

Elastomeric Trailing Cables

ABERDARE
— A MEMBER OF HENG TONG GROUP —
ENLIGHTENING THE FUTURE

ENLIGHTENING THE FUTURE



COMPANY PROFILE

Aberdare Cables is Southern Africa's largest cable manufacturer and leading supplier of intelligent energy inter connection cable products and services in Africa. Established in 1946, the company offers cable designs, product development, installation support, commissioning and diagnostic testing through their Aberdare Engineering division. In 2021, Aberdare Cables celebrated its 75th Anniversary and since its humble beginnings, the organisation has grown significantly through mergers and acquisitions. In 2016, Aberdare Cables was acquired by Hengtong as a majority shareholder. The Hengtong group operates in 147 countries, with 11 overseas manufacturing bases and owns 7 brands, including Aberdare.

Our Empowerment partner, Golden Consortium Africa (Pty) Ltd, is a 100% women-owned consortium and has a 25.1% shareholding in Aberdare (South African operations). Empowerdex ratings places Aberdare Cables at a Level 1 broad based black economic empowerment company and is 55% black owned with 30% black-women ownership.

Aberdare Cables has two manufacturing sites, Eastern Cape and KwaZulu-Natal. Aberdare Cables headquarters is in Meadowdale, Gauteng. The Meadowdale facility serves as a centralised distribution to South Africa to enable reduced lead times.

The company offers cable and cabling solutions to the mining, utility, building, construction, large industry, renewable energy, retail, original-equipment manufacturer, agriculture and transport sectors.

The company has amongst the most highly trained and experienced employees in the industry. As a technology leader, it is driven by cutting-edge Research and Development (R&D), providing world-class innovative solutions, processes, products and customer service.

The company's 48 000 m² Stanford road facility in Port Elizabeth was the original Aberdare site and manufactures XLPE medium and high voltage cables, paper insulated lead covered medium voltage cables, overhead conductors, medium voltage aerial bundled conductor (ABC) and large low voltage PVC mains cables.

The 38 820 m² Aberdare Pietermaritzburg facility manufactures low voltage ABC, Rubber trailing cables and Nitrile welding cables, as well as low voltage cables comprising of wiring cables: Housewire, Surfex[®], Flat twin, and earth cables. The range also includes Armadac[®], Airdac[®] and Saferdac[®] cables as well as the Flamosafe[®] range of PVC and XLPE insulated armoured and unarmoured cables.

The Aberdare Group's product range and services are wide but specialised. Tried and tested, and carrying the South African Bureau of Standards (SABS) safety and compliance certification marks and complying with International Standards as applicable.

In addition to the organisation's cable portfolio is the long awaited entry of a competitor into the South African high voltage cable market. This strategic move in capital investment by the company, enhances its current cable portfolio of low and medium voltage cables, conductors and specialty cables and is ensuring sustainability and an increase in the company's market presence. It in turn creates a talent pool of future employees in our company.

Aberdare has opened the HV cable offering to initially supply the traditionally accepted (CSA) Corrugated Seamless Aluminum Sheathed cable and plans to add alternative designs and improvements to its portfolio. The goal for the HV project is to establish Aberdare Cables as a competent South African high voltage cable manufacturer and solutions provider. To this end, the organisation manufactures HV cables and supplies HV accessories. The organisation will also commission and maintain HV cables (old and new) and install HV cables and all accessories. In addition, the company vision is that it will be accepted as a leading expert in HV systems (design of the system, providing add-ons such as DTS, etc.) The wholly owned company Aberdare Engineering fulfills the role as enabler of the HV Strategy.

As a cable manufacturer since 1946, we know that quality and reliability of cable systems and risk mitigation are of primary importance to our customers. For this reason, Aberdare's plan to enter the HV market was carefully considered, so as to uphold these standards and principals.

At Aberdare, we are people-centric and believe that our people are our greatest asset. We understand that an engaged workforce, delivers on our strategic goals and helps us achieve the impossible. We also understand what motivates our staff and we reciprocate with challenging but rewarding work; a wide range of opportunities for continuous individual learning and growth through robust incentive programmes, including career succession and progression. We know that our duty extends further to the greater population and we take pride in being an active agent of social change and transformation which is evident in our BEE Level 1 rating. Our ongoing socio-economic development initiatives have been commended by the Presidency and we are continuously working hard to make a difference in the communities in which we operate.

At Aberdare, education, training and development are seen as a foundation for economic productivity and as crucial tools to build empowered and dedicated employees. In this regard, our company actively promotes and follows a number of educational programmes, including adult education, apprentices, trainees, learnerships and formal education assistance.

Socio- Economic Development demonstrates the 'heart' of our company and through our efforts we strive to make a difference in the communities in which we operate. We believe that this can change the world one step at a time. We have always been an active supporter and pillar of strength for the communities in which we operate. Contributing to the national Socio-Economic Transformation agenda is also amongst our top priorities. Our company is therefore championing a number of social investment initiatives across our country.

We have recently launched AberSchool, which is a program that aims to raise the level of Maths and Science amongst some of the high schools in Pietermaritzburg. The project is aimed at partnering with the Department of Education to offer extra tuition to Grade 9, 10 and 11 pupils in English, Mathematics & Science.

The programme is geared towards developing future engineers and technically oriented individuals not only for the Aberdare workforce, but the greater country in general.

We provide an ongoing supply of equipment to the AberCare Centre, an organization based in Pietermaritzburg that provides a sense of self-sufficiency and pride to mentally and physically disabled people. The primary focus is to provide the physically challenged individuals with a workplace. The daily tasks they do are simple but they receive stimulation and therapy and contribute to the economy. Aberdare has been assisting the facility annually with the donation of appliances or any of their operational needs, as well as sponsoring annual Christmas events for the residents.

In addition, in 2021, Aberdare engaged the Mathematics Foundation of South Africa and initiated the My Maths Buddy project at the Fundokuhle High School in PMB. The purpose of the project was to get learners to understand that Maths is part of their lives and a much-needed subject for their future and to show learners that Maths is a language which has its own terminology. This is a unique approach that the My Maths Buddy project applies, which helps learners acquire a new approach to learning Maths. A maths dictionary containing important terminology is provided to each learner and assists them with understanding the subject if read and applied. Aberdare believes that Mathematics is a critical subject for future engineers and those pursuing technical degrees and will assist in developing and growing learners in these fields, and in turn create a talent pool of future employees in our company.

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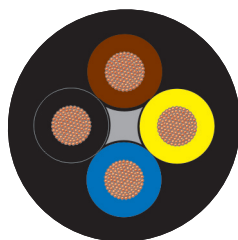
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Multicore H05RR-F and H05RN-F

Rubber Insulated Cords



85°C to SANS 1574 - 300/500V (Type R3)
BS 6500 - 300/500V
and BS 7919 - 300/500V

(0.5mm², 2 & 3c: 0.75 to 2.5mm², 2 to 5 cores)
 (0.5mm², 2 & 3c: 0.75 to 2.5mm², 2 to 5 cores)
 (4 and 6mm², 3 & 4 cores)

Construction:

- Plain or tinned soft copper conductors to SANS 1411 Part 1, BS 6360 and IEC 228
- Insulation to SANS 1411 Part III - Type RD1 (Minimum requirement 60°C)
- Polychloroprene (or equivalent) sheath to SANS 1411 Part III - Types RS1 & RS2 (Minimum requirements)

