YOUR ENERGY, OUR SYSTEMS, ANYWHERE...

Technical Cable Guide

PRYSMIAN
CABLES & SYSTEMS

Prysmian Cables & Systems is a world-class multinational company. Founded in 1872 as Ditta Pirelli & C., it has achieved a leading position for more than a century of operations in its two key international markets – "Energy Cables and Systems" and "Telecom Cables & Systems."

Prysmian Cables and Systems is the world's largest manufacturer of power and telecommunications cables, with manufacturing facilities in 21 countries across five continents.

A global solutions provider, Prysmian Energy Cables and Systems offers a wide range of integrated solutions, such as cable systems, system design and engineering, project management, installation and post-sale services.

Prysmian Energy Cables and Systems focuses on continuous product innovation and on achieving a competitive edge by focusing on research and development. This is done through Prysmian's own research & development centres and by co-operating with universities, scientific institutions and our valued customers. Prysmian's world-wide organisation makes and delivers advanced technological solutions to customers anywhere in the world.

Prysmian Cables & Systems was the first cable manufacturer to introduce non-lead stabilised PVC compounds in the "Ecology Line" range of cables. Prysmian Cables & Systems worldwide continues its focus on becoming more environmentally friendly. Look for the "Ecology Line" symbol wherever you purchase cable and be assured that you are getting the highest quality cable available from an Australian manufacturer concerned about the environment.

Ecology Line™

WARNING

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).

PUBLISHED 2010

CONTENTS

POWER CABLES

CONTENTS

POWER CABLES continued

COMMUNICATION CABLES

CONTENTS

COMMUNICATION CABLES continued

DATA & INSTRUMENTATION CABLES

CABLE SELECTION

CURRENT CARRYING CAPACITIES & VOLTAGE DROPS

CONTENTS

CURRENT CARRYING CAPACITIES & VOLTAGE DROPS Continued

CABLES IN CONDUIT

GENERAL INFORMATION

This version of the Prysmian Cables & Systems Technical Cable Guide makes reference to the most recent information available at the time of publication.

If you would like to be included on the mailing list for future updated versions, please complete the information below, remove this page from the book and post using a current stamp.

❑ Yes, I would like to receive updated versions of the Technical Cable Guide as they become available:

Name: _____

Company: _____

Address: _____

_____

State: _____ Postcode: _____

Country: _____

Telephone: _____

Email: _____

AFFIX
STAMP
HERE

PRYSMIAN CABLES AND SYSTEMS
Marketing Department
Locked Bag 7042
Liverpool Business Centre 1871

ECO-FRIENDLY CABLES

Prysmian Cables & Systems manufactures the"Ecology Line™"
of products in response to growing concerns about high levels of lead in the environment.

INTERNATIONAL RESEARCH

The introduction of new products based on environmentally friendly materials is a key component of Prysmian Cables & Systems worldwide.

In accordance with research and new material developments, technical data, dimensions, constructions and weights may change without notice.

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^2	Approx. Overall Diameter mm	Approx. Mass kg/100m	Minimum Installed Bending Radius mm
*1.0SDI	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 2.5mm^2 and above please refer to XLPE/PVC product pages.

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^2	Approx. Overall Dimensions mm		Approx. Mass kg/100m		Minimum Installed Bending Radius mm	
2C	3C		2C	3C	2C	3C	2C	3C
*1.0ST	*1.053CF	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.

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	Approx. Overall Dimensions		Approx. Mass		Minimum Installed Bending Radius	
		mm^2	mm		kg/100m		mm	
2C+E	3C+E		2C+E	3C+E	2C+E	3C+E	2C+E	3C+E
*1.05TE	*1.053CEF	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.

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^2	Approx. Overall Diameter mm			Approx. Mass kg/100m			Minimum 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
42CEOC	43CEOC	44CEOC	4.0	11.2	12.3	13.7	22	27	34	45	50	55
62CEOC	63CEOC	64CEOC	6.0	12.2	13.6	15.1	27	35	44	50	55	60
102CEOC	103CEOC	104CEOC	10	15.7	17.5	19.4	40	53	65	65	70	80
162CEOC	163CEOC	164CEOC	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^2 please refer to Cables to AS/NZS 5000.2.

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

Catalogue Reference	Nominal Conductor Area mm^2	Approx. Overall Diameter mm	Approx. Mass kg/100m	Minimum 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.

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^2	Approx. Overall Diameter mm		Approx. Mass kg/100m		Minimum 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
42CEOC1KV	43CEOC1KV	4.0	12.9	14.0	26	32	50	55
62CEOC1KV	63 CEOC1KV	6.0	14.0	15.2	33	41	55	60
102CEOC1KV	103CEOC1KV	10	16.5	18.1	43	56	65	70
162CEOC1KV	163CEOC1KV	16	18.6	20.4	59	78	75	80

2C+E = 2 Core + Earth. **3C+E** = 3 Core + Earth.
For conductors less than $10mm^2$ please refer to Cables to AS/NZS 5000.2.

4 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^2	Approx. Overall Diameter mm	Approx. Mass kg/100m	Minimum 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

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

Catalogue Reference			Nominal Conductor Area	Maximum Diameter Under Armour		Approx. Overall Diameter		Approx. Mass		Minimum Installed Bending Radius
			mm^2	mm		mm		kg/100m		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.

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

Catalogue Reference	Nominal Conductor Area	Approx. Diameter Over Bedding.	Approx. Overall Diameter	Approx. Mass	Minimum Installed Bending Radius
	mm^2	mm	mm	kg/100m	mm
1.54CEOCA1KV	1.5	10.9	17.0	59	205
2.54CEOCA1KV	2.5	12.3	18.5	71	225
44CEOCA1KV	4.0	14.4	20.5	87	245
64CEOCA1KV	6.0	15.8	21.9	102	265
104CEOCA1KV	10	19.0	25.8	145	310
164CEOCA1KV	16	21.6	28.4	184	340

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

Note: Non Compacted Conductor except otherwise stated.

Catalogue Reference	Nominal Conductor Area	Approx. Overall Diameter	Approx. Mass	Minimum Installed Bending Radius
	mm^2	mm	kg/100m	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

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

Note: Compacted Conductor.

Catalogue Reference	Nominal Conductor Area	Approx. Overall Diameter	Approx. Mass	Minimum Installed Bending Radius
	mm^2	mm	kg/100m	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

2 & 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	Approx. Overall Diameter		Approx. Mass		Minimum Installed Bending Radius	
		mm^2	mm		kg/100m		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.

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^2	Approx. Overall Diameter mm	Approx. Mass kg/100m	Minimum Installed Bending Radius mm
164CXLP (no earth)	16	23.2	83.5	90
164CEXLP	16	21.0	87.5	85
254CEXLP	25	24.9	130	150
354CEXLP	35	27.8	173	165
504CEXLP	50	32.0	235	190
704CEXLP	70	37.1	325	225
954CEXLP	95	41.8	437	250
1204CEXLP	120	46.2	547	280
1504CEXLP	150	52.0	680	310
1854CEXLP	185	58.3	857	350
2404CEXLP	240	65.8	1122	395
3004CEXLP	300	72.9	1400	440

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

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

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

Catalogue Reference	Nominal Conductor Area mm^2	Approx. Diameter Over Bedding. mm	Approx. Overall Diameter mm	Approx. Mass kg/100m	Minimum 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

1.5MM² MULTICORE PVC CONTROL 0.6/1KV

Multicore Circular with Earth, 1.5mm² 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	Minimum 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

Multicore Circular with Earth, 2.5mm² 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	Minimum 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

1.5MM² MULTICORE PVC CONTROL SWA 0.6/1KV

Multicore Circular with Earth, 1.5mm² Copper Conductor, V-90 PVC Insulated and 5V-90 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	Minimum 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

2.5MM² MULTICORE PVC CONTROL SWA 0.6/1KV

Multicore Circular with Earth, 2.5mm² Copper Conductor, V-90 PVC Insulated and 5V-90 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	Minimum 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

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

Catalogue Reference	Nominal Conductor Area mm^2	Approx. Overall Diameter mm	Approx. Mass kg/100m	Minimum Installed Bending Radius mm
Single Core				
6 1CAER	6.0	5.2	8	20
10 1CAER	10	6.2	12	20
16 1CAER	16	7.2	18	30
25 1CAER	25	9.3	28	40
35 1CAER	35	10.2	38	40
50 1CAER	50	11.9	51	50
70 1CAER	70	13.7	72	60
95 1CAER	95	15.9	98	60
120 1CAER	120	17.4	120	70
150 1CAER	150	19.5	148	80
185 1CAER	185	21.7	189	90

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	Approx. Overall Dimensions	Approx. Mass	Minimum Installed Bending Radius
	mm^2	mm	kg/100m	mm
2 Core				
6FIG8AER	6.0	11.2 x 5.2	15	20
10FIG8AER	10	13.2 x 6.2	24	25
16FIG8AER	16	15.3 x 7.2	37	30

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^2	Approx. Overall Diameter mm	Approx. Mass kg/100m	Minimum 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

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

Code	Nominal Conductor Area mm²	Approx. Overall Diameter mm	Approx. Mass kg/100m	AS/NZS 3013 WS Rating
2 CORE				
*1.02CFS90	1.0	11.3	16	WS51W
1.52CFS90	1.5	11.9	18	WS52W
2.52CFS90	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				
1.03CFS90	1.0	11.9	17	WS51W
1.53CFS90	1.5	12.5	20	WS52W
2.53CFS90	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

* Meets CAT 3 Data Transmission Characteristics

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

Code	Nominal Conductor Area	Approx. Overall Diameter	Approx. Mass	AS/NZS 3013 WS Rating
	mm^2	mm	kg/100m	
4 CORE				
*1.04CFS90	1.0	12.9	20	WS51W
1.54CFS90	1.5	13.6	23	WS52W
2.54CFS90	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				
1.56CFS90	1.5	16.1	28	WS52W
1.56CEFS90	1.5	16.1	29	WS52W
2.56CEFS90	2.5	17.6	39	WS52W
7 CORE				
1.57CFS90	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

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

Code	Nominal Conductor Area mm^2	Approx. Overall Dimensions mm	Approx. Mass kg/100m	AS/NZS 3013 WS Rating
2 CORE 250/450V				
*1.02CFF90LD	1.0	5.5 x 9.0	7.2	WS51W
*1.52CFF90LD	1.5	5.7 x 9.6	8.5	WS51W
2 CORE 0.6/1KV				
*1.02CFF90HD	1.0	7.7 x 11.2	10.3	WS52W
*1.52CFF90HD	1.5	8.0 x 11.8	12.0	WS52W

* Complies to AS/ACIF S 008.

