Standard Power Cables
Low Voltage (600/1000 V)

Afumex 90 Armoured Power Cable

Cable Approvals

> Cable approved to BS6724

Conductor

> Plain annealed copper stranded (Class 2) conductor for ease of handling

Insulation

> 90°C cross-linked XLPE insulation

Core Identification

o o blue-brown

o o o brown-black-grey

o o o o blue-brown-black-grey

o o o o o blue-brown-black-grey-green/yellow

7 - 48 cores white with printed numbers

Bedding

> Extruded Afumex bedding compound

Armour

> Single layer of galvanised steel wires

> Aluminium wires on single core

Outer Sheath

> Robust Afumex sheath

> Colour - black. Other colours to special order

Temperature Range
-25 to +90°C

Bending Radius
Circular conductor r = 6D
Shaped conductor r = 8D

Mechanical Impact
Very good

Fire Performance
BS EN 60332-1-2
BS EN 50266-2

Flexibilty
Rigid

Low smoke emissions
BS EN 50268-2

Halogen free
BS EN 50267-2-1
BS EN 50267-2-3

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PRYSMIAN CABLES & SYSTEMS

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Cable Details

Nominal cross sectional area	Approx. overall diameter	Approx. Dia. Under Armour	Nominal diameter of armour wires	Approx. cable weight	Maximum conductor resistance @ 20°C	Conductor short circuit rating (1 sec)	Current rating		Volt drop single phase AC spaced	Volt drop Three phase AC trefoil
							Single phase AC horizontal flat speed free air	Three phase AC trefoil touching free air		
mm²	mm	mm	mm	kg/km	Ohms/km	kA	Amps	Amps	mV/A/m	mV/A/m
Single Core										
150	26	19.5	1.6	1870	0.1240	21.4	566	463	0.45	0.33
185	29	21.6	1.6	2270	0.0991	26.4	643	529	0.40	0.28
240	31	23.9	1.6	2860	0.0754	34.3	749	625	0.35	0.24
300	34	26.5	1.6	3460	0.0601	42.9	842	720	0.32	0.21
400	39	30.4	2.0	4380	0.0470	57.2	929	815	0.30	0.195
500	43	33.9	2.0	5540	0.0366	71.5	1032	918	0.29	0.18
630	48	38.2	2.0	7020	0.0283	90.1	1139	1027	0.27	0.17
800	55	43.7	2.5	9160	0.0221	114	1204	1119	0.27	0.165
1000	60	48.5	2.5	11480	0.0176	143	1289	1214	0.25	0.155

Single phase AC spaced voltage drop: Values are for spacing up to one cable diameter.
Installation methods fr current rating in accordance with BS7671/IEE Wiring Regulations

Current Ratings: The tabulated ratings are based upon a 30°C ambient temperature and 90°C operating temperature. For other ambient temperatures or where cables are grouped together, the rating factors listed should be applied.

Nominal cross sectional area	Approx. overall diameter	Approx. diameter under armour	Nominal diameter of armour wires	Approx. cable weight	Maximum conductor resistance @ 20°C	Conductor short circuit rating (1 sec)	Current rating		Volt drop Three phase AC
							Three phase AC clipped direct	Three phase AC free air	
mm²	mm	mm	mm	kg/km	Ohms/km	kA	Amps	Amps	mV/A/m
Three Core									
1.5	12	8	0.9	280	12.1	0.20	23	25	27
2.5	13	9	0.9	350	7.41	0.35	31	33	16
4	15	10	0.9	450	4.61	0.57	42	44	10
6	16	11	0.9	550	3.08	0.86	53	56	6.8
10	18	13	1.25	800	1.83	1.4	73	78	4
16	21	15	1.25	1110	1.15	2.2	94	99	2.5
25	26	19	1.6	1700	0.727	3.6	124	131	1.65
35	28	22	1.6	2100	0.524	5.0	154	162	1.15
50*	30	23	1.6	2400	0.387	7.1	187	197	0.87
70*	34	26	1.6	3100	0.268	10.0	238	251	0.6
95*	36	29	2	4100	0.193	13.6	289	304	0.45
120*	40	32	2	5000	0.153	17.2	335	353	0.37
150*	45	36	2.5	6300	0.124	21.4	386	406	0.3
185*	49	40	2.5	7600	0.00991	26.5	441	463	0.26
240*	54	44	2.5	9600	0.0754	34.3	520	546	0.21
300*	59	49	2.5	11600	0.0601	42.9	599	628	0.185
400*	65	55	2.5	14400	0.047	57.2	673	728	0.165

