-	445	357	400	0.340	0.353
185	644	553	516	417	438	359	-	503	404	461	0.293	0.307
240	775	665	620	499	538	439	-	583	481	533	0.242	0.259
300	895	766	714	572	612	501	-	657	542	617	0.213	0.232
400	1079	918	855	682	757	575	-	746	648	700	0.187	0.208
500	1260	1064	990	786	864	692	-	843	729	815	0.172	0.194
630	1493	1240	1154	913	993	787	-	947	828	920	0.159	0.182

Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS FLEXIBLE CABLE 75°C

### Cable description:

PVC Insulated LV Flexible Cables with Copper Conductor.

Nominal Conductor Area mm <sup>2</sup>	Protected from Sun				Exposed to Sun				1 Phase Voltage Drop (@ 50Hz & 75°C) mV/A.m		3 Phase Voltage Drop (@ 50Hz & 75°C) mV/A.m		3 Phase Voltage Drop (@ 50Hz & 75°C) mV/A.m	
	2 Single Core	3 Single Core	2 Core	3 and 4 Core	2 Single Core	3 Single Core	2 Core	3 and 4 Core	Single Core			2,3 and 4 Core		
									∞		∞			
1.5	17	17	18	16	10	10	14	12	32.3	28.0	28.0	28.0		
2.5	22	22	25	21	13	13	19	16	19.4	16.8	16.8	16.8		
4	30	30	33	28	17	17	26	22	12.0	10.4	10.4	10.4		
6	38	38	42	36	21	21	32	28	8.03	6.95	6.96	6.95		
10	54	54	59	51	29	29	45	38	4.65	4.03	4.03	4.03		
16	71	71	78	67	38	38	59	50	2.96	2.56	2.56	2.55		
25	94	94	104	89	49	49	77	65	1.91	1.65	1.66	1.65		
35	117	117	128	110	59	59	94	80	1.36	1.18	1.18	1.18		
50	147	147	161	138	73	73	117	100	0.960	0.831	0.837	0.827		
70	185	185	202	173	89	89	145	123	0.688	0.596	0.603	0.591		
95	223	223	241	207	104	104	170	145	0.535	0.463	0.473	0.457		
120	265	264	285	244	120	120	199	169	0.431	0.373	0.385	0.367		
150	306	305	326	280	135	135	225	192	0.361	0.313	0.327	0.306		
185	351	350	370	318	150	149	252	215	0.314	0.272	0.287	0.264		
240	422	420	439	378	173	172	294	251	0.262	0.227	0.245	0.219		










Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## CURRENT RATINGS ELASTOMERIC FLEX 90°C

### Cable description:

Elastomer Insulated Flexible Cables with Copper Conductor, R-EP-90, R-CSP-90 or R-CPE-90 Insulation.

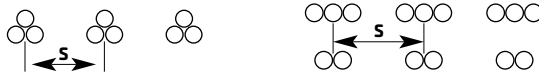
Nominal Conductor Area mm <sup>2</sup>	Protected from Sun				Exposed to Sun				1 Phase Voltage Drop (@ 50Hz & 90°C) mV/A.m	3 Phase Voltage Drop (@ 50Hz & 90°C) mV/A.m		3 Phase Voltage Drop (@ 50Hz & 90°C) mV/A.m
	2 Single Core	3 Single Core	2 Core	3 and 4 Core	2 Single Core	3 Single Core	2 Core	3 and 4 Core		Single Core		
									∞		∞	
1.5	20	20	23	19	16	16	20	17	33.9	29.4	29.4	29.4
2.5	27	27	30	26	21	21	26	22	20.3	17.6	17.6	17.6
4	36	36	40	34	27	27	35	29	12.6	10.9	10.9	10.9
6	46	46	51	43	34	34	44	37	8.42	7.29	7.29	7.29
10	64	64	72	61	48	48	62	52	4.87	4.22	4.22	4.22
16	85	85	96	81	63	63	82	69	3.09	2.68	2.68	2.68
25	114	114	128	108	83	83	108	92	2.00	1.73	1.74	1.73
35	141	141	158	135	103	103	134	113	1.43	1.24	1.24	1.23
50	178	178	199	170	128	128	167	142	1.00	0.869	0.875	0.866
70	225	225	251	214	161	161	209	177	0.718	0.622	0.630	0.618
95	271	271	300	256	192	192	248	211	0.558	0.483	0.492	0.477
120	322	322	355	303	226	226	292	248	0.448	0.388	0.399	0.383
150	373	372	408	348	260	260	333	283	0.375	0.325	0.338	0.318
185	428	427	464	396	296	296	377	320	0.323	0.280	0.295	0.273
240	515	514	554	472	353	352	446	379	0.269	0.233	0.251	0.225
300	594	591	633	539	404	402	507	430	0.239	0.207	0.227	0.198
400	715	709	751	638	480	477	597	504	0.211	0.183	0.204	0.174
500	830	821	862	730	552	546	679	573	0.195	0.169	0.192	0.16
630	969	956	-	-	639	630	-	-	0.181	0.157	0.181	-

Note:

Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

## DERATING FACTORS SINGLE CORE

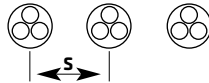
Derating factors for groups of circuits of cables buried direct in the ground - Single Core cables.