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^2	Approx. Overall Diameter mm	Approx. Mass kg/100m	AS/NZS 3013 WS Rating
101CFS110	10	9.9	19	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
951CFS110	95	20.2	112	WS52W
1201CFS110	120	21.7	136	WS52W
1501CFS110	150	24.0	167	WS52W
1851CFS110	185	26.5	208	WS52W
2401CFS110	240	30.0	269	WS52W
3001CFS110	300	33.0	334	WS52W
4001CFS110	400	36.4	419	WS52W
*5001CFS110	500	38.1	526	WS52W
*6301CFS110	630	42.1	662	WS52W

* Compacted Conductor

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

Code	Nominal Conductor Area mm²	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

Light Duty Flexible Cord, Copper Conductor, V-90 PVC Insulated, V-90 PVC Sheathed, to AS/NZS 3191.

Reference	Conductor Area	Approx. Overall Diameter	Approx. Mass
	mm^2	mm	kg/100m
2 CORE FLAT			
.52CLDFXF	0.5	5.2 x 3.3	2.8
.752CLDFXF	0.75	5.6 x 3.5	3.4
2 CORE CIRCULAR			
.52CLDFX	0.5	5.2	3.7
.752CLDFX	0.75	5.6	4.5
3 CORE CIRCULAR			
.753CLDFX	0.75	5.9	5.4
PARALLEL WEBBED, 2 CORE FLAT, UNSHEATHED			
.52CLDFXPW	0.5	5.2 x 2.6	2.2
.752CLDFXPW	0.75	5.6 x 2.8	2.7
1.02CLDFXPW	1.0	6.0 x 3.0	3.3
1.52CLDFXPW	1.5	6.6 x 3.3	4.3
2.52CLDFXPW	2.5	7.9 x 3.9	6.6
42CLDFXPW	4.0	9.3 x 4.7	11

Ordinary Duty Flexible Cord, Copper Conductor, V-90 PVC Insulated, 5V-90 PVC Sheathed, to AS/NZS 3191.

Reference	Conductor Area	Approx. Overall Diameter	Approx. Mass
	mm^2	mm	kg/100m
SINGLE CORE			
.51CODFX	0.5	2.2	0.9
.751CODFX	0.75	2.4	1.2
1.01CODFX	1.0	2.5	1.5
1.51CODFX	1.5	3.0	2.1
2.51CODFX	2.5	3.7	3.4
41CODFX	4.0	4.2	4.8
2 CORE FLAT			
.52CODFXF	0.5	6.0 x 3.9	3.6
.752CODFXF	0.75	6.4 x 4.1	4.3
2 CORE CIRCULAR			
.752CODFX	0.75	6.4	5.7
1.02CODFX	1.0	6.7	6.5
1.52CODFX	1.5	7.7	8.9
2.52CODFX	2.5	9.4	14
42CODFX	4.0	10.5	18
3 CORE CIRCULAR			
.753CODFX	0.75	6.8	6.8
1.03CODFX	1.0	7.1	7.9
1.53CODFX	1.5	8.4	11
2.53CODFX	2.5	10.2	17
43CODFX	4.0	11.4	23

Ordinary Duty Flexible Cord, Copper Conductor, V-90 PVC Insulated, 5V-90 PVC Sheathed, to AS/NZS 3191.

Reference	Conductor Area	Approx. Overall Diameter	Approx. Mass
	mm^2	mm	kg/100m
4 CORE CIRCULAR			
.754CODFX	0.75	7.4	8.2
1.04CODFX	1.0	8.0	9.9
1.54CODFX	1.5	9.4	14
2.54CODFX	2.5	11.2	21
44CODFX	4.0	12.5	29
5 CORE CIRCULAR			
.755CODFX	0.75	8.3	10
1.05CODFX	1.0	8.7	12
1.55CODFX	1.5	10.5	17
2.55CODFX	2.5	12.4	26
45CODFX	4.0	14.1	36

Heavy Duty Flexible Cord, Copper Conductor, V-90 PVC Insulated, 5V-90 PVC Sheathed, to AS/NZS 3191.

Reference	Conductor Area	Approx. Overall Diameter	Approx. Mass
	mm^2	mm	kg/100m
SINGLE CORE INSULATED ONLY			
.51CHDFX	0.5	2.6	1.1
.751CHDFX	0.75	2.8	1.4
1.01CHDFX	1.0	2.9	1.6
1.51CHDFX	1.5	3.2	2.1
2.51CHDFX	2.5	3.9	3.3
41CHDFX	4.0	4.7	5.5
2 CORE CIRCULAR			
.752CHDFX	0.75	8.2	8.4
1.02CHDFX	1.0	8.6	9.3
1.52CHDFX	1.5	9.5	12
2.52CHDFX	2.5	11.2	17
42CHDFX	4.0	13.0	25

Heavy Duty Flexible Cord, Copper Conductor, V-90 PVC Insulated, 5V-90 PVC Sheathed, to AS/NZS 3191.

Reference	Conductor Area	Approx. Overall Diameter	Approx. Mass
	mm^2	mm	kg/100m
3 CORE CIRCULAR			
.753CHDFX	0.75	8.8	10
1.03CHDFX	1.0	9.2	11
1.53CHDFX	1.5	10.2	15
2.53CHDFX	2.5	12.1	21
43CHDFX	4.0	13.9	30
4 CORE CIRCULAR			
.754CHDFX	0.75	9.8	12
1.04CHDFX	1.0	10.2	14
1.54CHDFX	1.5	11.3	18
2.54CHDFX	2.5	13.3	26
44CHDFX	4.0	15.4	38
5 CORE CIRCULAR			
.755CHDFX	0.75	10.8	15
1.05CHDFX	1.0	11.2	17
1.55CHDFX	1.5	12.4	21
2.55CHDFX	2.5	14.6	30
45CHDFX	4.0	17.1	46

Heavy Duty Flexible Cable, Copper Conductor, V-90 PVC Insulated, 5V-90 PVC Sheathed, to AS/NZS 5000.1.

Code	Nominal Conductor Area	Approx. Overall Diameter	Approx. Mass
	mm^2	mm	kg/100m
3 CORE CIRCULAR (2C & E)			
63CHDFX	6.0	16.0	44
103CHDFX	10	20.5	69
163CHDFX	16	24.1	90
253CHDFX	25	29.4	140
353CHDFX	35	32.5	181
503CHDFX	50	37.7	241
4 CORE CIRCULAR (3C & E)			
64CHDFX	6.0	17.6	54
104CHDFX	10	22.6	85
164CHDFX	16	26.1	122
254CHDFX	25	32.0	191
354CHDFX	35	35.3	246
504CHDFX	50	41.2	332
704CHDFX	70	48.3	460
954CHDFX	95	53.3	577
1204CHDFX	120	60.0	731

Flexible 90°C rated elastomeric insulated and sheathed cables. Single core cables are manufactured with extra fine stranding, suitable for use as welding flex. Cables are oil and solvent resistant and suitable for permanent water submersion to 100m. To AS/NZS 5000.1.

Reference	Conductor Area	Approx. Overall Diameter	Approx. Mass
	mm^2	mm	kg/100m
SINGLE CORE			
1.5 1CFLXT	1.5	6.7	5.9
2.5 1CFLXT	2.5	7.4	7.5
4 1CFLXT	4.0	8.4	11
6 1CFLXT	6.0	9.4	14
10 1CFLXT	10	11.6	21
16 1CFLXT	16	13.0	29
25 1CFLXT	25	15.6	42
35 1CFLXT	35	17.2	54
50 1CFLXT	50	19.6	74
70 1CFLXT	70	22.6	99
95 1CFLXT	95	25.1	129
120 1CFLXT	120	27.4	160
150 1CFLXT	150	30.1	196
185 1CFLXT	185	33.8	238
240 1CFLXT	240	36.7	302

Flexible 90°C rated elastomeric insulated and sheathed cables. The cables are oil and solvent resistant and suitable for permanent water submersion to 100m. To AS/NZS 5000.1.