* Shaped conductors, all others are Circular conductors

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							Three phase AC clipped direct	Three phase AC free air	
mm²	mm	mm	mm	kg/km	Ohms/km	kA	Amps	Amps	mV/A/m
Four Core									
1.5	12.0	8.1	0.9	310	12.1	0.20	23	25	27
2.5	13.7	9.6	0.9	400	7.41	0.35	31	33	16
4	15.0	10.9	0.9	510	4.61	0.57	42	44	10
6	17.3	12.3	1.25	730	3.08	0.86	53	56	6.8
10	19.8	14.6	1.25	930	1.83	1.4	73	78	4
16	22.3	17.1	1.25	1260	1.15	2.2	94	99	2.5
25	27.6	21.6	1.6	2000	0.727	3.6	124	131	1.65
35	30.6	24.1	1.6	2500	0.524	5.0	154	162	1.15
50*	32.7	26.4	1.6	3000	0.387	7.1	187	197	0.87
70*	38.0	30.6	2.0	4120	0.268	10.0	238	251	0.60
95*	41.3	34.1	2.0	5280	0.193	13.6	289	304	0.45
120*	46.4	37.6	2.5	6790	0.153	17.2	335	353	0.37
150*	50.5	41.6	2.5	8060	0.124	21.4	386	406	0.30
185*	55.3	46.0	2.5	9770	0.0991	26.5	441	463	0.26
240*	61.1	51.6	2.5	12270	0.0754	34.3	520	546	0.21
300*	66.7	56.8	2.5	14900	0.0601	42.9	599	628	0.185
400*	75.3	63.6	3.15	19270	0.047	57.2	673	728	0.165
Five Core									
1.5	13.0	8.9	0.9	360	12.1	0.20	23	25	27
2.5	14.7	10.6	0.9	460	7.41	0.35	31	33	16
4	16.9	12.1	1.25	610	4.61	0.57	42	44	10
6	18.6	13.6	1.25	840	3.08	0.86	53	56	6.8
10	21.2	16.2	1.25	1090	1.83	1.4	73	78	40
16	25.4	19.4	1.6	1700	1.15	2.2	94	99	2.5
25	30.2	24.2	1.6	2300	0.727	3.6	124	131	1.65
35	33.2	27.0	1.6	2830	0.524	5.0	154	162	1.15

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Nominal cross sectional area	Approx. overall diameter	Approx. diameter under armour	Nominal dia meter of armour wires	Approx. cable weight	Maximum conductor resistance @ 20°C	Current rating		Volt drop DC	Volt drop single phase AC touching
						DC or single phase AC clipped direct	DC or sin-gle phase AC free air		
mm²	mm	mm	mm	kg/km	Ohms/km	Amps	Amps	mV/A/m	mV/A/m
Two Core									
1.5	10.8	6.9	0.9	250	12.1	27	29	31	31
2.5	12.3	8.2	0.9	320	7.41	36	39	19	19
4	13.4	9.3	0.9	380	4.61	49	52	12	12
6	14.5	10.4	0.9	460	3.08	62	66	7.9	7.9
10	16.7	12.4	0.9	570	1.83	85	90	4.7	4.7
16	19.5	14.5	1.25	840	1.15	110	115	2.9	2.9
25*	20.8	15.6	1.25	1060	0.727	146	152	1.85	1.9
35*	23.4	17.4	1.6	1410	0.524	180	188	1.35	1.35
50*	25.5	19.7	1.6	1730	0.387	219	228	0.98	1.0
70*	29.0	22.7	1.6	2260	0.268	279	291	0.67	0.69
95*	31.9	25.1	2.0	3030	0.193	338	354	0.49	0.52
120*	34.4	27	2.0	3610	0.153	392	410	0.39	0.42
150*	37.9	30.2	2.0	4330	0.124	451	472	0.31	0.35
185*	42.4	33.5	2.5	5600	0.0991	515	539	0.25	0.29
240*	46.4	37.2	2.5	6940	0.0754	607	636	0.195	0.24
300*	50.3	40.9	2.5	8100	0.0601	698	732	0.155	0.21
400*	54.7	45.1	2.5	9940	0.047	787	847	0.12	0.19
Seven Core									
1.5	13.8	9.7	0.9	420	12.1	27	29	31	31
2.5	15.7	11.6	0.9	540	7.41	36	39	19	19
4	18.2	13.2	1.25	810	4.61	49	52	12	12
Twelve Core									
1.5	18.0	13	1.25	690	12.1	27	29	31	31
2.5	20.8	15.6	1.25	920	7.41	36	39	19	19
4	24.0	18.2	1.6	1330	4.61	49	52	12	12
Ninteen Core									
1.5	20.5	15.3	1.25	900	12.1	27	29	31	31
2.5	24.8	18.8	1.6	1370	7.41	36	39	19	19
4	27.5	21.5	1.6	1770	4.61	49	52	12	12
Twenty-Seven Core									
1.5	24.9	18.9	1.6	1320	12.1	27	29	31	31
2.5	28.9	22.7	1.6	1780	7.41	36	39	19	19
4	32.4	26	1.6	2260	4.61	49	52	12	12
Thirty Seven Core									
1.5	27.2	21.2	1.6	1600	12.1	27	29	31	31
2.5	31.7	25.5	1.6	2170	7.41	36	39	19	19
4	37.0	29.6	2.0	2980	4.61	49	52	12	12
Forty Eight Core									
1.5	30.7	24.4	1.6	1950	12.1	27	29	31	31
2.5	37.8	30.2	2.0	3040	7.41	36	39	19	19
4	42.4	34.5	2.0	4000	4.61	49	52	12	12