Size	Number of cores	Approx. Conductor Diameter	Approx. Core Diameter	Approx. Cord Diameter		Approx. Mass	Max. dc Resistance @ 20°C	Approx. Volt Drop		Continuous Current Rating *	
				Minimum (mm)	Maximum (mm)			(mV/A/m)		(A)	
(mm ²)		(mm)	(mm)			(kg / m)	§ (Ω/ km)	1 Ø	3 Ø	1 Ø	3 Ø
0.5	2	1.0	2.3	5.4	7.1	0.081	40.1	102.2	-	12	
	3	1.0	2.3	5.1	7.5	0.095	40.1	102.2	-		11
0.75	2	1.2	2.6	5.6	7.3	0.091	26.7	70.3	-	15	
	3	1.2	2.6	6.2	8.1	0.12	26.7	70.3	-		14
	4	1.2	2.6	6.8	8.8	0.14	26.7	70.3	-		12
	5	1.2	2.6	7.6	9.9	0.17	26.7	70.3	-		11
1	2	1.34	2.7	6.1	8.1	0.11	20.0	52.3	-	19	
	3	1.34	2.7	6.5	8.5	0.13	20.0	52.3	-		17
	4	1.34	2.7	7.1	9.3	0.15	20.0	52.3	-		15
	5	1.34	2.7	8.1	10.3	0.19	20.0	52.3	-		14
1.5	2	1.6	3.4	8.4	9.8	0.15	13.7	36.2	-	24	
	3	1.6	3.4	8.9	10.4	0.18	13.7	36.2	31.3		22
	4	1.6	3.4	9.9	11.5	0.23	13.7	36.2	31.3		19
	5	1.6	3.4	10.8	12.6	0.27	13.7	36.2	31.3		18
2.5	2	2.1	4.1	9.9	11.3	0.21	8.21	21.6	-	33	
	3	2.1	4.1	10.5	12.0	0.25	8.21	21.6	18.7		29
	4	2.1	4.1	11.7	13.4	0.32	8.21	21.6	18.7		26
	5	2.1	4.1	13.1	14.9	0.38	8.21	21.6	18.7		25
4	3	2.7	5.0	12.5	14.5	0.38	5.09	13.4	11.6		40
	4	2.7	5.0	13.9	16.1	0.47	5.09	13.4	11.6		36
6	3	3.2	5.5	14.0	16.0	0.47	3.39	8.9	8.1		50
	4	3.2	5.5	15.6	17.8	0.59	3.39	8.9	8.1		45

§ Resistance for tinned conductors.

Current ratings are based on specific installation conditions and may vary depending on the application.

* Current rating based on: Maximum conductor temperature of 85°C and ambient temperature 30°C

Note: Colours for H05 & H07

2c: Blue & Brown

3c: Blue, Brown & Green/Yellow

4c: Black, Blue, Brown & Green/Yellow

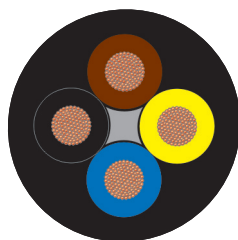
5c: Black, Blue, Brown, Violet & Green/Yellow

Caution: At 85°C conductor temperature, the outer sheath can reach high temperatures.



Multicore H07RN-F

Rubber Insulated Cables & Cords



BS 6500 - 300/500V (1 to 2.5mm² <= 5 cores)
BS 7919 - 450/750V (1.5 & 2.5mm² 6, 12, 18, 24 & 36 cores)
 (Also conforms with SANS 1574 - 600/1000 V minimum requirements)

Construction:

- Plain or tinned soft copper conductors Class 5 to BS 6360, IEC 228 and SANS 1411 Part 1
- Insulation - Type EI 4 to BS 7655 (Minimum requirement 60°C)
- Polychloroprene (or equivalent) sheath - Types EM 2 to BS 7655 (Ordinary duty oil-resisting and flame-retardant sheath).

Size (mm ²)	Number of cores	Approx. Conductor Diameter (mm)	Approx. Core Diameter (mm)	Approx. Cord Diameter		Approx. Mass (kg / m)	Max. dc Resistance @ 20°C § (Ω/ km)	Approx. Volt Drop (mV/A/m)		Continuous Current Rating * (A)	
				Minimum (mm)	Maximum (mm)			1 Ø	3 Ø	1 Ø	3 Ø
1	2	1.34	3.0	8.4	9.5	0.15	20.0	52.3	-	19	
	3	1.34	3.0	9.1	10.2	0.18	20.0	52.3	-		17
	4	1.34	3.0	10.0	11.3	0.22	20.0	52.3	-		15
	5	1.34	3.0	11.2	12.5	0.26	20.0	52.3	-		14
1.5	2	1.6	3.3	9.4	10.6	0.18	13.7	36.2	-	24	
	3	1.6	3.3	10.1	11.3	0.22	13.7	36.2	31.3		22
	4	1.6	3.3	11.1	12.4	0.27	13.7	36.2	31.3		19
	5	1.6	3.3	12.3	13.7	0.32	13.7	36.2	31.3		18
	6	1.6	3.3	14.6	16.3	0.45	13.7	36.2	31.3		17
	7	1.6	3.3	14.6	16.3	0.48	13.7	36.2	31.3		16
	12	1.6	3.3	19.1	21.1	0.74	13.7	36.2	31.3		13
	18	1.6	3.3	22.4	24.8	1.0	13.7	36.2	31.3		11
	19	1.6	3.3	22.4	24.8	1.1	13.7	36.2	31.3		11
	24	1.6	3.3	26.3	28.8	1.3	13.7	36.2	31.3		10
	32	1.6	3.3	28.9	31.5	1.7	13.7	36.2	31.3		9
	36	1.6	3.3	30.1	33.0	1.9	13.7	36.2	31.3		9
37	1.6	3.3	30.1	33.0	1.9	13.7	36.2	31.3		8	
2.5	2	2.1	4.0	11.1	12.3	0.25	8.21	21.6	-	33	
	3	2.1	4.0	11.9	13.2	0.30	8.21	21.6	18.7		29
	4	2.1	4.0	13.1	14.5	0.37	8.21	21.6	18.7		26
	5	2.1	4.0	14.6	16.0	0.44	8.21	21.6	18.7		25
	6	2.1	4.0	17.0	18.7	0.60	8.21	21.6	18.7		23
	7	2.1	4.0	17.0	18.7	0.64	8.21	21.6	18.7		22
	12	2.1	4.0	22.3	24.4	1.0	8.21	21.6	18.7		18
	18	2.1	4.0	26.4	28.7	1.4	8.21	21.6	18.7		16
	19	2.1	4.0	26.4	28.7	1.5	8.21	21.6	18.7		15
	24	2.1	4.0	31.1	33.8	1.9	8.21	21.6	18.7		14
	36	2.1	4.0	35.8	38.7	2.6	8.21	21.6	18.7		12
	37	2.1	4.0	35.8	38.7	2.6	8.21	21.6	18.7		12

Details in *italics* are for cables "generally" to the HO7 requirement as they are NOT covered by the specification.

§ Resistance for tinned conductors.

Current ratings are based on specific installation conditions and may vary depending on the application.

* Current rating based on: Maximum conductor temperature of 85°C and ambient temperature 30°C

(Current ratings for 1 to 2.5mm² [E 5 cores] are from BS 6500)

Colour: ≤ 5c Coloured Insulation (Black, Blue, Brown, Violet and Green/Yellow)

> 5c Black Insulation (Numbered) available with or without a Green/Yellow Core

Multicore H07RN-F

Rubber Insulated Cables



BS 7919 - 450/750V

(4mm² 1, 2, 3, 4, 5, 6, 12, & 18, 24 & 36 cores)

(4 to 10mm² 1, 2, 3, 4 & 5 cores)

(10 to 25mm² 2, 3, 4 & 5 cores)

(35 to 300mm² 3 & 4 core)

Construction:

- Plain or tinned soft copper conductors Class 5 to BS 6360, IEC 228 and SANS 1411 Part 1
- Insulation - Type EI 4 (Minimum requirement 60°C)
- Polychloroprene (or equivalent) sheath - Types EM 2 to BS 7655 (Ordinary duty oil-resisting and flame-retardant sheath).