Reference	Conductor Area	Approx. Overall Diameter	Approx. Mass
	mm^2	mm	kg/100m
2 CORE CABLE			
1.02CFLXT	1.0	9.4	11
1.52CFLXT	1.5	10.4	14
2.52CFLXT	2.5	12.1	19
42CFLXT	4.0	13.8	27
62CFLXT	6.0	15.9	37
102CFLXT	10	22.3	68
162CFLXT	16	25.2	91
252CFLXT	25	30.0	135
352CFLXT	35	32.9	170
502CFLXT	50	37.8	224
3 CORE CABLE			
1.03CFLXT	1.0	10.6	13
1.53CFLXT	1.5	11.1	16
2.53CFLXT	2.5	12.9	23
43CFLXT	4.0	14.8	33
63CFLXT	6.0	17.0	46
103CFLXT	10	23.1	78
163CFLXT	16	26.1	107
253CFLXT	25	31.3	162
353CFLXT	35	34.4	206
503CFLXT	50	40.0	272
703CFLXT	70	45.7	373
953CFLXT	95	51.3	485
1203CFLXT	120	56.9	606

Flexible 90°C rated elastomeric insulated and sheathed cables. The cables are oil and solvent resistant and suitable for permanent water submersion to 100m. To AS/NZS 5000.1.

Reference	Conductor Area	Approx. Overall Diameter	Approx. Mass
	mm^2	mm	kg/100m
4 CORE CABLE			
1.04CFLXT	1.0	11.1	16
1.54CFLXT	1.5	12.2	20
2.54CFLXT	2.5	14.2	28
44CFLXT	4.0	16.3	41
64CFLXT	6.0	18.7	57
104CFLXT	10	25.4	96
164CFLXT	16	28.7	133
254CFLXT	25	34.5	203
354CFLXT	35	37.8	258
504CFLXT	50	43.5	347
704CFLXT	70	51.9	485
954CFLXT	95	55.7	612
1204CFLXT	120	63.3	771
5 CORE CABLE			
1.05CFLXT	1.0	12.2	19
1.55CFLXT	1.5	13.4	24
2.55CFLXT	2.5	15.6	34
45CFLXT	4.0	18.1	50
65CFLXT	6.0	20.7	70
105CFLXT	10	28.0	117
165CFLXT	16	31.6	161
255CFLXT	25	38.2	248

Flexible 90°C rated elastomeric insulated and sheathed cables. Cable cores are coloured black with printed numbers, with one green/yellow earth. To AS/NZS 5000.1.

Reference	No. of Cores	Approx. Overall Diameter mm	Approx. Mass kg/100m
	1.5mm²		
1.56CFLXTCON	6	15.5	27
1.57CFLXTCON	7	15.5	30
1.58CFLXTCON	8	17.9	38
1.510CFLXTCON	10	19.4	41
1.512CFLXTCON	12	20.0	47
1.514CFLXTCON	14	21.0	53
1.519CFLXTCON	19	23.2	68
1.524CFLXTCON	24	27.3	85
1.527CFLXTCON	27	27.9	94
1.530CFLXTCON	30	28.9	103
1.537CFLXTCON	37	31.4	125

Flexible 90°C rated elastomeric insulated and sheathed cables. Cable cores are coloured black with printed numbers with one green/yellow earth. To AS/NZS 5000.1.

Reference	No. of Cores	Approx. Overall Diameter mm	Approx. Mass kg/100m
2.5mm²			
2.56CFLXTCON	6	16.8	35
2.57CFLXTCON	7	16.8	39
2.58CFLXTCON	8	18.2	43
2.510CFLXTCON	10	21.2	53
2.512CFLXTCON	12	21.8	61
2.514CFLXTCON	14	22.9	70
2.519CFLXTCON	19	25.5	90
2.524CFLXTCON	24	30.0	113
2.527CFLXTCON	27	30.7	125
2.530CFLXTCON	30	32.0	138
2.537CFLXTCON	37	34.8	168
4mm²			
46CFLXTCON	6	18.6	50
47CFLXTCON	7	18.6	55
48CFLXTCON	8	20.1	62
410CFLXTCON	10	23.5	76
412CFLXTCON	12	24.2	89
414CFLXTCON	14	25.5	101
419CFLXTCON	19	28.4	133
424CFLXTCON	24	33.7	169
427CFLXTCON	27	34.7	188
430CFLXTCON	30	35.9	207
437CFLXTCON	37	39.0	252


VaSTEC
a cut above the rest
Cut to your exact requirements the new Vastec EMC cable from Prysmian is the ultimate solution in AC Variable Speed Drive applications. Providing optimum delivery of power with minimized interference, Vastec is perfectly suited to electromagnetic sensitive environments.
PRYSMIAN
CABLES & SYSTEMS
Ph 1300 300 304 • Fax 1300 300 307
www.prysmian.com.au

1.5mm² & 2.5mm² 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.

4.0mm² to 10mm² 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	Nominal Combined Earth Area	Overall Diameter		Weight
			Min.	Max.	
	mm²	mm²	mm		kg/100m
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.

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	Nominal Combined Earth Area	Overall Diameter		Weight
			Min.	Max.	
	mm^2	mm^2	mm		kg/100m
10REMC	10	4.5	17.0	19.0	65
16REMC	16	7.5	19.4	21.6	91
25REMC	25	12	22.8	25.1	128
35REMC	35	18	25.2	27.6	167
50REMC	50	30	28.8	31.2	224
70REMC	70	30	33.1	34.8	287
95REMC	95	48	37.1	37.1	393
120REMC	120	48	41.8	43.7	473
150REMC	150	75	46.5	48.6	596
185REMC	185	75	51.7	53.9	723
240REMC	240	105	58.2	60.6	940
300REMC	300	150	63.9	66.6	1169

OTHER SPECIAL CABLES

The energy cables in previous sections of this Guide, represent the common cables required in general markets. Prysmian Cables & Systems 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

And many other special application cables. Catalogues are available to specifically cover some of these areas. However, 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.

GUIDE FOR CODES

Fibre

					Optional		
Product	**Fibre Count**	**Mode**	**Fibre Size**	**Type of Cable/Construction**	**Jacket**	**Special Sheath**	**Armour**
F	**4**	**M**	**62**	**LT**	**N**	**S**	**C**
F = Fibre	4 = 4 Fibre 24 = 24 Fibre	M = Multimode S = Singlemode	62 = 62/125 50 = 50/125 09 = 9/125	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 M = Moisture Barrier	C = Corrugated Steel Tape A = Steel Wire G = Glass Reinforced Plastic

LAN Cable

				Optional			
Product	**Pair Count**	**"P"**	**Category**	**Patch/Outdoor**	**Screening**	**Special Materials**	**Colour**
L	**4**	**P**	**5E**	**P**	**CS**	**ZH**	**BL**
L = Lan	4 = 4 pair 25 = 25 pair etc	"P" for Pair	3 = Cat 3 5E = Cat 5E 6 = Cat 6 7 = Cat 7	P = Patch O = Outdoor	CS = Screened ES = Element Screened	ZH = low smoke zero halogen (LSOH) flame retardant J = Jelly	BL = Blue GR = Grey RD = Red GN = Green WH = White YE = Yellow BK = Black

Internal Telephone

				Optional
Product	**Pair Count**	**"P"**	**Internal**	**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

					Optional		
Product	**Pair Count**	**"P"**	**Conductor Size**	**Description**	**Jelly**	**Jacket**	**Screened**
T	**4**	**P**	**40**	**PE**	**J**	**N**	**M**
T = Telephone	4 = 4 pair 25 = 25 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

		Optional
Product	**Code or Cable Type**	**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

	Code	No. of Pairs	Description	Overall Dia. mm	Min. Bending Radius mm	Max. Pulling Tension N	Mass kg/km
Cat 7 – 1/0.57mm 23 AWG PACW, Polyolefin Insulated, Twisted Pair, Flame Retardant Low Smoke PVC Sheath, ACMA and UL Listed or SGS Certified. Nominal Impedance 100 ohm. Tested up to 650MHz, (tested up to 1.2GHz on request). Velocity of propagation 78%. Grey Sheath.							
Category 7	L4P7CS	4	screened	7.8	62	200	80
Std. Pack: 500m Reel							
Cat 6 – 1/0.57mm 24 AWG PACW, Polyolefin Insulated, Twisted Pair, Flame Retardant Low Smoke PVC Sheath. ACMA and UL Verified & Listed. Nominal Impedance 100 ohm. Tested up to 250MHz, (Tested up to 1.2GHz on request). Velocity of propogation 69%. Grey Sheath.							
Category 6	L4P6	4	unscreened	6.2	50	190	40
	L4P6CS	4	screened	7.3	60	180	68
Std. Pack: 4 pair – 305m Box							

Cat 5E - 1/0.5mm 24 AWG PACW, Polyolefin Insulated, Twisted Pair, Flame Retardant Low Smoke PVC Sheath. ACMA and UL Listed & Verfified. Nominal Impedance 100 ohm. Tested up to 160MHz, (Tested up to 450MHz on request). Velocity of propagation 70%. Blue Sheath.

Category 5E	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.