Number Of Circuits	Derating factors					
	Touching		Distance (S), m			
	Trefoil	Laid flat	0.15	0.30	0.45	0.60
2	0.78	0.81	0.83	0.88	0.91	0.93
3	0.66	0.70	0.73	0.79	0.84	0.87
4	0.61	0.64	0.68	0.74	0.81	0.85
5	0.56	0.60	0.64	0.73	0.79	0.83
6	0.53	0.57	0.61	0.71	0.78	0.82
7	0.50	0.54	0.59	0.69	0.76	0.82
8	0.49	0.53	0.57	0.68	0.76	0.81
9	0.47	0.51	0.56	0.67	0.75	0.81
10	0.46	0.50	0.55	0.67	0.75	0.80
11	0.44	0.49	0.54	0.66	0.74	0.80
12	0.43	0.48	0.53	0.66	0.74	0.80

## DERATING FACTORS MULTICORE

Derating factors for groups of circuits of cables buried direct in the ground - Multicore cables.



Number Of Cables In Group	Derating factors					
	Touching	Distance (S), m				
		0.15	0.30	0.45	0.60	
2	0.81	0.87	0.91	0.93	0.95	
3	0.70	0.78	0.84	0.88	0.90	
4	0.63	0.74	0.81	0.86	0.89	
5	0.59	0.70	0.78	0.84	0.87	
6	0.55	0.68	0.77	0.83	0.87	
7	0.52	0.66	0.75	0.82	0.86	
8	0.50	0.64	0.75	0.81	0.86	
9	0.48	0.63	0.74	0.81	0.85	
10	0.47	0.62	0.73	0.80	0.85	
11	0.45	0.61	0.73	0.80	0.85	
12	0.44	0.60	0.72	0.80	0.84	

## DERATING FACTORS SINGLE CORE ENCLOSED

Derating factors for groups of circuits of cables installed in underground wiring enclosures  
 - Single Core cables enclosed separately.



Number Of Circuits	Derating factors			
	Touching	Distance (S), m		
		0.45	0.60	
2	0.87	0.91	0.93	
3	0.78	0.84	0.87	
4	0.74	0.81	0.85	
5	0.70	0.79	0.83	
6	0.69	0.78	0.82	
7	0.67	0.76	0.82	
8	0.66	0.76	0.81	
9	0.65	0.75	0.81	
10	0.64	0.75	0.80	
11	0.63	0.74	0.80	
12	0.63	0.74	0.80	

## DERATING FACTORS MULTICORE ENCLOSED

Derating factors for groups of circuits of cables installed in underground wiring enclosures  
 - Multicore cables enclosed separately or more than one Single Core cable per wiring enclosure.



Number Of Circuits	Derating factors			
	Touching	Distance (S), m		
		0.30	0.45	0.60
2	0.90	0.93	0.95	0.96
3	0.83	0.88	0.91	0.93
4	0.79	0.85	0.89	0.92
5	0.75	0.83	0.88	0.91
6	0.73	0.82	0.87	0.90
7	0.71	0.81	0.86	0.89
8	0.70	0.80	0.85	0.89
9	0.68	0.79	0.85	0.89
10	0.67	0.79	0.85	0.89
11	0.66	0.78	0.84	0.88
12	0.66	0.78	0.84	0.88



## RATING FACTORS AIR/CONCRETE SLAB

Rating factors for variations in ambient temperature for cables in air or heated concrete slabs.

Conductor Temp °C	Rating Factor																
	Air Ambient Temperature (see Note 1), °C																
	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	100
110	1.16	1.13	1.10	1.07	1.04	1.0	0.96	0.93	0.89	0.85	0.80	0.76	0.71	0.65	0.60	0.53	0.38
90	1.26	1.20	1.15	1.10	1.05	1.0	0.94	0.88	0.81	0.73	0.65	0.57	0.47	0.34	0.19	-	-
80	1.31	1.25	1.19	1.12	1.06	1.0	0.92	0.84	0.76	0.66	0.56	0.45	0.27	-	-	-	-
75	1.35	1.28	1.21	1.14	1.07	1.0	0.91	0.82	0.72	0.60	0.49	0.37	-	-	-	-	-

Note:

- For heated concrete slabs, the ambient temperature shall be taken as the operating temperature of the slab.

## RATING FACTORS BURIED

Rating factors for variations in soil ambient temperature for cables buried direct in ground or in underground wiring enclosures.

Conductor Temp °C	Rating Factor						
	Soil Ambient Temperature, °C						
	10	15	20	25	30	35	40
110	1.08	1.06	1.03	1.0	0.97	0.94	0.91
90	1.11	1.07	1.03	1.0	0.97	0.93	0.89
80	1.13	1.09	1.04	1.0	0.96	0.91	0.85
75	1.14	1.10	1.05	1.0	0.95	0.89	0.83

Rating factors for variations in depth of laying for cables buried direct in the ground - Single Core or Multicore.

Depth Of laying (see note 2) m	Rating Factor		
	Conductor size, mm <sup>2</sup>		
	Up to 50	Above 50 up to 300	Above 300
0.5	1.00	1.00	1.00
0.6	0.99	0.98	0.97
0.8	0.97	0.96	0.94
1.0	0.95	0.94	0.92
1.25	0.94	0.92	0.90
1.5	0.93	0.91	0.89
1.75	0.92	0.89	0.87
2.0	0.91	0.88	0.86
2.5	0.90	0.87	0.85
3.0 or more	0.89	0.86	0.83

Note:

- The ambient temperature at the surface is to be taken at 40°C and not 25°C as at a depth of 0.5m. For depth less than 0.5m, see Table 2(3) of AS/NZS 3008.1.1.
- Measured to centre of enclosure of trefoil group of cables.