Size (mm ²)	Number of cores	Approx. Conductor Diameter (mm)	Approx. Core Diameter (mm)	Approx. Cord Diameter		Approx. Mass (kg / m)	Max. dc Resistance @ 20°C § (Ω/ km)	Approx. Volt Drop (mV/A/m)		Continuous Current Rating * (A)	
				Minimum (mm)	Maximum (mm)			1 Ø	3 Ø	1 Ø	3 Ø
4	2	2.7	4.6	12.8	14.4	0.34	5.09	13.4	-	44	
	3	2.7	4.6	13.7	15.5	0.42	5.09	13.4	11.6		40
	4	2.7	4.6	15.3	17.0	0.52	5.09	13.4	11.6		36
	5	2.7	4.6	17.2	19.0	0.63	5.09	13.4	11.6		33
	6	2.7	4.6	19.9	21.9	0.83	5.09	13.4	11.6		31
	7	2.7	4.6	19.9	21.9	0.89	5.09	13.4	11.6		28
	12	2.7	4.6	26.6	29.0	1.5	5.09	13.4	11.6		24
6	18	2.7	4.6	31.3	34.4	2.1	5.09	13.4	11.6		21
	2	3.2	5.2	14.4	15.9	0.43	3.39	8.9	-	56	
	3	3.2	5.2	15.4	17.0	0.52	3.39	8.9	8.1		50
	4	3.2	5.2	17.2	18.9	0.66	3.39	8.9	8.1		45
	5	3.2	5.2	19.2	21.1	0.80	3.39	8.9	8.1		42
10	7	3.2	5.2	22.3	24.5	1.1	3.39	8.9	8.1		36
	2	4.2	6.5	19.4	21.3	0.78	1.95	5.4	-	76	
	3	4.2	6.5	20.8	22.8	0.95	1.95	5.4	4.4		67
	4	4.2	6.5	22.7	24.9	1.1	1.95	5.4	4.4		61
16	5	4.2	6.5	25.2	27.3	1.3	1.95	5.4	4.4		57
	2	5.2	7.6	21.7	23.6	1.0	1.24	3.3	-	104	
	3	5.2	7.6	23.2	25.2	1.2	1.24	3.3	2.8		93
	4	5.2	7.6	25.4	27.4	1.5	1.24	3.3	2.8		81
25	5	5.2	7.6	28.3	30.7	1.8	1.24	3.3	2.8		78
	2	7.1	10.1	26.7	28.7	1.4	0.795	2.1	-	139	
	3	7.1	10.1	28.7	30.8	1.8	0.795	2.1	1.8		124
	4	7.1	10.1	31.8	34.1	2.2	0.795	2.1	1.8		114
35	5	7.1	10.1	35.4	38.0	2.6	0.795	2.1	1.8		105
	3	8.4	11.5	32.3	34.9	2.3	0.565	1.5	1.3		156
50	4	8.4	11.5	35.9	38.8	2.9	0.565	1.5	1.3		140
	3	10.3	13.8	38.1	40.9	3.1	0.393	1.5	0.9		198
70	4	10.3	13.8	42.2	45.1	3.8	0.393	1.5	0.9		178
	3	11.6	15.1	41.5	44.3	3.9	0.277	1.0	0.6		243
95	4	11.6	15.1	46.1	49.2	4.9	0.277	1.0	0.6		218
	3	14.1	17.9	48.5	51.7	5.2	0.210	0.7	0.4		296
120	4	14.1	17.9	54.3	57.8	6.5	0.210	0.7	0.4		264
	3	15.6	19.4	52.4	55.6	6.3	0.164	0.5	0.3		341
150	4	15.6	19.4	58.1	61.7	7.9	0.164	0.5	0.3		306
	3	17.3	21.6	57.8	61.2	7.7	0.132	0.4	0.2		391
185	4	17.3	21.6	64.4	68.3	9.7	0.132	0.4	0.2		351
	3	20.1	24.7	65.4	69.2	9.4	0.108	0.3	0.2		450
240	4	20.1	24.7	72.9	76.9	11.9	0.108	0.3	0.2		403
	3	23.3	28.4	74.6	78.6	12.1	0.0817	0.2	0.2		477
300	4	23.3	28.4	83.1	87.3	15.2	0.0817	0.2	0.2		480
	3	25.2	30.7	80.6	84.7	14.7	0.0654	0.2	0.2		606
	4	25.2	30.7	89.9	94.5	18.6	0.0654	0.2	0.2		556

§ Resistances for tinned conductors.

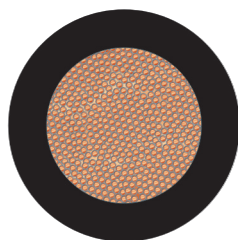
Current ratings are based on specific installation conditions and may vary depending on the application.

* Current rating based on: Maximum conductor temperature of 85°C and ambient temperature 30°C

Caution: At 85°C conductor temperature, the outer sheath can reach high temperatures.

Single Core H07RN-F

Rubber Insulated Cables & Cords



BS 6500 - 450/750V
BS 7919 - 450/750V

(1.5 and 2.5mm²)
 (4 to 630mm²)

Construction:

- Plain or tinned soft copper conductors Class 5 to BS 6360, IEC 228 and SABS 1411 Part 1
- Insulation - Type EI 4 to BS 7655 (Minimum requirement 60°C)
- Polychloroprene (or equivalent) sheath - Type EM 2 to BS 7655 (Ordinary duty oil-resisting and flame-retardant sheath).

Size (mm ²)	Approx. Conductor Diameter (mm)	Approx. Core Diameter (mm)	Approx. Cord Diameter		Approx. Mass (kg / m)	Max. dc Resistance @ 20°C § (Ω/ km)	Approx. Volt Drop (mV/A/m)		Continuous Current Rating * (A)	
			Minimum (mm)	Maximum (mm)			1 Ø	3 Ø	1 Ø	3 Ø
1.5	1.6	3.2	6.0	7.1	0.10	13.7	36.2	31.3	28	22
2.5	2.1	3.9	6.6	7.7	0.12	8.21	21.6	18.7	38	29
4	2.7	4.7	7.7	8.9	0.15	5.09	13.4	11.6	51	40
6	3.2	5.2	8.4	9.6	0.18	3.39	8.9	8.1	65	51
10	4.2	6.7	10.2	11.4	0.26	1.95	5.4	4.4	92	72
16	5.2	7.61	11.3	12.6	0.35	1.24	3.3	2.8	121	94
25	7.1	9.9	13.8	15.1	0.48	0.795	2.1	1.8	163	128
35	8.4	11.3	15.6	17.1	0.63	0.565	1.5	1.3	203	160
50	10.3	13.8	18.3	19.8	0.84	0.393	1.0	0.9	257	204
70	11.6	15.1	20.0	21.6	1.1	0.277	0.7	0.6	315	251
95	14.0	17.9	23.2	24.9	1.4	0.210	0.5	0.4	390	307
120	15.6	19.4	25.1	27.0	1.7	0.164	0.4	0.3	445	357
150	17.3	21.6	27.7	29.6	2.1	0.132	0.3	0.2	509	412
185	20.1	24.7	31.2	33.1	2.5	0.108	0.2	0.2	585	476
240	23.3	28.4	35.0	37.0	3.2	0.0817	0.2	0.2	703	574
300	25.1	30.7	37.5	39.5	3.9	0.0654	0.2	0.2	798	654
400	30.5	36.5	43.7	46.0	5.0	0.0495	0.19	0.17	935	775
500	33.1	39.4	46.9	49.2	6.2	0.0391	0.17	0.15	1053	877
630	39.1	43.7	51.4	53.8	7.6	0.0292	0.16	0.14	1228	1024

§ Resistance for tinned conductors.