SINGLE MODE (S) OS1 (G652.d)

Fibre Code	Fibre Size Core/Cladding (nom) µ/µm	Outside Acrylate Coated mm	Effective Cable Cut-Off Wavelength nm	Attenuation dB/km (max) @ 1310 nm	1385 nm	1550 nm	1625 nm	Mode Field Diameter @ 1310nm µm	Refractive Index (nom) @ 1310nm	1550nm	Chromomatic Dispersion ps/nm.km(max)@ 1310 nm	1550 nm	1625 nm
09	9/125	0.25	1260	0.35	0.35	0.23	0.24	9.2	1.467	1.468	3.5	18	22

Tight Buffered Coating

Core/Cladding Diameters (µm)		Coating Diameter (µm)	Attenuation dB/km (max) @ 1310nm	1550nm
9/125	OS1	900	0.40	0.40

MULTIMODE (M) OM1, OM2 & OM3

Fibre Code		Fibre Size Core/Cladding (µm) (nom)	Outside Acrylate Coated (mm)	Numerical Aperture (nom)	Attenuation dB/km (max) @ 850nm	1300nm	Overfilled Launch Bandwidth MHz. km (min) @ 850nm	1300nm	Refractive Index (nom) @ 850nm	1300nm
62	OM1	62.5/125	0.25	0.275	3.2	1.0	200	500	1.491	1.486
50	OM2	50/125	0.25	0.200	3.0	1.0	500	500	1.481	1.476
50E	OM3	50/125	0.25	0.200	2.5	0.7	1500*	500	1.482	

Tight Buffered Coating

Core/Cladding Diameters (µm)		Jacket Diameter (µm)	Attenuation dB/km (max) @ 850nm	1300nm	Overfilled Launch Bandwidth MHz. km (min) @ 850nm	1300nm
62.5/125	OM1	900	3.5	1.0	200	500
50/125	OM2	900	3.5	1.0	500	500
50/125	OM3	900	3.5	1.0	1500*	500

*Effective laser bandwidth 2000 MHz. km

Prysmian Optic fibre Cords – Tight Buffered fibre, reinforced with aramid yarns and sheathed with flame retardant PVC.

Code			OD mm	Mass kg/km	Min. Bend Radius mm	Max. Tensile Strength Install. kN	Operating Temp °C	Crush Resist-ance kN/100mm	Tight Jacket Coating Dia. µm
INDOOR SINGLE FIBRE SIMPLEX									
F1M62PAT	Simplex 2mm	M/M 1 core 62.5/125 Orange	2.0	3.6	30	0.1	0 to 60	0.5	900
F1S09PAT	Simplex 2mm	S/M 1 core 9/125 Yellow	2.0	3.6	30	0.1	0 to 60	0.5	900
F1M62PAT24	Simplex	M/M 1 core 62.5/125 Orange	2.4	5.6	30	0.1	0 to 60	0.5	900
F1S09PAT24	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 & Cut to Size

INDOOR FIGURE 8 ZIPCORD									
F2M62ZIP	Zip-Cord 2mm	M/M 2 core 62.5/125 Orange	2.0 x 4.2	6.6	30	0.2	0 to 60	0.5	900
F2S09ZIP	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
F2M62ZIP24	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
F2S09ZIP24	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 & Cut to Size.

OM2 and OM3 fibre types also available on request.

Light & Heavy Duty Riser. 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.

Code		OD mm	Mass kg/km	Min. Bend Radius full load mm	Max. Tensile Strength Install. kN	Operating Temp °C	Crush Resistance kN/100 mm
Multimode OM1 Distribution							
F2M62IOR	Light Duty Riser M/M 2 fibre	5.8	28	120	0.6	–10 to 70	0.5
F4M62IOR	Light Duty Riser M/M 4 fibre	5.8	28	120	0.6	–10 to 70	0.5
F6M62IOR	Light Duty Riser M/M 6 fibre	6.2	33	125	0.6	–10 to 70	0.5
F8M62IOR	Light Duty Riser M/M 8 fibre	6.8	36	140	0.6	–10 to 70	0.5
F12M62IOR	Light Duty Riser M/M 12 fibre	7.2	41	145	0.6	–10 to 70	0.5
F24M62IOR	Light Duty Riser M/M 24 fibre	8.0	58	160	0.9	–10 to 70	0.5
Singlemode OS1 Distribution							
F6S09IOR	Light Duty Riser S/M 6 fibre	6.2	33	125	0.6	–10 to 70	0.5
F12S09IOR	Light Duty Riser S/M 12 fibre	7.2	41	145	0.6	–10 to 70	0.5
F24S09IOR	Light Duty Riser S/M 24 fibre	8.0	58	160	0.9	–10 to 70	0.5
Multimode OM1 Break Out							
F4M62IOB	Heavy Duty Breakout M/M 4 fibre	8.5	71	180	0.6	-10 to 70	0.5
F6M62IOB	Heavy Duty Breakout M/M 6 fibre	8.5	73	180	0.6	-10 to 70	0.5
F8M62IOB	Heavy Duty Breakout M/M 8 fibre	9.9	94	200	1.2	-10 to 70	0.5
F12M62IOB	Heavy Duty Breakout M/M 12 fibre	12.5	150	250	1.2	-10 to 70	0.5
Singlemode OS1 Break Out							
F2S09IOB	Heavy Duty Breakout S/M 2 fibre	8.5	69	180	0.6	–10 to 70	1.0

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

SM@RTCORE® Range of external Loose Tube Cable – featuring reduced diameter technology.

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

Code		OD mm	Mass kg/km	Min. Bend Radius Full Load mm	Max. Tensile Strength Install. kN	Operating Temp °C	Crush Resistance kN/100 mm
Single Mode OS1 – SM@RTCORE®							
F6S09LTN	S/M 6 core Drycore Nylon	10.0	73	200	2.0	-10 to 70	2.0
F12S09LTN	S/M 12 core Drycore Nylon	10.0	73	200	2.0	-10 to 70	2.0
F24S09LTN	S/M 24 core Drycore Nylon	10.0	74	200	2.0	-10 to 70	2.0
F48S09LTN	S/M 48 core Drycore Nylon	10.0	76	200	2.0	-10 to 70	2.0

Std. Pack Size: 2km & Cut to Size

Multi Mode 62.5/125 OM1 – SM@RTCORE®							
F4M62LTN	M/M 4 core Drycore Nylon	10.0	73	200	2.0	-10 to 70	2.0
F6M62LTN	M/M 6 core Drycore Nylon	10.0	73	200	2.0	-10 to 70	2.0
F8M62LTN	M/M 8 core Drycore Nylon	10.0	73	200	2.0	-10 to 70	2.0
F12M62LTN	M/M 12 core Drycore Nylon	10.0	73	200	2.0	-10 to 70	2.0
F24M62LTN	M/M 24 core Drycore Nylon	10.0	73	200	2.0	-10 to 70	2.0

Std. Pack Size: 2km & Cut to Size

OM2 & OM3 fibre types available. GRP & Corrugated Steel Tape Armoured versions available.

Other fibre counts available on quotation. Up to 624 Fibre Cables available using 24 fibres per tube technology.

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:

– 2% normal sag, maximum 100 km/hr wind speed and 5mm radial ice load

Metrosp@n® – 80 metre Span for Urban Environments.

Code		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 Resist. kN/100mm	
Metrosp@n™ – 80m 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, aramid yarns reinforced & polyethelene overall sheathed.										
F12S09AD80	Singlemode 12 Core	10.4	74	300	400	1.1	2.8	-20° to +70°	2	
F24S09AD80	Singlemode 24 Core	10.4	75	300	400	1.1	2.8	-20° to +70°	2	
F36S09AD80	Singlemode 36 Core	10.4	76	300	400	1.1	2.8	-20° to +70°	2	
F48S09AD80	Singlemode 48 Core	10.4	77	300	400	1.1	2.8	-20° to +70°	2	
F60S09AD80	Singlemode 60 Core	10.4	78	300	400	1.1	2.8	-20° to +70°	2	

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

Aerial All Dielectric Self Supporting Optical Fibre Cable.

Code		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 Resist. kN/100mm
Shortsp@n® Single 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, polyethelene inner core tape, aramid yarns reinforced & polyethylene overall sheathed.									
Shortsp@n® – 150 metre Span - Single Sheath Design.									
F12S09AD150	Singlemode 12 Core	10.5	76	300	400	1.4	4.1	-10 to +70	2
F24S09AD150	Singlemode 24 Core	10.5	77	300	400	1.4	4.1	-10 to +70	2
F36S09AD150	Singlemode 36 Core	10.5	79	300	400	1.4	4.1	-10 to +70	2
F48S09AD150	Singlemode 48 Core	10.5	80	300	400	1.4	4.1	-10 to +70	2
F60S09AD150	Singlemode 60 Core	10.5	81	300	400	1.4	4.1	-10 to +70	2
Shortsp@n® 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, polyethelene inner sheath, aramid yarns reinforced & polyethylene overall sheathed.									
Shortsp@n® – 150 metre Span - Double Sheath Design.									
F12S09ADD150	Singlemode 12 Core	13.5	131	400	500	2.5	5.5	-10 to +70	2
F24S09ADD150	Singlemode 24 Core	13.5	132	400	500	2.5	5.5	-10 to +70	2
F36S09ADD150	Singlemode 36 Core	13.5	133	400	500	2.5	5.5	-10 to +70	2
F48S09ADD150	Singlemode 48 Core	13.5	133	400	500	2.5	5.5	-10 to +70	2
F60S09ADD150	Singlemode 60 Core	13.5	134	400	500	2.5	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 Sacrificial Sheath is available on request.