## RATING FACTORS UNDERGROUND ENCLOSURES

Rating factors for variations in depth of laying for cables installed in underground wiring enclosures - Single Core or Multicore cables.

Depth Of Laying (see note 2) m	Rating Factor	
	Single Core*	Multicore
0.5	1.00	1.00
0.6	0.98	0.99
0.8	0.95	0.97
1.0	0.93	0.96
1.25	0.90	0.95
1.5	0.89	0.94
1.75	0.88	0.94
2.0	0.87	0.93
2.5	0.86	0.93
3.0 or more	0.85	0.92

\*These rating factors apply to single-core cables enclosed separately, or grouped in a single wiring enclosure.

Note:

1. The ambient temperature at the surface is to be taken at 40°C and not 25°C as at a depth of 0.5m. For depth less than 0.5m, see Table 2(4) of AS/NZS 3008.1.1.
2. Measured to centre of enclosure of trefoil group of enclosures.

Rating factors for cables buried direct in ground and for cables installed in underground wiring enclosures where the thermal resistivity of the soil varies from 1.2°C.m/W.

Thermal Resistivity Of Soil °C.m/W	Rating Factor				
	Multicore Cable Buried Direct	Two Or Three Single-Core Cable Buried Direct	Multicore Cable In A Wiring Enclosure	Two Single-Core Cables In A Wiring Enclosure*	Three Single-Core Cables In A Wiring Enclosure*
0.8	1.09	1.16	1.03	1.06	1.08
0.9	1.07	1.11	1.02	1.04	1.06
1.0	1.04	1.07	1.02	1.03	1.04
1.2	1.00	1.00	1.00	1.00	1.00
1.5	0.92	0.90	0.95	0.94	0.92
2.0	0.81	0.80	0.88	0.86	0.83
2.5	0.74	0.72	0.83	0.80	0.77
3.0	0.69	0.66	0.78	0.75	0.71

\*These rating factors apply to single-core cables enclosed separately, or grouped in a single wiring enclosure.

# Cables in Conduits

# Effective Cross Sectional Areas of PVC Cables

Appendix C6 of AS/NZS 3000.2007 gives comprehensive guidance on the number of cables installed in conduits. The basis to the calculation for the number of cables is:

The number of cables that can be installed in a circular conduit is determined from the ratios of the cross-sectional areas of the enclosure and the cable as follows:

$$\text{Number of cables} = \frac{\text{internal cross-sectional area of enclosure}}{\text{cross-sectional area of cable}} \times \text{space factor}$$

where the space factor recognises the reduction of space available from the circular geometry of the cables and enclosures:

- For one cable in enclosure: 0.5
- For two cables in enclosure: 0.33
- For three or more cables in enclosure: 0.4

It is recommended that the installer refer to tables C9-C11 of AS/NZS 3000 for further guidance.

# General Information

# General Information

## 3 PHASE FORMULAE

Desired Data	Single-Phase	Three-Phase
<b>I</b> when kVA is known	$\frac{kVA \cdot 1000}{E_o}$	$\frac{kVA \cdot 1000}{\sqrt{3} \cdot E}$
<b>I</b> when kW is known	$\frac{kW \cdot 1000}{E_o \cdot pf}$	$\frac{kW \cdot 1000}{\sqrt{3} \cdot E \cdot pf}$
<b>I</b> when hp is known	$\frac{hp \cdot 746}{E_o \cdot \%Eff \cdot pf}$	$\frac{hp \cdot 746}{\sqrt{3} \cdot E \cdot \%Eff \cdot pf}$
kVA	$\frac{I \cdot E_o}{1000}$	$\frac{I \cdot E \cdot \sqrt{3}}{1000}$
kW	$\frac{I \cdot E_o \cdot pf}{1000}$	$\frac{I \cdot E \cdot \sqrt{3} \cdot pf}{1000}$
hp	$\frac{I \cdot E_o \cdot \%Eff \cdot pf}{746}$	$\frac{I \cdot E \cdot \sqrt{3} \cdot \%Eff \cdot pf}{746}$

Note:

The above table lists formulae commonly used for determining various parameters of an electrical system:

Where:	<b>E<sub>o</sub></b> =	Single phase voltage, in volts. Eg 230V.
	<b>E</b> =	Three phase line voltage, in volts. Eg 400V (E = $\sqrt{3}$ x E <sub>o</sub> ).
	<b>I</b> =	Current in amperes.
	<b>%Eff</b> =	Percent efficiency in decimals.
	<b>pf</b> =	Power factor in decimals.
	<b>kVA</b> =	Kilovolt-ampere.
	<b>hp</b> =	Horsepower (output).
	<b>kW</b> =	Kilowatts (input).
	<b>Power Output</b> =	Power input x %Eff.
	$\sqrt{3}$ =	1.732.