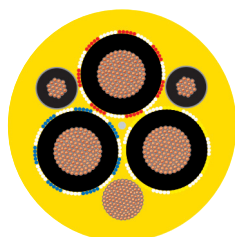
Current ratings are based on specific installation conditions and may vary depending on the application.

* Current rating based on: Maximum conductor temperature of 85°C and ambient temperature 30°C

Caution: At 85°C conductor temperature, the outer sheath can reach high temperatures.

“Trackless” Mining Cables - 640/1100V

Flexible Electric Trailing Cables for use in Mines



16, 25, 35, 70mm²

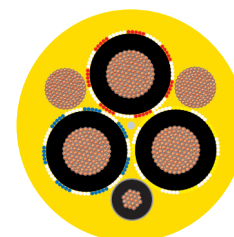
Construction:

6 core cables with three screened power cores laid up with pilot(s) and earth core(s) as specified in the table below. (RD6 insulation to SANS 1411/III) Extra heavy duty yellow CM sheath. (RS6 to SANS 1411/III)

Typical uses:

See below.

RRTF 070T03 F5 21803



50mm²

Physical Properties

Reference Number		792159	791568	791569	791570	791571	791846
Power Cores							
Conductor size	(mm ²)	2.5	16	25	35	50	70
Maximum wire diameter	(mm)	0.26	0.41	0.41	0.41	0.41	0.51
Approximate conductor diameter	(mm)	2.1	5.2	6.7	8.4	10.3	11.7
Maximum screen wire diameter	(mm)	0.21	0.31	0.31	0.31	0.31	0.31
Braided screen filling factor	(%)	80	80	80	80	80	80
Pilot Cores							
Number of pilot cores		-	2	2	2	1	2
Conductor size	(mm ²)	-	4	6	6	10	10
Maximum wire diameter	(mm)	-	0.31	0.31	0.31	0.41	0.41
Approximate conductor diameter	(mm)	-	2.7	3.2	3.2	4.2	4.2
Earth Cores							
Number of earth cores		1	1	1	1	2	1
Conductor size	(mm ²)	1.5	10	16	16	10	16
Maximum wire diameter	(mm)	0.26	0.41	0.41	0.41	0.25	0.41
Approximate conductor diameter	(mm)	1.6	4.2	5.2	5.2	4.2	5.2
Lay Ratio (maximum)	(x PCD)	12	8	8	8	8	8
Cable Diameter							
Approximate lower limit	(mm)	15.9	32	36.4	37.8	45.1	50.1
Approximate upper limit	(mm)	16.4	35	37.2	38.6	46.2	54.0
Cable Mass (approximate)	(kg/m)	0.41	2	2.5	2.96	3.8	5.2
Minimum bending radius	(mm)	98	190	240	260	290	320
Maximum recommended tension	(kN)	0.12	0.79	1.24	1.73	2.5	3.2

Electrical Properties

Reference Number		792159	791568	791569	791570	791571	791846
Power cores							
Maximum conductor dc resistance @ 20°C	(Ω/km)	8.54	1.34	0.859	0.610	0.424	0.299
Maximum conductor ac resistance @ 105°C	(Ω/km)	11.39	1.79	1.15	0.814	0.566	0.399
Reactance	(Ω/km)	0.121	0.103	0.100	0.090	0.090	0.088
Impedance (Z) @ 150°C	(Ω/km)	11.39	1.79	1.15	0.819	0.573	0.409
Minimum dielectric resistance @ 23°C	(Ω/km)	400	250	250	200	200	150
Maximum combined screen resistance	(Ω/km)	5.0	2.5	1.6	1.2	0.8	0.7
Nominal volt drop	(mV/A/m)	19.7	3.10	1.99	1.42	0.99	0.71
Sustained current rating @ 30°C ambient:							
Laid out straight (105°C continuous cond. temp.)	(A)	35	110	140	180	220	270
1 layer on drum	(A)	29	90	120	150	180	230
2 layers on drum	(A)	23	70	90	120	140	180
3 layers on drum	(A)	16	50	60	80	100	120
Short circuit rating:							
Symmetrical fault current (105 to 200°C)	(kA for 1 sec)	0.3	1.8	2.8	4.0	5.7	7.9
Earth fault current (screens)	(kA for 1 sec)	0.3	1.0	1.6	2.1	3.1	3.5

Typical uses:

Ref. 792159 Haulage lighting, submersible pumps, on board wiring for machines etc.

Ref. 791568 Single boom drilling rigs, small scoops, submersible pumps etc.

Ref. 791569 Double boom drilling rigs, low haulage dumpers, loaders, submersible pumps etc.

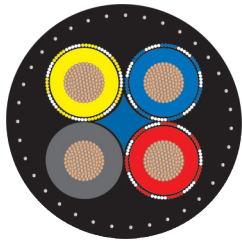
Ref. 791570 Triple boom drilling rigs, low haulage dumpers, raise borers, submersible pumps etc.

Ref. 791571 Low haulage dumpers, large drilling rigs, raise borers, submersible pumps etc.

Ref. 791846 Road headers, miners, submersible pumps etc.

Type 41 Cables - 640/1100V

Flexible Electric Trailing Cables for use in Mines



Construction:

4 core cables with three screened power cores and one unscreened pilot core laid up around a dummy centre. Water blocked. CR (or equivalent) sheath.(Reinforced for 16 and 25mm² only)

Typical uses:

Self propelled electrically driven machines, movable electric apparatus in hazardous areas (Minerals Act, 1991), typically

- 4mm² for small pumps, drills, fans ect.
- 16mm² for shuttle cars.
- 16 and 25mm² suitable for reeling

Physical Properties

Reference Number		790553	790552	790551	790577	791571
Power Cores						
Conductor size	(mm ²)	4	6	10	16	25
Maximum wire diameter	(mm)	0.31	0.31	0.41	0.41	0.41
Approximate conductor diameter	(mm)	2.7	3.2	4.2	5.2	6.7
Maximum screen wire diameter	(mm)	0.21	0.21	0.31	0.31	0.31
Braided screen filling factor	(%)	80	80	80	80	80
Pilot Cores						
Conductor size	(mm ²)	4	6	10	16	16
Maximum wire diameter	(mm)	0.31	0.31	0.41	0.41	0.41
Approximate conductor diameter	(mm)	2.7	3.2	4.2	5.2	5.2
Lay Ratio (maximum)	(x PCD)	8	8	8	8	8
Cable Diameter						
Minimum	(mm)	24	25	28	32	35
Maximum	(mm)	26	28	31	35	36
Cable Mass (approximate)	(kg/m)	0.9	1.1	1.4	2.1	2.4
Minimum bending radius	(mm)	150	160	180	200	240
Maximum recommended tension	(kN)	0.24	0.36	0.60	0.96	1.1

6mm = RRTF 060T04 7500 P04

10mm = RRTF 100T04 7500 P04

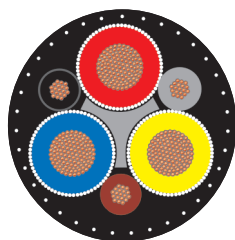
Electrical Properties

Reference Number		790553	790552	790551	790577	791571
Power cores						
Maximum conductor dc resistance @ 20°C	(Ω/km)	5.50	3.66	2.11	1.34	0.859
Maximum conductor ac resistance @ 90°C	(Ω/km)	7.01	4.67	2.69	1.71	1.10
Reactance	(Ω/km)	0.123	0.115	0.108	0.103	0.100
Impedance (Z) @ 90°C	(Ω/km)	7.01	4.67	2.69	1.71	1.10
Minimum dielectric resistance @ 23°C	(MΩ/km)	400	350	300	250	250
Maximum combined screen resistance	(Ω/km)	5.1	3.4	3.9	2.5	1.6
Nominal volt drop	(mV/A/m)	12.14	8.09	4.66	2.97	1.91
Sustained current rating @ 30°C ambient:						
Laid out straight	(A)	45	57	77	100	130
1 layer on drum	(A)	38	48	65	85	110
2 layers on drum	(A)	29	37	50	65	84
3 layers on drum	(A)	20	25	34	45	58
Short circuit rating:						
Symmetrical fault current	(kA for 1 sec)	0.49	0.73	1.2	2.0	3.1
Earth fault current (screens)	(kA for 1 sec)	0.5	0.7	0.6	1.0	1.6

25mm = RRTF 025T03 7530 P04

Type 61A Reeling* Cables - 640/1100V

Flexible Electric Trailing Cables for use in Mines



25 to 150mm²

Construction:

6 core cables with three screened power cores laid up around a semiconducting cradle centre (16mm² around a dummy centre) with three unscreened pilot cores, one in each interstice. Reinforced CR sheath.