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	0.5mm Unscreened Cat 3		OD	Bending Radius min	Max Pulling Tension	Mass	Telstra Version for Approved Contractors
			mm	mm	N	kg/km	Telstra Part No
T2PI	Internal Telephone 1/0.50	2 pair	3.9	40	75	20	323/6591
T3PI	Internal Telephone 1/0.50	3 pair	4.8	50	110	28	323/6522
T6PI	Internal Telephone 1/0.50	6 pair	6.8	70	230	52	323/6523
T10PI	Internal Telephone 1/0.50	10 pair	8.4	85	380	75	323/6524
T20PI	Internal Telephone 1/0.50	20 pair	10.9	110	760	130	323/6525
T25PI	Internal Telephone 1/0.50	25 pair	11.5	115	950	152	323/6526
T50PI	Internal Telephone 1/0.50	50 pair	15.8	160	1900	280	323/6530
T100PI	Internal Telephone 1/0.50	100 pair	21.3	210	3800	540	323/6532

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

Suitable for ISDN and DSL applications.

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	ISDN/Station Cables					OD	Bending Radius min	Max Pulling Tension	Mass
						mm	mm	N	kg/km
T1PISDN	ISDN 1	1 pair	1/0.5	2M/Bit	Primary Rate	4.5	50	40	23.7
T2PISDN	ISDN 2	2 pair	1/0.5	2M/Bit	Primary Rate	4.9	60	75	31.3
T4PISDN	ISDN 4	4 pair	1/0.5	2M/Bit	Primary Rate	7.2	100	150	53.6
T8PISDN	ISDN 8	8 pair	1/0.5	2M/Bit	Primary Rate	8.9	130	300	81.9
T16PISDN	ISDN 16	16 pair	1/0.5	2M/Bit	Primary Rate	12.2	180	600	141.9
T32PISDN	ISDN 32	32 pair	1/0.5	2M/Bit	Primary Rate	16.2	235	1200	238.3

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.

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	Minimum Bending Radius mm	Maximum Pulling Tension N	Mass kg/km
L25P30J	25	11.0	110	950	160
L50P30J	50	14.6	150	1900	300
L100P30J	100	20.0	200	3800	570

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

Code	Number of Pairs	Overall Diameter mm	Minimum Bending Radius mm	Maximum Pulling Tension N	Mass kg/km	Telstra Version for Approved Contractors Telstra Part No.
0.40 mm Conductor - Max Resistance 139.4 ohm/km, Max Capacitance Unbalanced Pair to Pair 210pF/1000m @ 800Hz						
T10P40PEJ	10	7.5	120	240	60	467/5021
T30P40PEJ	30	11.6	190	720	145	467/5023
T50P40PEJ	50	14.2	215	1200	225	467/5024
T100P40PEJ	100	19.3	310	2400	425	467/5026
0.64 mm Conductor - Max Resistance 56.4 ohm/km, Max Capacitance Unbalanced Pair to Pair 120pF/1000m @ 800Hz						
T10P64PEJ	10	10.2	165	600	115	
T30P64PEJ	30	15.8	255	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 Unbalanced Pair to Pair 100pF/1000m @ 800Hz						
T10P90PEJ	10	13.4	215	1200	210	
T30P90PEJ	30	21.7	350	3600	580	
T50P90PEJ	50	27.7	445	6000	950	
T100P90PEJ	100	36.0	580	12100	1755	

NOTE:

1. Nylon jacket can be supplied as protection against ants and termites. (Code = N).
2. A Sacrificial Sheath is optional.
3. Moisture Barrier version available (Code = M)
4. Mutual Capacitance (nom) 45nF/km.

External Telephone Cable – Telstra – For Approved Contractors Only.

		Conductor Size		
		0.40mm	0.64mm	0.90mm
Number of Pairs	Description	Telstra Number	Telstra Number	Telstra Number
Cellular PE, Jelly Filled, Unit Twin, Polyethylene Sheath, Nylon Jacket				
10	CPFUT PEHJ	467/5321	–	–
30	CPFUT PEHJ	467/5323	–	–
50	CPFUT PEHJ	467/5324	–	–
Cellular PE, Jelly Filled, Unit Twin, Moisture Barrier, Polyethylene Sheath				
200	CPFUT MB	467/7028	467/7048	–
400	CPFUT MB	467/7030	467/7050	–
800	CPFUT MB	467/7032	–	–
Cellular PE, Jelly Filled, Unit Twin, Moisture Barrier, Polyethylene Sheath, Nylon Jacket, Sacrificial Jacket				
200	CPFUT MBHJSJ	467/7328	467/7348	–
400	CPFUT MBHJSJ	467/7330	467/7350	–
Cellular PE, Jelly Filled, Unit Twin, Moisture Barrier, Polyethylene Sheath, Nylon Jacket				
10	CPFUT MBHJ	–	467/7441	467/7461
30	CPFUT MBHJ	–	467/7443	467/7463
50	CPFUT MBHJ	–	467/7444	467/7464
100	CPFUT MBHJ	467/7426	467/7446	–
Cellular PE, Unit Twin, Moisture Barrier, Polyethylene Sheath				
800	CPIUT MB	478/7025	478/7045	–
1200	CPIUT MB	478/7027	–	–
2400	CPIUT MB	478/7031	–	–

Aerial IBC – Integral Bearer Wire – Dry Core. 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 139.4 ohm/km, Max Capacitance Unbalance Pair to Pair 210pF/1000m @ 800Hz							
T10P40IB	10	1/2.50	7.8	160	6100	115	465/5221
T50P40IB	50	1/2.50	13.9	280	6100	260	465/5224
T100P40IB	100	7/1.25	19.7	390	10700	505	465/5226
0.64 mm Conductor – Max Resistance 56.4 ohm/km, Max Capacitance Unbalance Pair to Pair 120pF/1000m @ 800Hz							
Lead In T2P64IB	2	1/2.50	4.4	102	1000	39	490/5741
T10P64IB	10	1/2.50	10.3	210	6100	165	465/5241
T50P64IB	50	7/1.25	21.0	420	10700	570	465/5244
T100P64IB	100	7/1.60	29.2	580	17500	1080	465/5246
0.90 mm Conductor – Max Resistance 27.9 ohm/km, Max Capacitance Unbalance Pair to Pair 100pF/1000m @ 800Hz							
T10P90IB	10	1/2.50	12.0	240	6000	240	–
T50P90IB	50	7/1.60	27.8	560	17500	1050	–
T100P90IB	100	7/1.60	38.4	770	27400	1970	–

NOTE:
*O/D measured over sheath excluding bearer wire. Mutual Capacitance (nom) 45 nF/km.
**Tensile applied to the bearer wire.

Lead In Cables – Underground.
Solid PACW, Solid PE Insulated, PE Sheathed. Available with an optional Nylon Termite Resistant Jacket. 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
JELLY FILLED						
0.40 mm Conductor – Max Resistance 139.4 ohm/km, Max Capacitance Unbalance Pair to Pair 210pF/1000m @ 800Hz						
Quad T2P40LIJ	2	4.6	50	50	20	490/5023
with nylon jacket						
Quad T2P40LIJN	2	4.7	50	50	20	490/5323
0.64 mm Conductor with nylon jacket – Max Resistance 56.4 ohm/km, Max Capacitance Unbalance Pair to Pair 120pF/1000m @ 800Hz						
T2P64LIJN	2	6.3	65	125	40	490/5342

NOTE:
1. Mutual Capacitance (nom) 45 nF/km.

Code	Description	Inner Cond. No./mm	Insul. Diameter mm	Overall Diameter mm	Characteristic Impedance ohm	Mutual Capac. pF/m
Radio Frequency RG Series						
CRG58C/U	RG58 C/U	19/0.18 TACW	2.95	4.95	50	102
CRG59B/U	RG59 B/U	1/0.58 CCS	3.71	6.15	75	69
CRG59/U	RG59/U	7/0.25 PACW	3.71	6.15	75	58
CRG62A/U	RG 62 A/U	1/0.643 CCS	3.71	6.15	93	58
CRG213/U	RG213/U	7/0.75 PACW	7.24	10.3	50	109
CRG6/U	RG6/U MATV	1/1.024 PACW	4.57	6.99	75	67

Std. Pack Size: All cables available in 500m drums (100m reels available for CRG58C/U and CRG59B/U). Generally to US MIL-C-17.

Television Lead-In 75 Ohm						
CTVCOAX	TV Coax	1/1.00 PACW	4.6	6.6	75	56

Std. Pack Size: 100m reels.

Coaxial Pay TV/MATV						
C6DS	RG6 Dual Screen	1/1.016 CCS	4.57	6.86	75	53
C6QS	RG6 Quad Screen	1/1.016 CCS	4.57	7.57	75	53
C11QS	RG11 Quad Screen	1/1.626 CCS	7.11	10.34	75	53

Std. Pack Size 305m box.

Code	Description	Number of Wires	Overall Diameter mm	No./Dia. Wire mm	Max. Pulling Tension N	Telstra Version For Approved Contractors Telstra Part No.
DETONATOR WIRE						
CDETT	Red-White	1 TACW	1.3	1/0.71	30	–
JUMPER WIRE						
CJMP2RDWH	Red-White	2 PACW	1.8	1/0.50	30	3/250
CJMP2BLWH	Blue-White	2 PACW	1.8	1/0.50	30	–
CJMP2GRWH	Green-White	2 PACW	1.8	1/0.50	30	3/249
CJMP4WHRDBLBK	WH-RD-BL-BK	4 PACW	2.1	1/0.50	60	–
SPEAKER WIRE						
CSPK	Grey with stripe	2 PACW	3.7 x 1.8	14/0.20	68	–

Std. Pack Size 500m spool.