## SINGLE PHASE MOTOR CURRENT

Power Output		Single Phase Voltage (V)				
kW	hp	110	220	230	240	250
		Current Rating* (A)				
0.37	0.5	4.71	2.35	2.25	2.16	2.07
0.56	0.75	7.06	3.53	3.38	3.24	3.11
0.75	1	9.42	4.71	4.50	4.32	4.14
1.1	1.5	14.1	7.06	6.76	6.48	6.22
1.5	2	18.8	9.42	9.01	8.63	8.29
1.9	2.5	23.5	11.8	11.3	10.8	10.4
2.2	3	28.3	14.1	13.5	13.0	12.4
3.0	4	37.7	18.8	18.0	17.3	16.6
3.7	5	47.1	23.5	22.5	21.6	20.7
4.5	6	56.5	28.3	27.0	25.9	24.9
5.2	7	65.9	33.0	31.5	30.2	29.0
5.6	7.5	70.6	35.3	33.8	32.4	31.1
6.0	8	75.4	37.7	36.0	34.5	33.2
6.7	9	84.8	42.4	40.5	38.9	37.3
7.5	10	94.2	47.1	45.0	43.2	41.4
9.3	12.5	118	58.9	56.3	54.0	51.8
11.2	15	141	70.6	67.6	64.8	62.2
14.9	20	188	94.2	90.1	86.3	82.9
18.7	25	235	118	113	108	104
22.4	30	283	141	135	130	124

## THREE PHASE MOTOR CURRENT

Power Output		Three Phase Line Voltage (V)				
kW	hp	380	400	415	440	500
		Current Rating* (A)				
0.37	0.5	0.79	0.75	0.72	0.68	0.60
0.56	0.75	1.18	1.12	1.08	1.02	0.90
0.75	1	1.57	1.50	1.44	1.36	1.20
1.1	1.5	2.36	2.24	2.16	2.04	1.79
1.5	2	3.15	2.99	2.88	2.72	2.39
1.9	2.5	3.94	3.74	3.60	3.40	2.99
2.2	3	4.72	4.49	4.32	4.08	3.59
3.0	4	6.30	5.98	5.77	5.44	4.79
3.7	5	7.87	7.48	7.21	6.80	5.98
4.5	6	9.44	8.97	8.65	8.16	7.18
5.2	7	11.0	10.5	10.1	9.52	8.37
5.6	7.5	11.8	11.2	10.8	10.2	8.97
6.0	8	12.6	12.0	11.5	10.9	9.57
6.7	9	14.2	13.5	13.0	12.2	10.8
7.5	10	15.7	15.0	14.4	13.6	12.0
9.3	12.5	19.7	18.7	18.0	17.0	15.0
11.2	15	23.6	22.4	21.6	20.4	17.9
14.9	20	31.5	29.9	28.8	27.2	23.9
18.7	25	39.4	37.4	36.0	34.0	29.9
22.4	30	47.2	44.9	43.2	40.8	35.9

\*Approximate full load currents for standard AC induction motors based on power factor and efficiency of 0.8 and 0.9 respectively.

## SHORT CIRCUIT CAPACITY

Short-Circuit Capacity\* (kA) for one second.

Nominal Conductor Area mm <sup>2</sup>	Initial Conductor Temperature							
	PVC Insulated Cable						XLPE Insulated Cable	
	75°C	90°C	105°C	75°C	90°C	105°C	90°C	90°C
	Copper			Aluminium			Copper	Aluminium
1.0	0.111	0.100	0.088	0.074	0.066	0.058	0.143	0.095
1.5	0.167	0.150	0.131	0.110	0.099	0.087	0.215	0.142
2.5	0.278	0.250	0.219	0.184	0.165	0.145	0.358	0.236
4.0	0.444	0.400	0.350	0.294	0.264	0.232	0.572	0.378
6.0	0.666	0.599	0.526	0.442	0.396	0.347	0.858	0.567
10	1.11	0.999	0.876	0.736	0.660	0.579	1.43	0.945
16	1.78	1.60	1.40	1.18	1.06	0.926	2.29	1.51
25	2.78	2.50	2.19	1.84	1.65	1.45	3.58	2.36
35	3.89	3.50	3.07	2.58	2.31	2.03	5.01	3.31
50	5.55	5.00	4.38	3.68	3.30	2.90	7.15	4.73
70	7.77	6.99	6.13	5.15	4.62	4.05	10.0	6.62
95	10.5	9.49	8.32	6.99	6.27	5.50	13.6	8.98
120	13.3	12.0	10.5	8.83	7.92	6.95	17.2	11.3
150	16.7	15.0	13.1	11.0	9.90	8.69	21.5	14.2
185	20.5	18.5	16.2	13.6	12.2	10.7	26.5	17.5
240	26.6	24.0	21.0	17.7	15.8	13.9	34.3	22.7
300	33.3	30.0	26.3	22.1	19.8	17.4	42.9	28.4
400	39.5	34.2	28.3	26.1	22.6	18.7	57.2	37.8
500	49.4	42.8	35.4	32.6	28.3	23.4	71.5	47.3
630	62.2	53.9	44.6	41.1	35.7	29.5	90.1	59.5

Note:

- \*Short-circuit capacities are based on maximum permissible temperature limits of: 160°C for PVC insulation with conductor up to and including 300mm<sup>2</sup>. 140°C for PVC insulation with conductor greater than 300mm<sup>2</sup>. 250°C for XLPE insulation. Short-circuit capacities have to be derated if short-circuit temperature limits of other components of the circuit, eg., joints, are less than those stated.
- The short-circuit capacity for durations up to and including 5 seconds may be calculated with the following formula:

$$I_k = \frac{I_t}{\sqrt{t_k}} \quad \text{where} \quad I_k = \text{short-circuit capacity during the time, } t_k.$$

$$I_t = \text{short-circuit capacity for 1 second.}$$

$$t_k = \text{short-circuit duration, seconds.}$$



## FLEXIBLE CONDUCTORS

Conductor, DC Resistance to AS/NZS 1125 and Nominal Diameter.