Typical uses:

Self propelled electrically driven machines, movable electric apparatus in hazardous areas (Minerals Act, 1991), typically

- 16mm² for shuttle cars
- 25mm² for LHD's
- 70mm² for shearer and reeling applications

Physical Properties

Reference Number		790549	790548	790547	790546	790528	790595	790561
Power Cores								
Conductor size	(mm ²)	25	35	50	70	95	120	150
Maximum wire diameter	(mm)	0.41	0.41	0.41	0.51	0.51	0.51	0.51
Approximate conductor diameter	(mm)	6.7	8.4	10.3	11.7	13.2	15.2	17.1
Maximum screen wire diameter	(mm)	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Braided screen filling factor	(%)	80	80	80	80	80	80	80
Pilot Cores								
Conductor size	(mm ²)	10	10	16	16	16	16	16
Maximum wire diameter	(mm)	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Approximate conductor diameter	(mm)	4.2	4.2	5.2	5.2	5.2	5.2	5.2
Lay Ratio (maximum)	(x PCD)	8	8	8	8	8	8	8
Cable Diameter								
Minimum	(mm)	38	43	47	52	59	62	68
Maximum	(mm)	40	45	50	55	61	67	74
Cable Mass (approximate)	(kg/m)	3.4	3.6	4.4	5.4	6.8	8.1	10.2
Minimum bending radius	(mm)	240	260	290	320	350	390	430
Maximum recommended tension	(kN)	1.1	1.6	2.3	3.2	4.3	5.4	6.8

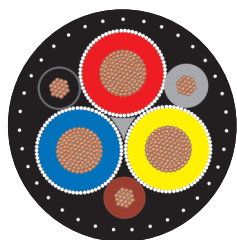
Electrical Properties

Reference Number		790549	790548	790547	790546	790528	790595	790561
Power cores								
Maximum conductor dc resistance @ 20°C	(Ω/km)	0.859	0.610	0.424	0.299	0.227	0.177	0.143
Maximum conductor ac resistance @ 90°C	(Ω/km)	1.10	0.778	0.542	0.382	0.290	0.227	0.183
Reactance	(Ω/km)	0.100	0.090	0.090	0.088	0.086	0.086	0.085
Impedance (Z) @ 90°C	(Ω/km)	1.10	0.783	0.549	0.392	0.302	0.243	0.202
Minimum dielectric resistance @ 23°C	(MΩ/km)	250	200	200	150	150	140	140
Maximum combined screen resistance	(Ω/km)	1.6	1.2	0.8	0.7	0.6	0.6	0.6
Nominal volt drop	(mV/A/m)	1.91	1.36	0.95	0.68	0.52	0.42	0.35
Sustained current rating @ 30°C ambient:								
Laid out straight	(A)	130	160	200	245	295	345	390
Short circuit rating:								
Symmetrical fault current	(kA for 1 sec)	3.1	4.3	6.1	8.5	11.6	14.6	18.3
Earth fault current (screens)	(kA for 1 sec)	1.6	2.1	3.1	3.5	4.1	4.1	4.1

* Restricted to low speed reeling only.

Type 61B Non-Reeling Low Mass Cables - 640/1100V

Flexible Electric Trailing Cables for use in Mines



Construction:

6 core cables with three screened power cores laid up around a semiconducting cradle centre (16mm² around a dummy centre) with three unscreened pilot cores, one in each interstice. Reinforced CR sheath (or equivalent).

Typical uses:

Self propelled electrically driven machines, movable electric apparatus in hazardous areas (Minerals Act, 1991), typically for non reeling applications i.e feeder supply systems.

Physical Properties

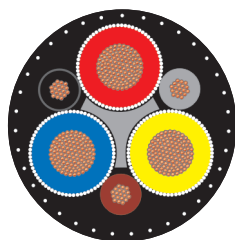
Reference Number		793269	791059	791466	790529	791046	792529
Power Cores							
Conductor size	(mm ²)	35	50	70	95	120	150
Maximum wire diameter	(mm)	0.41	0.41	0.51	0.51	0.51	0.51
Approximate conductor diameter	(mm)	8.4	10.3	11.7	13.2	15.2	17.1
Maximum screen wire diameter	(mm)	0.31	0.31	0.31	0.31	0.31	0.31
Braided screen filling factor	(%)	80	80	80	80	80	80
Pilot Cores							
Conductor size	(mm ²)	6	6	10	16	16	16
Maximum wire diameter	(mm)	0.31	0.31	0.41	0.41	0.41	0.41
Approximate conductor diameter	(mm)	3.2	3.2	4.2	5.2	5.2	5.2
Lay Ratio (maximum)	(x PCD)	12	12	12	12	12	12
Cable Diameter							
Minimum	(mm)	40	42	47	53	57	63
Maximum	(mm)	42	43	49	59	59	64
Cable Mass (approximate)	(kg/m)	3.1	3.6	4.6	6	7.1	8.5
Minimum bending radius	(mm)	300	340	390	430	460	500
Maximum recommended tension	(kN)	1.6	2.3	3.2	4.3	5.4	6.8

Electrical Properties

Reference Number		793269	791059	791465	790529	791046	792529
Power cores							
Maximum conductor dc resistance @ 20°C	(Ω/km)	0.576	0.401	0.283	0.214	0.167	0.135
Maximum conductor ac resistance @ 90°C	(Ω/km)	0.734	0.511	0.360	0.273	0.213	0.171
Reactance	(Ω/km)	0.090	0.090	0.088	0.086	0.086	0.085
Impedance (Z) @ 90°C	(Ω/km)	0.740	0.519	0.371	0.287	0.230	0.191
Minimum dielectric resistance @ 23°C	(Ω/km)	200	200	150	150	140	140
Maximum combined screen resistance	(Ω/km)	1.2	0.8	0.7	0.6	0.6	0.6
Nominal volt drop	(mV/A/m)	1.28	0.90	0.64	0.50	0.40	0.33
Sustained current rating @ 30°C ambient:							
Laid out straight	(A)	160	200	245	295	345	390
Short circuit rating:							
Symmetrical fault current	(kA for 1 sec)	4.3	6.1	8.5	11.6	14.6	18.3
Earth fault current (screens)	(kA for 1 sec)	2.1	3.1	3.5	4.1	4.1	4.1

Type 63 Reeling* Cables - 1900/3300V

Flexible Electric Trailing Cables for use in Mines



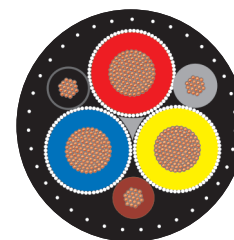
25 to 95mm²

Construction:

6 core cables with three screened power cores laid up around a semiconducting cradle centre (25 to 95 mm²) or dummy centre (120 to 240 mm²) and three unscreened pilot cores, one in each interstice. Reinforced CR sheath (or equivalent).