DATA CABLE P20

Balanced Multipair Cable, 7/0.20mm 24 AWG TACW, Polyolefin Insulated, Twisted Pair, Al/Polyester Overall Screened with Drain Wire, Black PVC Sheathed. Used for RS485, RS422, RS232 and RS449 data transmission. ACMA Approved.

Code	Number of Pairs	Overall Diameter mm	Minimum Bending Radius mm	Maximum Pulling Tension N	Mass kg/km
P20 CS RANGE – UL RECOGNISED 2493					
P2001CS	1	5.0	40	34	31.2
P2002CS	2	6.1	49	68	44.4
P2003CS	3	6.9	55	102	52.6
P2004CS	4	7.5	60	135	62.3
P2006CS	6	9.5	76	203	91.3
P2008CS	8	10.0	80	271	107.4
P2012CS	12	10.9	87	406	134.2
P2018CS	18	12.7	102	609	186.1
P2025CS	25	15.3	122	846	265.3
P2036CS	36	17.6	141	1219	356.1
P2050CS	50	20.2	162	1692	450.2

Std. Pack: up to 6 pair – 100m & 500m reels; 8 pair & above – 500m & 1000m drums.

Balanced Multipair Cable, 7/0.20mm 24 AWG TACW, Polyolefin Insulated, Each Twisted Pair Screened and Al/Polyester Overall Screened with Drain Wire, Black PVC Sheathed. Used for RS485, RS422, RS232 and RS449 data transmission. ACA Approved.

P20 ESCS RANGE – UL RECOGNISED					
P2002ESCS	2	6.7	54	68	56.4
P2003ESCS	3	7.6	61	102	69.1
P2004ESCS	4	8.3	66	135	80.2
P2006ESCS	6	10.6	85	203	124.3
P2008ESCS	8	10.6	85	271	139.1
P2012ESCS	12	12.3	98	406	181.4

Std. Pack: up to 3 pair – 100m & 500m reels; 4 pair & above – 500m & 1000m drums.

Data Cables – P21 7/0.20 and P31 16/0.20

Unbalanced Multicore Cable, 7/0.20mm 24 AWG TACW, Polyolefin Insulated, Layer Construction, Al/Polyester Overall Screen with Drain Wire, Black PVC Sheathed. Used for RS232 data transmission and 4–20 mA loop circuits. ACMA Approved.

Code	Number of Wires	Overall Diameter mm	Minimum Bending Radius mm	Maximum Pulling Tension N	Mass kg/km
P21 CS RANGE – UL RECOGNISED 2464					
P2104CS	4	4.5	36	68	28.1
P2106CS	6	5.2	42	102	40.3
P2108CS	8	6.1	49	135	50.1
P2112CS	12	6.6	53	203	65.3
P2118CS	18	7.5	60	305	86.5
P2124CS	24	8.8	70	406	110.1
P2136CS	36	9.9	79	609	147.3
P2150CS	50	11.7	94	846	211.1

Std. Pack: up to 8 core – 100m & 500m reels; 12 core & above – 500m & 1000m drums.

Unbalanced Multicore Cable, 16/0.20mm 20 AWG TACW, Polyolefin Insulated, Al/Polyester Overall Screened with Drain Wire, Black PVC Sheathed.ACA Approved.

P31 CS RANGE – UL RECOGNISED 2464					
P3102CS	2	5.6	45	77	
P3103CS	3	5.8	46	116	
P3104CS	4	6.2	50	155	
P3106CS	6	7.3	58	232	
P3110CS	10	9.1	73	387	
P3112CS	12	9.3	74	464	
P3118CS	18	10.7	86	696	
P3125CS	25	12.6	101	967	
P3136CS	36	14.0	112	1393	

Std. Pack: up to 8 core – 100m & 500m reels; 12 core & above – 500m & 1000m drums.

ELECTRICAL CHARACTERISTICS

Cable type	P20 CS	P20 ESCS	P21 CS	P31 CS
Conductor Size mm	7 / 0.20	7 / 0.20	7 / 0.20	16/0.20
Conductor Resistance ohms / 100m @ 20°C	8.9	8.9	8.9	3.7
Maximum Working Voltage V rms	300	300	300	300
Capacitance between wire pairs pF/m	50	65	–	–
Capacitance between adjacent wires pF/m	–	–	90	–
Capacitance between each wire to all others bunched together pF/m	95	110	145	–
Cross-talk between pairs:				
@ 1 kHz dB/100m	> 90	> 100	–	–
@ 100 kHz dB/100m	> 50	> 80	–	–
Characteristic impedance at 100 kHz ohms	135	115	–	–
Attenuation of a pair dB/100m				
@ 1 kHz	0.15	0.2	–	–
@ 10 kHz	0.42	0.5	–	–
@ 100 kHz	0.8	1	–	–
@ 150 kHz	0.9	1.3	–	–
@ 1 MHz	1.9	3.6	–	–
@ 1.5 MHz	2.4	4.6	–	–

INSTRUMENTATION CABLE P50 CS

Balanced Multipair Cable, 7/0.30mm 0.5mm² 20 AWG PACW, PVC V90-HT Insulated, Twisted Pair, Al/Polyester Overall Screened with Drain Wire, Black PVC V90-HT Sheathed. Blue sheath option for intrinsically safe circuits to AS2381.7.

Code	Number of Pairs	Nominal Overall Diameter mm	Minimum Bending Radius mm	Maximum Pulling Tension N	Mass kg/km
P50 CS RANGE					
P5001CS	1	5.8	35	70	41
P5002CS	2	7.0	42	140	60
P5004CS	4	9.9	60	280	120
P5006CS	6	11.5	69	420	160
P5008CS	8	12.9	78	560	200
P5010CS	10	14.1	85	700	240
P5012CS	12	15.8	95	840	300
P5016CS	16	17.7	107	1120	380
P5020CS	20	20.2	122	1400	460
P5024CS	24	21.8	131	1680	535
P5036CS	36	26.5	159	2520	790
P5050CS	50	30.5	183	3500	1045

INSTRUMENTATION CABLE P50CS SWA

Balanced Multipair Cable, 7/0.30mm 0.5mm^2 20 AWG PACW, PVC V90-HT Insulated, Twisted Pair, Al/Polyester Overall Screened with Drain Wire, PVC V90-HT Bedding, SWA, Black PVC V90-HT Sheathed. Blue sheath option for intrinsically safe circuits to AS2381.7.

Code	Number of Pairs	Nominal Overall Diameter mm	Minimum Bending Radius mm	Maximum Pulling Tension N	Mass kg/km
P50 CS SWA RANGE					
P5002CS SWA	2	12.4	149	1390	320
P5004CS SWA	4	15.1	182	2060	455
P5006CS SWA	6	16.7	201	2520	545
P5008CS SWA	8	18.1	218	2950	625
P5010CS SWA	10	19.3	232	3360	700
P5012CS SWA	12	21.1	254	4010	800
P5016CS SWA	16	23.7	285	5060	1075
P5020CS SWA	20	26.2	315	6180	1235
P5024CS SWA	24	27.8	334	6960	1370
P5036CS SWA	36	32.4	389	9450	1765
P5050CS SWA	50	37.6	452	12730	2450

INSTRUMENTATION CABLE P50ESCS (SWA)

Balanced Multipair Cable, 7/0.30mm 0.5mm² 20 AWG PACW, PVC V90-HT Insulated, Twisted Pair, Each Pair and Overall Al/Polyester Screened with Drain Wire, Black PVC V90-HT Sheathed. Blue sheath option for intrinsically safe circuits to AS2381.7.

Code	Number of Pairs	Nominal Overall Diameter mm	Minimum Bending Radius mm	Maximum Pulling Tension N	Mass kg/km
P50 ESCS RANGE					
P5002ESCS	2	7.7	47	140	80
P5004ESCS	4	10.8	65	280	150
P5006ESCS	6	12.7	77	420	205
P5008ESCS	8	14.2	86	560	260
P5010ESCS	10	16.2	98	700	330
P5012ESCS	12	17.5	105	840	385
P5016ESCS	16	19.6	118	1120	490
P5020ESCS	20	21.6	130	1400	590
P5024ESCS	24	23.9	144	1680	720
P5036ESCS	36	28.4	171	2520	1030
P5050ESCS	50	32.9	198	3500	1375
P50 ESCS SWA RANGE					
P5002ESCS SWA	2	13.1	158	1550	360
P5004ESCS SWA	4	16.0	192	2310	510
P5006ESCS SWA	6	17.9	215	2890	620
P5008ESCS SWA	8	19.4	233	3390	720
P5010ESCS SWA	10	21.5	258	4170	850
P5012ESCS SWA	12	23.5	282	4980	1065
P5016ESCS SWA	16	25.6	308	5900	1250
P5020ESCS SWA	20	27.6	332	6860	1430
P5024ESCS SWA	24	29.8	358	8000	1620
P5036ESCS SWA	36	35.2	423	11160	2310
P5050ESCS SWA	50	40.0	480	14400	2900

Multipair and Triples P51-P55.