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7, 12, 19, 27, 37 & 48 core current ratings: The tabulated rating is as a two core and may be used where the number of cores carrying current does not exceed the square root of the total number of cores.

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Temperature rating factors

Ambient Temperature °C	25	30	35	40	45	50	55	60
Rating factor	1.02	1.00	0.96	0.91	0.87	0.82	0.76	0.71

Number of Circuits	2	3	4	5	6	7	8	9
Single layer clipped direct (touching)	0.85	0.79	0.75	0.73	0.72	0.71	0.71	0.70
Single layer clipped direct (spaced*)	0.94	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Single layer / perf. cab. tray Horz. or Vert. (touching)	0.86	0.81	0.77	0.75	0.74	0.73	0.73	0.72
Single layer / perf. cab. tray Horz. or Vert. (spaced*)	0.91	0.89	0.88	0.87	0.87	-	-	-

Note: The factors in this table are applicable to groups of cables all of one size. If, due to known operating conditions, a cable is expected to carry not more than 30% of its grouped rating, it may be ignored for the purposes of obtaining the rating factor for the rest of the group.

When cables having differing conductor operating temperatures are grouped together, the current rating shall be based upon the lowest operating temperature in the group.

* Spaced by a clearance between adjacent surfaces of at least one cable diameter. Where the horizontal clerarances between adjacent cables exceeds 2 cable diameters no correction factor need be applied.

If current rating in ground/duct is required then reference should be made to ERA69-30 part V. Alternatively ratings are as BS5467 cables.

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Cable Details

Nominal cross sectional area	Conductor Resistance at 20°C	Nominal Area of Armour and Maximum Armour Resistance at 20°C									
		Single Core*		Two Core		Three Core		Four Core		Five Core	
mm²	Ohms/km	mm²	Ohms/km	mm²	Ohms/km	mm²	Ohms/km	mm²	Ohms/km	mm²	Ohms/km
1.5	12.1	-	-	15	10.2	16	9.5	17	8.8	19	8.2
2.5	7.41	-	-	17	8.8	19	8.2	20	7.7	22	6.8
4	4.61	-	-	19	7.9	20	7.5	22	6.8	25	6.2
6	3.08	-	-	22	7.0	23	6.7	36	4.3	40	3.9
10	1.83	-	-	26	6.0	39	4.0	42	3.7	46	3.4
16	1.15	-	-	42	3.7	45	3.5	50	3.1	72	2.2
25	0.727	-	-	42	3.7	62	2.5	70	2.3	88	1.8
35	0.524	-	-	60	2.6	68	2.3	78	2.0	100	1.6
50	0.387	-	-	68	2.3	78	2.0	90	1.8	-	-
70	0.268	-	-	80	2.0	90	1.8	131	1.2	-	-
95	0.193	-	-	113	1.4	128	1.3	147	1.1	-	-
120	0.153	-	-	125	1.3	141	1.2	206	0.76	-	-
150	0.124	76	0.42	138	1.2	201	0.78	230	0.68	-	-
185	0.0991	84	0.38	191	0.82	220	0.71	255	0.61	-	-
240	0.0754	94	0.34	215	0.73	250	0.63	289	0.54	-	-
300	0.0601	104	0.31	235	0.67	269	0.58	319	0.49	-	-
400	0.0470	147	0.22	265	0.59	304	0.52	452	0.35	-	-
500	0.0366	163	0.20	-	-	-	-	-	-	-	-
630	0.0283	182	0.18	-	-	-	-	-	-	-	-
800	0.0221	260	0.13	-	-	-	-	-	-	-	-
1000	0.0176	284	0.12	-	-	-	-	-	-	-	-

No. of Cores	Nominal Area of Armour and Maximum Armour Resistance at 20 °C					
	1.5mm²		2.5mm²		4.0mm²	
	mm²	Ohms/km	mm²	Ohms/km	mm²	Ohms/km
7	20	7.5	24	6.3	39	4.0
12	39	4.0	45	3.5	68	2.3
19	45	3.5	70	2.3	80	2.0
27	70	2.3	84	1.9	96	1.7
37	78	2.0	94	1.7	138	1.2
48	90	1.8	138	1.2	157	1.0

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