Typical uses:

Self propelled electrically driven machines, movable electric apparatus in hazardous areas (Minerals Act, 1991), typically stackers, reclaimers, shearers and conveyor systems.



120 to 240mm²

Physical Properties

Reference Number		790588	790514	790632	790933	792242	790559	791458	791066	792463
Power Cores										
Conductor size	(mm ²)	25	35	50	70	95	120	150	185	240
Maximum wire diameter	(mm)	0.41	0.41	0.41	0.51	0.51	0.51	0.51	0.51	0.51
Approximate conductor diameter	(mm)	6.7	8.4	10.3	11.7	13.2	15.2	17.1	20.1	22.5
Maximum screen wire diameter	(mm)	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Braided screen filling factor	(%)	80	80	80	80	80	80	80	80	80
Pilot Cores										
Conductor size	(mm ²)	10	10	16	16	16	16	25	25	25
Maximum wire diameter	(mm)	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Approximate conductor diameter	(mm)	4.2	4.2	5.2	5.2	5.2	5.2	6.7	6.7	6.7
Lay Ratio (maximum)	(x PCD)	8	8	8	8	8	8	8	8	8
Cable Diameter										
Minimum	(mm)	43	47	50	56	60	62	65	71	78
Maximum	(mm)	47	51	54	60	64	66	70	76	82
Cable Mass (approximate)	(kg/m)	3.6	4.2	5.0	6	7.4	8.2	10	11.2	14.7
Minimum bending radius	(mm)	280	290	310	350	370	380	400	440	480
Maximum recommended tension	(kN)	1.1	1.6	2.3	3.2	4.3	5.4	6.8	8.3	10.8

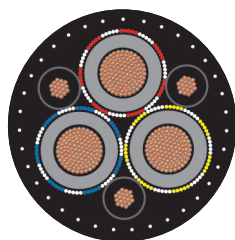
Electrical Properties

Reference Number		790588	790514	790632	790933	792242	790559	791458	791066	792463
Power cores										
Maximum conductor dc resistance @ 20°C	(Ω/km)	0.859	0.610	0.424	0.299	0.227	0.177	0.143	0.117	0.0882
Maximum conductor ac resistance @ 90°C	(Ω/km)	1.10	0.778	0.542	0.382	0.290	0.227	0.183	0.150	0.115
Reactance	(Ω/km)	0.122	0.113	0.107	0.103	0.090	0.088	0.085	0.084	0.083
Impedance (Z) @ 90°C	(Ω/km)	1.11	0.786	0.552	0.396	0.304	0.243	0.202	0.172	0.142
Minimum dielectric resistance @ 23°C	(Ω/km)	340	300	260	230	200	180	170	150	140
Maximum combined screen resistance	(Ω/km)	1.6	1.2	0.8	0.7	0.6	0.6	0.6	0.6	0.6
Nominal volt drop	(mV/A/m)	1.92	1.36	0.96	0.69	0.53	0.42	0.35	0.3	0.25
Sustained current rating @ 30°C ambient:										
Laid out straight	(A)	130	160	200	245	295	345	390	440	520
Short circuit rating:										
Symmetrical fault current	(kA for 1 sec)	3.1	4.3	6.1	8.5	11.6	14.6	18.3	23	29
Earth fault current (screens)	(kA for 1 sec)	1.6	2.1	3.1	3.5	4.1	4.1	4.1	4.1	4.1

* Restricted to low speed reeling only.

Type 66 & 66 ECC Cables - 3,8/6,6kV

Flexible Electric Trailing Cables for use in Mines



Type 66

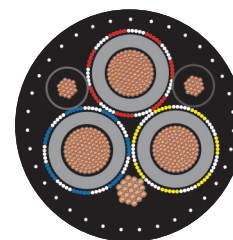
Construction:

Class 5 tinned copper conductors extruded with a semi-conducting conductor screen, EPM insulation and a strippable semi-conducting core screen (triple extruded). Each power core is individually screened with a tinned copper/textile braid. The power cores are laid up with an EPM insulated pilot core in each interstice. (Alternatively, one pilot core can be replaced with a tinned ECC conductor). Reinforced extra heavy duty CR (or equivalent) sheath applied overall.

Typical uses:

Self propelled electrically driven machines, portable electric apparatus and movable electric apparatus in hazardous areas (Minerals Act, 1991) e.g.

- section feeders
- open cast mining, medium sized draglines, shovels and drills



Type 66 ECC

Physical Properties

Reference Number		790521	790522	790523	790622	790929	791448	793270	791214	790584
Power Cores										
Conductor size	(mm ²)	25	35	50	70	95	120	150	185	240
Maximum wire diameter	(mm)	0.41	0.41	0.41	0.51	0.51	0.51	0.51	0.51	0.51
Approximate conductor diameter	(mm)	6.7	8.4	10.3	11.7	13.2	15.2	17.1	20.1	22.5
Maximum screen wire diameter	(mm)	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Braided screen filling factor	(%)	60	60	60	60	60	60	60	60	60
Pilot Cores										
Conductor size	(mm ²)	10	10	10	16	16	16	25	25	25
Maximum wire diameter	(mm)	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Approximate conductor diameter	(mm)	4.2	4.2	4.2	5.2	5.2	5.2	6.7	6.7	6.7
ECC size (if applicable)	(mm ²)	16	25	25	35	50	70	95	95	120
ECC maximum wire diameter (if applicable)	(mm)	0.41	0.41	0.41	0.41	0.41	0.51	0.51	0.51	0.51
Approximate ECC diameter (if applicable)	(mm)	5.2	6.7	6.7	8.4	10.3	11.7	13.2	13.2	15.2
Lay Ratio (maximum)	(x PCD)	16	16	16	16	16	16	16	16	16
Cable Diameter (approximate)	(mm)	49	52	56	59	65	69	73	79	92
Cable Mass (approximate)										
Type 66	(kg/m)	3.7	4.2	5.1	6.1	7.3	8.6	10.1	11.7	15.1
Type 66 ECC	(kg/m)	4.1	4.4	5.3	6.5	7.6	8.9	10.4	12.1	15.8
Minimum bending radius	(mm)	430	450	480	520	550	590	650	670	740
Maximum recommended tension	(kN)	1.1	1.6	2.3	3.2	4.3	5.4	6.8	8.3	10.8

Electrical Properties

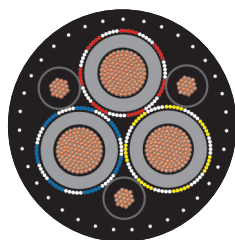
Reference Number		790521	790522	790523	790622	790929	791448	793270	791214	790584
Power cores										
Maximum conductor dc resistance @ 20°C	(Ω/km)	0.795	0.565	0.393	0.277	0.210	0.164	0.132	0.108	0.0817
Maximum conductor ac resistance @ 90°C	(Ω/km)	1.05	0.749	0.521	0.368	0.279	0.218	0.176	0.145	0.110
Reactance	(Ω/km)	0.124	0.116	0.109	0.105	0.101	0.096	0.092	0.091	0.087
Impedance (Z) @ 90°C	(Ω/km)	1.06	0.758	0.532	0.383	0.297	0.238	0.199	0.171	0.140
Minimum combined screen resistance @ 23°C	(Ω/km)	1.6	1.2	0.8	0.7	0.6	0.6	0.6	0.6	0.6
Maximum combined screen & ECC resistance	(Ω/km)	0.7	0.5	0.5	0.4	0.3	0.23	0.18	0.18	0.15
Nominal volt drop	(mV/A/m)	1.83	1.31	0.92	0.66	0.51	0.41	0.34	0.30	0.24
Sustained current rating with cable laid out straight (in direct sunlight)										
@ 30°C ambient	(A)	105	130	160	195	230	260	300	340	400
@ 35°C ambient	(A)	95	120	145	180	210	240	270	310	360
@ 40°C ambient	(A)	90	105	130	160	190	220	240	280	320
@ 45°C ambient	(A)	75	95	115	140	165	190	210	240	280
Short circuit rating:										
Symmetrical fault current	(kA for 1 sec)	3.05	4.27	6.10	8.54	11.59	14.64	18.30	22.57	29.28
Earth fault current (screens)	(kA for 1 sec)	1.6	2.1	3.1	3.5	4.1	4.1	4.1	4.1	4.1
Earth fault current (ECC + screens)	(kA for 1 sec)	3.6	5.0	5.0	7.5	9.0	11.5	14.0	14.0	17.0

* Current ratings are based on cables exposed to solar radiation (open cast mining).