	Code	Number of Pairs	Nominal Overall Diameter mm	Minimum Bending Radius mm	Maximum Pulling Tension N	Mass kg/km
	P51 ES RANGE – 7/0.50MM 1.5MM² 16AWG					
	P5102ES	1	7.0	42	210	65
Triple	P5103ES	1	7.4	45	315	85
	P51 ES SWA RANGE – 7/0.50MM 1.5MM² 16AWG					
	P5102ES SWA	1	12.4	149	1390	325
Triple	P5103ES SWA	1	12.8	154	1480	355
	P55 CS RANGE – 7/0.50MM 1.5MM² 16AWG					
	P5502CS	2	9.3	56	420	120
	P5504CS	4	12.1	73	840	210
	P5506CS	6	14.3	86	1260	290
	P5508CS	8	16.7	101	1680	390
	P5510CS	10	18.3	110	2100	470
	P5512CS	12	19.7	119	2520	550
	P55 CS SWA RANGE – 7/0.50MM 1.5MM² 16AWG					
	P5502CS SWA	2	14.5	174	1900	440
	P5504CS SWA	4	17.3	208	2700	610
	P5506CS SWA	6	19.5	234	3430	750
	P5508CS SWA	8	22.0	264	4360	920
	P5510CS SWA	10	24.3	292	5320	1190
	P5512CS SWA	12	25.7	309	5950	1310
	P55 ESCS RANGE – UL RECOGNISED 2464 7/0.50MM 1.5MM² 16AWG					
	P5502ESCS	2	10.2	62	420	140
	P5504ESCS	4	13.3	80	840	245
	P5506ESCS	6	16.3	98	1260	360
	P5508ESCS	8	18.4	111	1680	460
	P5510ESCS	10	20.2	122	2100	560
	P5512ESCS	12	21.8	131	2520	655

P53 and P56 are Triples Instrumentation Cable and are available up to 36 triples in CS, ESCS and SWA versions.

Cable type	P50CS	P50ESCS	P55CS	P55ESCS	P53CS	P53ESCS	P56CS
Conductor Size mm²	0.5 (7/0.3)	0.5 (7/0.3)	1.5 (7/0.5)	1.5 (7/0.5)	0.5 (7/03)	0.5 (7/0.3)	1.5 (7/0.5)
Conductor Resistance ohms / 100m @ 20°C	3.8	3.8	1.3	1.3	3.8	3.8	1.3
Insulation Resistance megohms / km @ 20°C	140	140	150	150	140	140	150
Max continuous current rating Amps	3.2	3.2	12	12	3.2	3.2	12
Maximum DC voltage withstand kV	3	3	3	3	3	3	3
Capacitance of pairs pF/m	80	145	110	200			
Capacitance unbalanced between pairs pF/100m	300	30	300	30			
Conductor to screen capicatance pF/m	–	240	–	300			
Cross-talk attenuation between pairs @ 1 kHz dB/100m	90	> 120	90	–			
Characteristic impedance @ 1 kHz Ohms	380	300	200	150			
Inductance @ 1 kHz mH/km	0.9	0.9	0.8	0.8			
L / R ratio µH/ohm	13	13	31	31			
Loop resistance 20°C	67.5	67.5	26.5	26.5	67.5	67.5	26.5

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 occuring 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/m²
- 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 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 touching in trefoil or flat formation.
d) Supply frequency of 50Hz.

Equation to determine minimum required cable size due to voltage drop

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

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:

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

Where

L_{max} maximum route length (m)

U_o nominal phase voltage (230V)

P resistivity at normal working temperature ($\Omega.mm^2/m$)

= 22.5×10^{-3} for copper

= 36×10^{-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.

Sph Size of the active conductor (mm^2).

Spe Size of the protective earthing conductor (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 $120mm^2$. For larger sizes, maximum length and fault loop impedance should be calculated by other methods taking account of cable inductance.

CABLE SELECTION

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		Protective Device Rating	Circuit-breaker (see Note 1)			Fuses (see Note 2)
Active	Earth		Type B	Type C	Type D	
mm^2	mm^2	Amps	m	m	m	m
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:

1. * 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
2. Fuses based on AS/NZS 60269.1 also known as BS 88 type fuses.
3. When the nominal phase voltage of the electrical installation is not 230V, the maximum length may be determined by multiplying by a factor of Uo/230. For a nominal phase voltage of 240V, the factor would be ≈ 1.04.
4. 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.

2 Single Core LV, 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 mm²	Spaced	Unenclosed Spaced from Surface	Unenclosed Touching	Exposed to Sun	Enclosed Wiring Enclosure in Air	Thermal Insulation Partially Surrounded by Thermal Insulation	Thermal Insulation Completely Surrounded by Thermal Insulation	Buried Direct	Underground Wiring Enclosure		Single Phase Voltage Drop (@ 50Hz & 75°C) mV/A.m
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.

2 Single Core LV, 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 mm²	Spaced	Unenclosed Spaced from Surface	Unenclosed Touching	Exposed to Sun	Enclosed Wiring Enclosure in Air	Thermal Insulation Partially Surrounded by Thermal Insulation	Thermal Insulation Completely Surrounded by Thermal Insulation	Buried Direct	Underground Wiring Enclosure		Single Phase Voltage Drop (@ 50Hz & 90°C) mV/A.m
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.

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 mm²	Spaced	Unenclosed Spaced from Surface	Unenclosed Touching	Exposed to Sun	Enclosed Wiring Enclosure in Air	Thermal Insulation Partially Surrounded by Thermal Insulation	Thermal Insulation Completely Surrounded by Thermal Insulation	Buried Direct	Underground Wiring Enclosure		Single Phase Voltage Drop (@ 50Hz & 90°C) mV/A.m
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.

2 Single-Core LV, 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 mm²	Spaced	Unenclosed Spaced from Surface	Unenclosed Touching	Exposed to Sun	Enclosed Wiring Enclosure in Air	Thermal Insulation Partially Surrounded by Thermal Insulation	Thermal Insulation Completely Surrounded by Thermal Insulation	Buried Direct	Underground Wiring Enclosure		Single Phase Voltage Drop (@ 50Hz & 110°C) mV/A.m
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.

3 Single Core LV, 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 mm²	Unenclosed Spaced from Surface		Unenclosed Touching	Exposed to Sun	Enclosed Wiring Enclosure in Air	Thermal Insulation Partially Surrounded by Thermal Insulation	Thermal Insulation Completely Surrounded by Thermal Insulation	Buried Direct	Underground Wiring Enclosure		Three Phase Voltage Drop (@50Hz & 75°C) mV/A.m
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.

3 Single Core LV, 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 mm²	Spaced	Unenclosed Spaced from Surface	Unenclosed Touching	Exposed to Sun	Enclosed Wiring Enclosure in Air	Thermal Insulation Partially Surrounded by Thermal Insulation	Thermal Insulation Completely Surrounded by Thermal Insulation	Buried Direct	Underground Wiring Enclosure		Three Phase Voltage Drop (@ 50Hz & 90°C) mV/A.m
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.

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 mm²	Unenclosed Spaced from Surface		Unenclosed Touching	Exposed to Sun	Enclosed Wiring Enclosure in Air	Thermal Insulation Partially Surrounded by Thermal Insulation	Thermal Insulation Completely Surrounded by Thermal Insulation	Buried Direct	Underground Wiring Enclosure		Three Phase Voltage Drop (@ 50Hz & 90°C) mV/A.m	
	Spaced											
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.

3 Single Core LV, 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 mm²	Unenclosed Spaced from Surface		Unenclosed Touching	Exposed to Sun	Enclosed Wiring Enclosure in Air	Thermal Insulation Partially Surrounded by Thermal Insulation	Thermal Insulation Completely Surrounded by Thermal Insulation	Buried Direct	Underground Wiring Enclosure		Three Phase Voltage Drop (@ 50Hz & 110°C) mV/A.m	
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.

2 Core LV, 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 mm²	Spaced	Unenclosed Touching	Exposed to Sun	Enclosed Wiring Enclosure in Air	Thermal Insulation Partially Surrounded by Thermal Insulation, Unenclosed	Thermal Insulation Completely Surrounded by Thermal Insulation, Unenclosed	Buried Direct	Underground Wiring Enclosure	Single Phase Voltage Drop (@ 50Hz & 75°C) mV/A.m
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.

2 Core LV, 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^2	Spaced	Unenclosed Touching	Exposed to Sun	Enclosed Wiring Enclosure in Air	Thermal Insulation Partially Surrounded by Thermal Insulation, Unenclosed	Thermal Insulation Completely Surrounded by Thermal Insulation, Unenclosed	Buried Direct	Underground Wiring Enclosure	Single Phase Voltage Drop (@ 50Hz & 90°C) mV/A.m
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.

2 Core LV, 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 mm²	Spaced	Unenclosed Touching	Exposed to Sun	Enclosed Wiring Metallic Enclosure in Air	Thermal Insulation Partially Surrounded by Thermal Insulation	Thermal Insulation Completely Surrounded by Thermal Insulation	Buried Direct	Underground Wiring Enclosure	Single Phase Voltage Drop (@ 50Hz & 110°C) mV/A.m
1.0	23	22	20	19	15	11	20	22	57.4
1.5	29	28	25	24	19	14	25	28	36.8
2.5	41	39	36	33	27	19	35	39	20.1
4	55	51	47	45	36	26	46	51	12.5
6	69	65	59	56	45	33	58	64	8.34
10	95	89	81	76	60	45	78	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.