Nominal Conductor Area mm <sup>2</sup>	Plain Copper		Tinned Copper	
	Conductor Nominal Diameter mm	Max. dc Resistance at 20°C Ω/km	Conductor Nominal Diameter mm	Max. dc Resistance at 20°C Ω/km
0.5	0.89	39.0	0.89	40.1
0.75	1.09	26.0	1.09	26.7
1.0	1.26	19.5	1.26	20.0
1.5	1.54	13.3	1.51	13.7
2.5	1.98	7.98	1.95	8.21
4.0	2.51	4.95	2.48	5.09

## NON COMPACTED CONDUCTORS

Conductor, DC Resistance to AS/NZS 1125 and Nominal Diameter.

Nominal Conductor Area mm <sup>2</sup>	Conductor Nominal Diameter mm	Annealed Copper		Aluminium	
		Plain	Tinned	Conductor Nominal Diameter mm	Max. dc Resistance at 20°C Ω/km
		Max. dc Resistance at 20°C Ω/km	Max. dc Resistance at 20°C Ω/km		
*1.0	1.13	18.1	18.2	-	-
1.0	1.20	21.2	21.6	-	-
1.5	1.50	13.6	13.8	-	-
*2.5	1.78	7.41	7.56	-	-
2.5	2.0	7.41	7.56	-	-
4.0	2.5	4.61	4.70	-	-
6.0	3.1	3.08	3.11	-	-
10	4.0	1.83	1.84	-	-
16	5.1	1.15	1.16	5.1	1.91
25	6.4	0.727	0.734	6.4	1.20
35	7.6	0.524	0.529	7.5	0.868
50	8.9	0.387	0.391	8.8	0.641
70	10.6	0.268	0.270	10.6	0.443
95	12.5	0.193	0.195	12.5	0.320
120	14.1	0.153	0.154	14.1	0.253
150	15.7	0.124	0.126	15.6	0.206
185	17.5	0.0991	0.100	17.5	0.164
240	20.1	0.0754	0.0762	20.1	0.125
300	22.6	0.0601	0.0607	22.4	0.100
400	25.5	0.0470	0.0475	25.5	0.0778
Δ500	28.8	0.0366	0.0369	28.8	0.0605
Δ630	33.0	0.0283	0.0286	32.7	0.0469

Notes:

\* Single Wire Conductor. Δ Single core only.

## COMPACTED CONDUCTORS

Conductor, DC Resistance to AS/NZS 1125 and Nominal Diameter.

Nominal Conductor Area mm <sup>2</sup>	Plain Copper		Aluminium	
	Conductor Nominal Diameter mm	Max. dc Resistance at 20°C Ω/km	Conductor Nominal Diameter mm	Max. dc Resistance at 20°C Ω/km
16	4.8	1.15	4.8	1.91
25	6.1	0.727	6.1	1.20
35	7.1	0.524	7.1	0.868
50	8.2	0.387	8.2	0.641
70	9.8	0.268	9.8	0.443
95	11.5	0.193	11.5	0.320
120	12.9	0.153	12.9	0.253
150	14.3	0.124	14.3	0.206
185	16.1	0.0991	15.9	0.164
240	18.3	0.0754	18.3	0.125
300	20.8	0.0601	20.8	0.100
400	23.5	0.0470	23.5	0.0778
Δ500	26.6	0.0366	26.6	0.0605
Δ630	30.2	0.0283	30.2	0.0469

Notes:

Δ Single core only.

## WIRE GAUGES

Wire Gauges and Standard Metric Wires.

SWG	Metric	B&S (AWG)	Approx. Diameter mm	Calculated Area mm <sup>2</sup>
40	-	-	0.122	0.0117
-	-	36	.127	.0127
39	-	-	.132	.0137
-	-	35	.142	.0159
38	-	-	.152	.0182
-	-	34	.160	.0201
37	-	-	.173	.0234
-	-	33	.180	.0255
38	-	-	.193	.0293
-	0.20	-	.200	.0314
-	-	32	.203	.0325
35	-	-	.213	.0358
-	-	31	.226	.0401
34	-	-	.234	.0429
-	0.25	-	.250	.0491
33	-	30	.254	.0507
32	-	-	.274	.0591
-	-	29	.287	.0645
31	-	-	.295	.0682
-	0.30	-	.300	.0707
-	-	-	.305	.0730
30	-	-	.315	.0779
-	-	28	.320	.0806
29	-	-	.345	.0937
-	-	27	.361	.102
28	-	-	.376	.111
-	0.40	-	.400	.126
-	-	28	.404	.128
27	-	-	.417	.136
-	-	26	.455	.163
26	-	-	.457	.164
-	0.50	-	.500	.196
25	-	-	.508	.203
-	-	24	.511	.205
24	-	-	.559	.245
-	-	23	.574	.259
23	-	-	.610	.292
-	-	22	.643	.324
-	0.67	-	.670	.353
22	-	-	.711	.397
-	-	21	.724	.412
-	-	-	.737	.426
-	0.80	-	.800	.503

## WIRE GAUGES

Wire Gauges and Standard Metric Wires.