Cables with "Extensible" pilot cores are available on request.

Type 611 & 611 ECC Cables - 6,35/11kV

Flexible Electric Trailing Cables for use in Mines



Type 611

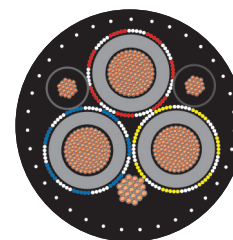
Construction:

Class 5 tinned copper conductors extruded with a semi-conducting conductor screen, EPM insulation and a strippable semi-conducting core screen (triple extruded). Each power core is individually screened with a tinned copper/textile braid. The power cores are laid up with an EPM insulated pilot core in each interstice. (Alternatively, one pilot core can be replaced with a tinned ECC conductor). Reinforced extra heavy duty CR (or equivalent) sheath applied overall.

Typical uses:

Self propelled electrically driven machines, portable electric apparatus and movable electric apparatus in hazardous areas (Minerals Act, 1991) e.g.

- section feeders
- open cast mining, large draglines, shovels and drills



Type 611 ECC

Physical Properties

Reference Number		790590	790612	790507	791497	790560	790854	792421	792422	790591
Power Cores										
Conductor size	(mm ²)	25	35	50	70	95	120	150	185	240
Maximum wire diameter	(mm)	0.41	0.41	0.41	0.51	0.51	0.51	0.51	0.51	0.51
Approximate conductor diameter	(mm)	6.7	8.4	10.3	11.7	13.2	15.2	17.1	20.1	22.9
Maximum screen wire diameter	(mm)	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Braided screen filling factor	(%)	60	60	60	60	60	60	60	60	60
Pilot Cores										
Conductor size	(mm ²)	10	10	16	16	16	16	25	25	25
Maximum wire diameter	(mm)	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Approximate conductor diameter	(mm)	4.2	4.2	5.2	5.2	5.2	5.2	6.7	6.7	6.7
ECC size (if applicable)	(mm ²)	16	25	25	35	50	70	95	95	120
ECC maximum wire diameter (if applicable)	(mm)	0.41	0.41	0.41	0.41	0.41	0.51	0.51	0.51	0.51
Approximate ECC diameter (if applicable)	(mm)	5.2	6.7	6.7	8.4	10.3	11.7	13.2	13.2	15.2
Lay Ratio (maximum)	(x PCD)	16	16	16	16	16	16	16	16	16
Cable Diameter (approximate)	(mm)	56	59	63	68	70	76	82	88	98
Cable Mass (approximate)										
Type 611	(kg/m)	4.5	5.1	6	7.3	8.6	9.6	11.4	13.5	15.7
Type 611 ECC	(kg/m)	4.8	5.9	6.7	7.9	9.3	10.2	11.7	13.8	16.4
Minimum bending radius	(mm)	470	500	530	570	600	640	700	730	780
Maximum recommended tension	(kN)	1.1	1.6	2.3	3.2	4.3	5.4	6.8	8.3	10.8

Electrical Properties

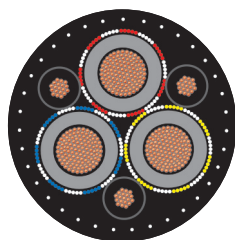
Reference Number		790590	790612	790507	791497	790560	790854	792421	792422	790591
Power cores										
Maximum conductor dc resistance @ 20°C	(Ω/km)	0.795	0.565	0.393	0.277	0.210	0.164	0.132	0.108	0.0817
Maximum conductor ac resistance @ 90°C	(Ω/km)	1.05	0.749	0.521	0.368	0.279	0.218	0.176	0.145	0.110
Reactance	(Ω/km)	0.134	0.124	0.117	0.113	0.108	0.103	0.098	0.096	0.092
Impedance (Z) @ 90°C	(Ω/km)	1.06	0.759	0.534	0.385	0.299	0.241	0.201	0.174	0.143
Minimum combined screen resistance	(Ω/km)	1.6	1.2	0.8	0.7	0.6	0.6	0.6	0.6	0.6
Maximum combined screen & ECC resistance	(Ω/km)	0.7	0.5	0.5	0.4	0.3	0.23	0.18	0.18	0.15
Nominal volt drop	(mV/A/m)	1.83	1.31	0.92	0.67	0.52	0.42	0.35	0.30	0.25
Sustained current rating with cable laid out straight (in direct sunlight)										
@ 30°C ambient	(A)	105	130	160	195	230	260	300	340	400
@ 35°C ambient	(A)	95	120	145	180	210	240	270	310	360
@ 40°C ambient	(A)	90	105	130	160	190	220	240	280	320
@ 45°C ambient	(A)	75	95	115	140	165	190	210	240	280
Short circuit rating:										
Symmetrical fault current	(kA for 1 sec)	3.05	4.27	6.10	8.54	11.59	14.64	18.30	22.57	29.28
Earth fault current (screens)	(kA for 1 sec)	1.6	2.1	3.1	3.5	4.1	4.1	4.1	4.1	4.1
Earth fault current (ECC + screens)	(kA for 1 sec)	3.6	5.0	5.0	7.5	9.0	11.5	14.0	14.0	17.0

* Current ratings are based on cables exposed to solar radiation (open cast mining).

Cables with "Extensible" pilot cores are available on request.

Type 622 & 622 ECC Cables - 12,7/22kV

Flexible Electric Trailing Cables for use in Mines



Type 622

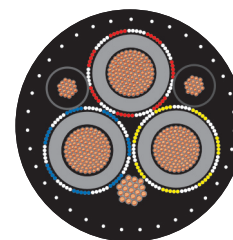
Construction:

Class 5 tinned copper conductors extruded with a semi-conducting conductor screen, EPM insulation and a strippable semi-conducting core screen (triple extruded). Each power core is individually screened with a tinned copper/textile braid. The power cores are laid up with an EPM insulated pilot core in each interstice. (Alternatively, one pilot core can be replaced with a tinned ECC conductor). Reinforced extra heavy duty CR (or equivalent) sheath applied overall.

Typical uses:

Self propelled electrically driven machines, portable electric apparatus and movable electric apparatus in hazardous areas (Minerals Act, 1991) e.g.