3 & 4 Core LV, 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^2	Spaced	Unenclosed Touching	Exposed to Sun	Enclosed Wiring Enclosure in Air	Thermal Insulation Partially Surrounded by Thermal Insulation, Unenclosed	Thermal Insulation Completely Surrounded by Thermal Insulation, Unenclosed	Buried Direct	Underground Wiring Enclosure	Three Phase Voltage Drop (@ 50Hz & 75°C) mV/A.m
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.

3 & 4 Core LV, 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 mm²	Spaced	Unenclosed Touching	Exposed to Sun	Enclosed Wiring Enclosure in Air	Thermal Insulation Partially Surrounded by Thermal Insulation, Unenclosed	Thermal Insulation Completely Surrounded by Thermal Insulation, Unenclosed	Buried Direct	Underground Wiring Enclosure	Three Phase Voltage Drop (@ 50Hz & 90°C) mV/A.m
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.

3 & 4 Core LV, 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 mm²	Spaced	Unenclosed Touching	Exposed to Sun	Enclosed Metallic Wiring Enclosure in Air	Thermal Insulation Partially Surrounded by Thermal Insulation	Thermal Insulation Completely Surrounded by Thermal Insulation	Buried Direct	Underground Wiring Enclosure	Three Phase Voltage Drop (@ 50Hz & 110°C) mV/A.m
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.

Nominal Conductor Area mm²	PVC Insulated, exposed to sun			Voltage Drop	
	Single Core	2 Core Twisted, and 2 or 3 Core Parallel Webbed Cable	3 and 4 Core Twisted Cable	Single Phase (@50Hz & 75°C) mV/A.m	Three Phase (@50Hz & 75°C) mV/A.m
	2 m/s wind	2 m/s wind	2 m/s wind		
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.

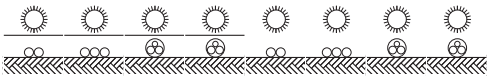
Nominal Conductor Area	Current Carrying Capacity	Single Phase Voltage Drop (@50Hz & 75°C)	Three Phase Voltage Drop (@50Hz & 75°C)
mm^2	A	mV/A.m	mV/A.m
0.5 (See Note 2)	3	94.9	82.2
0.75	7.5	63.3	54.8
1.0	10	47.5	41.1
1.5	16	32.3	28.0
2.5	20	19.4	16.8
4.0	25	12.0	10.4

NOTE:

1. 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

2. Not applicable for tinsel conductor.
3. Refer to Cable Selection in General Information for more information and data based on AS/NZS 3008.1.1.

Nominal Conductor Area mm²	Protected from Sun				Exposed to Sun				Single 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.

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

Nominal Conductor Area mm²	Protected from Sun				Exposed to Sun				Single 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		Multicore
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 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 for groups of circuits of cables buried direct in the ground – Multicore cables.

Number of cables in group	Derating factors Distance (S), m			
	Touching	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 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 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 factor Distance (S), m			
	Touching	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 for variations in ambient temperature for cables in air or heated concrete slabs.

Conductor Temp	Rating factor Air ambient temperature (see Note 1), °C																
°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:

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

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

Conductor Temp	Rating factor Soil ambient temperature, °C						
°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^2		
	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:

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(3) of AS/NZS 3008.1.1.
2. Measured to centre of enclosure of trefoil group of cables.

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

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.

Desired Data	Single-Phase	Three-Phase
I when kVA is known	$\frac{kVA \cdot 1000}{E_o}$	$\frac{kVA \cdot 1000}{\sqrt{3} \cdot E}$
I when kW is known	$\frac{kW \cdot 1000}{E_o \cdot pf}$	$\frac{kW \cdot 1000}{\sqrt{3} \cdot E \cdot pf}$
I 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:

E_o = Single phase voltage, in volts. Eg 230V

E = Three phase line voltage, in volts. Eg 400V (**E** = $\sqrt{3}$ x **E_o**)

I = Current in amperes.

%Eff = Percent efficiency in decimals.

pf = Power factor in decimals.

kVA = Kilovolt-ampere.

hp = Horsepower (output).

kW = Kilowatts (input).

Power Output = Power Input x %Eff.

$\sqrt{3}$ = 1.732

POWER OUTPUT		SINGLE PHASE VOLTAGE (V)				
		110	220	230	240	250
kW	hp	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

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

POWER OUTPUT		THREE PHASE LINE VOLTAGE (V)				
		380	400	415	440	500
kW	hp	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* (kA) for one second.

Nominal Cond. Area	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
mm²	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

NOTES:

1. *Short-citcuit capacities are based on maximum permissible temperature limits of: 160°C for PVC insulation with conductor up to and including 300mm². 140°C for PVC insulation with conductor greater than 300mm². 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.

2. The short-circuit capacity for durations up to and including 5 seconds may be calculated with the following formula:

$$I_k = \frac{I_i}{\sqrt{t_k}}$$

where I_k = short-circuit capacity during the time, t_k.
I_i = short-circuit capacity for 1 second.
t_k = short-circuit duration, seconds.

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

Nominal Conductor Area	FLEXIBLE			
	Plain Copper		Tinned Copper	
	Conductor Nominal Diameter	Max. dc Resistance at 20°C	Conductor Nominal Diameter	Max. dc Resistance at 20°C
mm^2	mm	Ω/km	mm	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

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

Nominal Conductor Area mm²	NON COMPACTED Annealed Copper Plain		Tinned		Aluminium	
	Conductor Nominal Dia. mm	Max. dc Resistance at 20°C Ω/km	Max. dc Resistance at 20° Ω/km		Conductor Nominal Dia. mm	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
△500	28.8	0.0366	0.0369		28.8	0.0605
△630	33.0	0.0283	0.0286		32.7	0.0469

NOTES: * Single Wire Conductor. △ Single core only.

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

Nominal Conductor Area	COMPACTED			
	Plain Copper		Aluminium	
	Conductor Nominal Diameter	Max. dc Resistance at 20°C	Conductor Nominal Diameter	Max. dc Resistance at 20°C
mm^2	mm	Ω/km	mm	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
△500	26.6	0.0366	26.6	0.0605
△630	30.2	0.0283	30.2	0.0469

NOTES:
△ Single core only.

WIRE GAUGES

Wire Gauges and Standard Metric Wires.

			Approx. Diameter	Calculated Area
SWG	Metric	B&S (AWG)	mm	mm^2
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^2
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^2	MCM Size	CSA mm^2	MCM Size	CSA mm^2
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		
Nominal Conductor Area	Stranding	Nominal Conductor Area	Stranding	Calculated Area*
mm^2	No./mm	sq. in	No./in	mm^2
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

* 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.

IMPERIAL CONDUCTORS

A Comparison of Metric and Imperial Conductors for Fixed Cables.

Metric		Imperial		
Nominal Conductor Area	Stranding	Nominal Conductor Area	Stranding	Calculated Area*
mm^2	No./mm	sq. in	No./in	mm^2
–	–	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.

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 3000:2000.

INSTALLATION & BENDING RADII

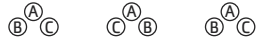
CABLE INSTALLATION.

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^2 of conductor[3)]
Aluminium, Stranded	–	0.05 kN/mm^2 of conductor
Aluminium, Solid	–	0.03 kN/mm^2 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 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	Single Core	2 Core	3 Core	4 Core	* More Than 4 Cores
mm^2	kN	kN	kN	kN	kN
0.5	0.015	0.030	0.045	0.06	0.015x N
0.75	0.0225	0.045	0.0675	0.09	0.0225x 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	0.045x N
2.5	0.075	0.15	0.225	0.3	0.075x 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	–	–	– –
–	–	–	–	–	– –
–	–	–	–	–	– –

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

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	Single Core	2 Core	3 Core	4 Core	* More Than 4 Cores
mm^2	kN	kN	kN	kN	kN
0.5	0.0075	0.015	0.0225	0.03	0.0075x N
0.75	0.01125	0.0225	0.03375	0.045	0.01125x N
1.0	0.015	0.03	0.045	0.06	0.015x N
1.5	0.0225	0.045	0.0675	0.09	0.0225x N
2.5	0.0375	0.075	0.1125	0.15	0.0375x 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	0.375x N
35	0.525	1.05	1.575	2.1	0.525x 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
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.

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: Muticore control cables for working voltages up to and including 450/750V

GLOSSARY OF TERMS

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).

GLOSSARY OF TERMS

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.

NOTES

NOTES

NOTES

Whilst every care has been taken in the preparation of this publication, Prysmian Cables & Systems take no responsibility for any errors and or omissions. This booklet is intended as a guide only and reference must be made by any person using this booklet to the appropriate Australian/NZ Standard and or to local electricity supply authority rulings.

The company reserves the right to make changes in product without notice.

The Prysmian Cables & Systems Guide to Cable has been completely revised and makes reference to the most recent information available. Information herein refers to common low voltage power and communication cables used by industry. For information not covered in this publication eg. High Voltage XLPE and EPR, Fibre Optics and other specialised Power and Communication cables please contact your nearest Prysmian Cables & Systems Sales Office on 1300 300 304.

Certified System
Quality
ISO 9001
SAI GLOBAL

PRYSMIAN CABLES AND SYSTEMS

www.prysmian.com.au

08/10