SWG	Metric	B&S (AWG)	Approx. Diameter mm	Calculated Area mm <sup>2</sup>
21	-	20	0.813	0.519
-	.85	-	.850	.568
-	-	19	.912	.652
20	-	-	.914	.657
-	-	-	1.0	.785
19	-	-	1.02	.81
-	-	18	1.02	.826
-	1.04	-	1.04	.849
-	-	-	1.12	.981
-	1.13	-	1.13	1.00
-	-	17	1.15	1.04
18	-	-	1.22	1.17
-	-	16	1.29	1.31
-	-	-	1.32	1.37
-	1.35	-	1.35	1.43
-	1.38	-	1.38	1.50
17	-	-	1.42	1.59
-	-	15	1.45	1.65
-	1.53	-	1.53	1.84
16	-	-	1.63	2.08
-	-	14	1.63	2.08
-	1.70	-	1.70	2.27
-	1.78	-	1.78	2.49
15	-	13	1.83	2.63
-	-	-	2.00	3.14
14	2.03	-	2.03	3.24
-	-	12	2.05	3.31
-	-	-	2.11	3.50
-	2.14	-	2.14	3.60
-	2.25	-	2.25	3.98
-	-	11	2.30	4.17
13	-	-	2.34	4.29
-	-	-	2.36	4.38
-	2.52	-	2.52	4.99
-	-	10	2.59	5.26
-	-	-	2.62	5.38
12	-	-	2.64	5.48
-	-	-	2.70	5.73
-	2.85	-	2.85	6.38
-	-	9	2.91	6.63
-	-	-	3.00	7.07
-	3.20	-	3.20	8.04
10	-	-	3.25	8.30

## AMERICAN CONDUCTOR SIZES

American Conductor Sizes in Comparison.

AWG Size	CSA mm <sup>2</sup>	MCM Size	CSA mm <sup>2</sup>	MCM Size	CSA mm <sup>2</sup>
9	6.63	250	127	900	456
8	8.37	300	152	950	481
7	10.6	350	177	1000	507
6	13.3	400	203	1100	557
5	16.8	450	228	1200	608
4	21.2	500	253	1300	659
3	26.7	550	279	1400	709
2	33.6	600	304	1500	760
1	42.4	650	329	1600	811
0	53.5	700	355	1700	861
2/0	67	750	380	1800	912
3/0	85	800	405	1900	963
4/0	107	850	431	2000	1010

American conductor sizes are based on American Wire Gauge (AWG) for small sizes and "circular mils" (CM) for larger sizes. "Mil" is an engineering term for one thousandth of an inch and the "circular mil" is the area of a circle one thousandth of an inch in diameter. The term MCM is used for one thousand circular mils.

## IMPERIAL CONDUCTORS

A Comparison of Metric and Imperial Conductors for Fixed Cables.

Metric		Imperial		Calculated Area* mm <sup>2</sup>
Nominal Conductor Area mm <sup>2</sup>	Stranding No./mm	Nominal Conductor Area sq. in	Stranding No./mm	
0.5	1/0.80	-	-	0.503
-	-	0.001	1/.036	0.657
1.0	7/0.40	-	-	0.862
-	-	0.0015	1/.044	0.981
1.0	1/1.13	-	-	1.00
-	-	0.002	3/.029	1.28
1.5	7/0.50	-	-	1.37
1.5	1/1.38	-	-	1.50
-	-	0.003	3/.036	1.97
-	-	0.0032	1/.064	2.08
2.5	7/0.67	-	-	2.47
2.5	1/1.78	-	-	2.49
-	-	0.0045	7/.029	2.98
4	7/0.85	-	-	3.97
-	-	0.007	7/.036	4.60
6	7/1.04	-	-	5.95
-	-	0.01	7/.044	6.81
-	-	0.0145	7/.052	9.59
10	7/1.35	-	-	10.0
-	-	0.0225	7/.064	14.5
16	7/1.70	-	-	15.9
-	-	0.03	19/.044	18.6
-	-	0.04	19/.052	26.0
25	19/1.35	-	-	27.2
35	19/1.53	-	-	34.9
-	-	0.06	19/.064	39.4
50	19/1.78	-	-	47.3
-	-	0.075	19/.072	49.9
-	-	0.1	19/.083	66.3
70	19/2.14	-	-	68.3
-	-	0.12	37/.064	76.8
95	19/2.45	-	-	89.6
-	-	0.15	37/.072	97.2
120	37/2.03	-	-	120
-	-	0.2	37/.083	129
150	37.2.25	-	-	147
-	-	0.25	37/.093	162
185	37/2.52	-	-	185
-	-	0.3	37/.103	199
240	61/2.25	-	-	243
-	-	0.4	61/.093	267
300	61/2.52	-	-	304
-	-	0.5	61/.103	328
400	61/2.85	-	-	389
-	-	0.6	91/.093	399
-	-	0.75	91/.103	489
500	61/3.20	-	-	491
-	-	0.85	127/.093	557
630	91/3.00	-	-	643
-	-	1.0	127/.103	683
-	-	1.25	127/.112	807
800	127/2.85	-	-	810
1000	127/3.20	-	-	1020
-	-	1.5	127/.128	1050

\* The area has been calculated as follows:

For single wires - based on nominal wire diameter. For stranded conductors - based on nominal wire diameter and number of wires.

## EARTH SIZE

### Minimum Copper Earthing Conductor Size.

Nominal Size Of ACTIVE Conductor	With COPPER Active Conductor	With ALUMINIUM Active Conductor
1.0	1.0*	-
1.5	1.5*	-
2.5	2.5	-
4.0	2.5	-
6.0	2.5	-
10	4	-
16	6	4
25	6	6
35	10	6
50	16	10
70	25	10
95	25	16
120	35	25
150	50	25
185	70	35
240	95	50
300	120	70
400	≥120†	≥95†
500	≥120†	≥95†
630	≥120†	≥120†
>630	≥25% of Active size†	≥25% of Active size†

\*These earthing conductors may be used only where incorporated in a multicore cable or flexible cord, other than a lift travelling cable, in accordance with Clause 5.3.3.4(b) & (c) AS/NZS 3000:2007, Wiring Rules.

† A larger earthing conductor may be required to Safety Clause 5.3.3.1.1 of AS/NZS 3000:2007.

## INSTALLATION & BENDING RADII

### Cable Installation:

In installing PVC sheathed cables, care should be taken to ensure that the ambient and cable temperature has been above 0°C for the previous 24 hours to avoid the risk of cracking of the oversheath.

For groups of parallel single core circuits, the cables should be installed in close trefoil formation as hereunder:

(i) Two conductors per phase



(ii) Three conductors per phase



### Recommended Minimum Bending Radii

The following table sets out the recommended minimum bending radii for single or multi-core cables for working voltages up to and including 0.6/1kV. The bending radius is related to the inner surface of the cable, not the axis. Care should be taken in planning a cable installation to allow for as large a bending radius as possible, as excessive bending can be detrimental to cable life expectancy.

Cable Description	During installation	Fixed or Location
1. Subject to overriding requirements of items 2 to 8 listed below:		
a. Overall cable diameter up to 25mm	6D	4D
b. Flexible cords or cables of all diameters	6D	4D
2. Overall cable diameter (exclude Flexible) >25mm	9D	6D
3. Mica Glass taped cables	12D	8D
4. Solid Al or Compacted (including Sector Shaped) Conductor	12D	8D
5. Armoured Cables	18D	12D
6. Metallic Screened Cables	18D	12D
7. HDPE Sheathed Cables	25D	15D
8. Nylon Covered Cables	30D*	20D*

Where     D = Overall cable diameter in mm.  
           D\* = Diameter over nylon jacket.



## MAXIMUM PULLING TENSIONS

### Using a pulling eye on the conductor:

Copper - 0.07 kN/mm<sup>2</sup> of conductor<sup>3</sup>).

Aluminium, Stranded - 0.05 kN/mm<sup>2</sup> of conductor.

Aluminium, Solid - 0.03 kN/mm<sup>2</sup> of conductor.

### Using a pulling eye on the Steel Wire Armour:

$$P = 0.005 D^2.$$

### Using a Stocking grip: (see Note 1)

$$P = 0.0035 D^2.$$

Where:     P =    Tension in kN.  
              D =    Cable diameter in mm.

#### Notes:

1. When considering the use of a stocking grip the tension should not exceed the values given for a pulling eye on the conductor(s).
2. 1 kN = 102kgf.
3. Subject to a maximum of 25kN.

## SAFE WORKING FORCE

### Safe Working Force of Metric Flexible Cables and Cords.

Safe Working Force for cables subjected to straight tension without significant bending or flexing - Safety factor 4 to 1.

Nominal Conductor Area mm <sup>2</sup>	Single Core kN	2 Core kN	3 Core kN	4 Core kN	*More Than 4 Cores kN
0.5	0.015	0.030	0.045	0.06	0.015 x N
0.75	0.0225	0.045	0.0675	0.09	0.0225 x N
1.0	0.03	0.06	0.09	0.12	0.03 x N
1.5	0.045	0.09	0.135	0.18	0.045 x N
2.5	0.075	0.15	0.225	0.3	0.075 x N
4	0.12	0.24	0.36	0.48	0.12 x N
6	0.18	0.36	0.54	0.72	0.18 x N
10	0.3	0.6	0.90	1.2	0.3 x N
16	0.48	0.96	1.44	1.92	0.48 x N
25	0.75	1.5	2.25	3.0	0.75 x N
35	1.05	2.1	3.15	4.2	1.05 x N
50	1.5	3.0	4.5	6.0	1.5 x N
70	2.1	4.2	6.3	8.4	2.1 x N
95	2.85	5.7	8.55	11.4	2.85 x N
120	3.6	7.2	10.8	14.4	3.6 x N
150	4.5	9.0	13.5	18.0	4.5 x N
185	5.55	11.1	16.65	22.2	-
240	7.2	14.4	21.6	-	-
300	9.0	18.0	-	-	-

### Safe Working Force of Metric Flexible Cables and Cords (Repeated Flexing).

Safe Working Force for cables subjected to repeated reeling or bending whilst under tension - Safety factor 8 to 1.

Nominal Conductor Area mm <sup>2</sup>	Single Core kN	2 Core kN	3 Core kN	4 Core kN	*More Than 4 Cores kN
0.5	0.0075	0.015	0.0225	0.03	0.0075 x N
0.75	0.01125	0.0225	0.03375	0.045	0.01125 x N
1.0	0.015	0.03	0.045	0.06	0.015 x N
1.5	0.0225	0.045	0.0675	0.09	0.0225 x N
2.5	0.0375	0.075	0.1125	0.15	0.0375 x N
4	0.06	0.12	0.18	0.24	0.06 x N
6	0.09	0.18	0.27	0.36	0.09 x N
10	0.15	0.3	0.45	0.6	0.15 x N
16	0.24	0.48	0.72	0.96	0.24 x N
25	0.375	1.75	1.125	1.5	0.375 x N
35	0.525	1.05	1.575	2.1	0.525 x N
50	0.75	1.5	2.25	3.0	0.75 x N
70	1.05	2.1	3.15	-	-
95	1.425	2.85	4.275	-	-
120	1.8	3.6	5.4	-	-
150	2.25	-	-	-	-
185	2.775	-	-	-	-
240	3.6	-	-	-	-
300	4.5	-	-	-	-
400	6.0	-	-	-	-
500	7.5	-	-	-	-

\* Where N = the number of cores of the same size.

## INSULATION & SHEATH PROPERTIES

Performance Rating of Cable Insulation and Sheathing Materials.

VG = very good, G = good, F = fair, P = poor.

MATERIAL	Recommended Max. Operating Temp.	Ozone & Partial Discharge Resistance	Weather Resistance	Oil Resistance	Water Resistance	Resistance to Chemicals	Resistance to Solvents	Abrasion Resistance	Combustion Propagation Resistance	Insulation Resistance	Electric Strength
PVC* - V-90	90	VG	G	G	G	G	F	G	G	G	G
PVC* - V-90 HT	105*										
XLPE X-90	90	F	G	F	VG	G	G	G	P	VG	VG
Polyethylene LD	70	F	G	F	VG	G	G	G	P	VG	VG
Polyethylene HD	90	F	G	F	VG	G	G	VG	P	VG	VG
R-EP-90	90	VG	VG	F	VG	G	F	F	P	VG	G
R-CSP-90, R-CPE-90	90	G	G	G	F	G	G	G	G	G	G
R-HF-90, R-HF-110	90/110	VG	VG	F	VG	G	F	F	VG	G	G
HD-85-PCP	85	G	G	G	G	G	G	G	G	G	G
HD-90-CSP	90	G	G	G	G	G	G	G	G	G	G
HF-110-R	90/110	VG	VG	G	VG	G	G	G	VG	G	G
Nylon		G	G	G	G	G	VG	VG	P	G	G

\*Refer to PVC in Glossary of Terms in this Section.

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## GLOSSARY OF TERMS

**Al:**

Aluminium conductor.

**Ambient temperature for current-carrying capacity:**

The temperature of the medium in the immediate neighbourhood of the installed cable -

- a) including any increase in temperature due to materials or equipment to which the cables are connected, or are to be connected; but
- b) excluding any increase in temperature which may be due to the heat arising from the cables at that point.

**AS/NZS 2053:**

Australian/New Zealand Standard - Conduits and fittings for electrical installations.

**AS/NZS 3000:**

Wiring Rules.

**AS/NZS 3008.1.1:**

Australian/New Zealand Standard - Electrical installations - Selection of cables  
Part 1.1: Cables for alternating voltages up to and including 0.6/1kV - Typical Australian installation conditions.

**AS/NZS 3191:**

Australian/New Zealand Standard - Approval and test specification - Electric flexible cords.

**AS/NZS 5000:**

Australian/New Zealand Standard - Electric Cables - Polymeric insulated.

Part 1: For working voltages up to and including 0.6/1kV.

Part 2: For working voltages up to and including 450/750V.

Part 3: Multicore control cables for working voltages up to and including 450/750V.

**Bending radius, installed:**

Refers to minimum bending radius to which the cable can be subjected to in its final position or location.

**Bending radius, installing:**

Refers to minimum bending radius to which the cable can be subjected to during the installation process.

**BW:**

Building wire, usually refers to single core, insulated and unsheathed cable.

**Compacted conductor:**

A stranded conductor in which, to reduce overall dimensions, wires have been laid up and pressed together. All conductors in this technical manual are non compacted unless specified.

**Conductor:**

That portion of a cable which has the specific function of carrying current.

**Consumer terminals:**

Refer to “Point of Supply”.

**CCS:**

Copper Covered Steel.

**Cu:**

Copper conductor, usually refers to plain annealed copper.

**HDCu:**

Hard drawn copper conductor, for aerial application due to its higher tensile strength.

**LSOH:**

Low Smoke Zero Halogen.

**LV:**

Low voltage - a.c. = 50V and ≤1000V; d.c. = >120V and ≤1500V.

**Overcurrent:**

A current exceeding the rated value.

**PACW:**

Plain annealed copper wire.

**PE:**

Polyethylene (See Thermoplastic material).

**Point of Supply:**

The junction of the electricity distributor’s conductors with the consumers mains. (Formerly known as consumers’ terminals).

**PVC:**

Polyvinyl Chloride (See Thermoplastic material), the following grades are commonly used:

Insulation Grade	Sheathing Grade	Maximum continuous conductor temperature
V-90*, V-90HT*	3V-90, 5V-90	75°C

\*The use of the higher temperature insulation compounds does not permit a higher current-carrying capacity. AS/NZ 3008.1.1 recommends 75°C for current-carrying capacity calculation.

\*\*Where it is possible to guard against plastic flow, and where reduced insulation resistance can be tolerated, V-90HT can be operated at a temperature up to 105°C for an average of 500 hours per annum during the cable service life.

**SDI:**

Single core double insulated cable.

**Short-circuit current:**

A fault current resulting from a fault of negligible impedance between live conductors having a difference in potential under normal operating conditions.

**Solid conductor:**

A conductor consisting of a single wire.

**TACW:**

Tinned annealed copper wire.

**TCu:**

Tinned copper conductor.

**Thermoplastic material:**

A material that can be readily softened and resoftened by repeated heating, eg., PVC and PE.

**Thermosetting material:**

A material which cures by chemical reaction when heated and, when cured, cannot be resoftened by heating, eg., XLPE.

**Tinsel conductor:**

A conductor comprising fine flattened copper wires assembled in combination with textile material to achieve a high degree of flexibility.

**TPS:**

Thermoplastic sheath. (See Thermoplastic material).

**XLPE:**

Cross linked polyethylene. For LV application, usually refers to X-90 grade. (See Thermosetting material).



ACMA Approval tick.



RCM Approval tick.



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