- feeders supply cable
- open cast mining and dredgers



Type 622 ECC

Physical Properties

Reference Number		792162	793271	792471	792469	790754	792834	792470
Power Cores								
Conductor size	(mm ²)	25	35	50	70	95	120	150
Maximum wire diameter	(mm)	0.41	0.41	0.41	0.51	0.51	0.51	0.51
Approximate conductor diameter	(mm)	6.7	8.4	10.3	11.7	13.2	15.2	17.1
Maximum screen wire diameter	(mm)	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Braided screen filling factor	(%)	60	60	60	60	60	60	60
Pilot Cores								
Conductor size	(mm ²)	16	16	16	16	16	16	25
Maximum wire diameter	(mm)	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Approximate conductor diameter	(mm)	5.2	5.2	5.2	5.2	5.2	5.2	6.7
ECC size (if applicable)	(mm ²)	16	25	25	35	50	70	95
ECC maximum wire diameter (if applicable)	(mm)	0.41	0.41	0.41	0.41	0.41	0.51	0.51
Approximate ECC diameter (if applicable)	(mm)	5.2	6.7	6.7	8.4	10.3	11.7	13.2
Lay Ratio (maximum)	(x PCD)	16	16	16	16	16	16	16
Cable Diameter (approximate)	(mm)	65	68	71	77	80	86	90
Cable Mass (approximate)								
Type 622	(kg/m)	5.9	6.4	7.3	8.6	10.1	11.7	13.3
Type 622 ECC	(kg/m)	6.3	6.8	7.9	8.9	10.7	12.3	13.6
Minimum bending radius	(mm)	540	580	610	640	670	710	780
Maximum recommended tension	(kN)	1.1	1.6	2.3	3.2	4.3	5.4	6.8

Electrical Properties

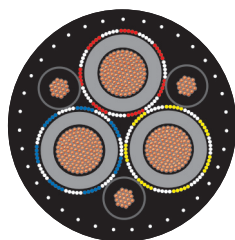
Reference Number		792162	793271	792471	792469	790754	792834	792470
Power cores								
Maximum conductor dc resistance @ 20°C	(Ω/km)	0.795	0.565	0.393	0.277	0.210	0.164	0.132
Maximum conductor ac resistance @ 90°C	(Ω/km)	1.05	0.749	0.521	0.368	0.279	0.218	0.176
Reactance	(Ω/km)	0.145	0.135	0.127	0.122	0.117	0.111	0.106
Impedance (Z) @ 90°C	(Ω/km)	1.06	0.761	0.536	0.388	0.303	0.245	0.205
Minimum combined screen resistance	(Ω/km)	1.6	1.2	0.8	0.7	0.6	0.6	0.6
Maximum combined screen & ECC resistance	(Ω/km)	0.7	0.5	0.5	0.4	0.3	0.23	0.18
Nominal volt drop	(mV/A/m)	1.84	1.32	0.93	0.67	0.52	0.42	0.36
Sustained current rating with cable laid out straight (in direct sunlight)								
@ 30°C ambient	(A)	105	130	160	195	230	260	300
@ 35°C ambient	(A)	95	120	145	180	210	240	270
@ 40°C ambient	(A)	90	105	130	160	190	220	240
@ 45°C ambient	(A)	75	95	115	140	165	190	210
Short circuit rating:								
Symmetrical fault current	(kA for 1 sec)	3.05	4.27	6.10	8.54	11.59	14.64	18.30
Earth fault current (screens)	(kA for 1 sec)	1.6	2.1	3.1	3.5	4.1	4.1	4.1
Earth fault current (ECC + screens)	(kA for 1 sec)	3.6	5.0	5.0	7.5	9.0	11.5	14.0

* Current ratings are based on cables exposed to solar radiation (open cast mining).

Cables with "Extensible" pilot cores are available on request.

Type 633 & 633 ECC Cables - 19/33kV

Flexible Electric Trailing Cables for use in Mines



Type 633

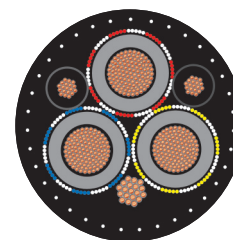
Construction:

Class 5 tinned copper conductors extruded with a semi-conducting conductor screen, EPM insulation and a strippable semi-conducting core screen (triple extruded). Each power core is individually screened with a tinned copper/textile braid. The power cores are laid up with an EPM insulated pilot core in each interstice. (Alternatively, one pilot core can be replaced with a tinned ECC conductor). Reinforced extra heavy duty CR (or equivalent) sheath applied overall.

Typical uses:

Self propelled electrically driven machines, portable electric apparatus and movable electric apparatus in hazardous areas (Minerals Act, 1991) e.g.

- feeders supply cable
- open cast mining and dredgers



Type 633 ECC

Physical Properties

Reference Number		793272	792241	792830	791487	792833
Power Cores						
Conductor size	(mm ²)	25	35	50	70	95
Maximum wire diameter	(mm)	0.41	0.41	0.41	0.51	0.51
Approximate conductor diameter	(mm)	6.7	8.4	10.3	11.7	13.2
Maximum screen wire diameter	(mm)	0.31	0.31	0.31	0.31	0.31
Braided screen filling factor	(%)	60	60	60	60	60
Pilot Cores						
Conductor size	(mm ²)	16	16	16	16	16
Maximum wire diameter	(mm)	0.41	0.41	0.41	0.41	0.41
Approximate conductor diameter	(mm)	5.3	5.3	5.3	5.3	5.3
ECC size (if applicable)	(mm ²)	16	25	25	35	50
ECC maximum wire diameter (if applicable)	(mm)	0.41	0.41	0.41	0.41	0.41
Approximate ECC diameter (if applicable)	(mm)	5.2	6.7	6.7	8.4	10.3
Lay Ratio (maximum)	(x PCD)	16	16	16	16	16
Cable Diameter (approximate)	(mm)	75	77	82	87	91
Cable Mass (approximate)						
Type 633	(kg/m)	7.4	7.8	9.3	10.2	12.1
Type 633 ECC	(kg/m)	7.9	8.2	10.4	10.8	12.7
Minimum bending radius	(mm)	620	650	680	710	740
Maximum recommended tension	(kN)	1.1	1.6	2.3	3.2	4.3

Electrical Properties

Reference Number		793272	792241	792830	791487	792833
Power cores						
Maximum conductor dc resistance @ 20°C	(Ω/km)	0.795	0.565	0.393	0.277	0.210
Maximum conductor ac resistance @ 90°C	(Ω/km)	1.05	0.749	0.521	0.368	0.279
Reactance	(Ω/km)	0.155	0.144	0.136	0.131	0.125
Impedance (Z) @ 90°C	(Ω/km)	1.06	0.763	0.538	0.391	0.306
Minimum combined screen resistance	(Ω/km)	1.6	1.2	0.8	0.7	0.6
Maximum combined screen & ECC resistance	(Ω/km)	0.7	0.5	0.5	0.4	0.3
Nominal volt drop	(mV/A/m)	1.84	1.32	0.93	0.68	0.53
Sustained current rating with cable laid out straight (in direct sunlight)						
@ 30°C ambient	(A)	105	130	160	195	230
@ 35°C ambient	(A)	95	120	145	180	210
@ 40°C ambient	(A)	90	105	130	160	190
@ 45°C ambient	(A)	75	95	115	140	165
Short circuit rating:						
Symmetrical fault current	(kA for 1 sec)	3.05	4.27	6.10	8.54	11.59
Earth fault current (screens)	(kA for 1 sec)	1.6	2.1	3.1	3.5	4.1
Earth fault current (ECC + screens)	(kA for 1 sec)	3.6	5.0	5.0	7.5	9.0

* Current ratings are based on cables exposed to solar radiation (open cast mining).

Cables with "Extensible" pilot cores are available on request.



Derating Factors					
Derating Factors for Ambient Temperatures (Mining Cables)					
Ambient Temperature (°C)	25	30	35	40	45
Factor	1.10	1.00	0.90	0.80	0.70
Derating Factors for Ambient Temperatures (Flexible Cables and Cords)					
Ambient Temperature (°C)	20	30	40	40	50
Factor	1.05	1.00	0.98	0.98	0.96
Derating Factors for Number of Layers on a Reeling Drum					
Ambient Temperature (°C)	1	2	3		
Factor	0.84	0.65	0.45		

System Designation for Harmonised Cords and Cables	
example : H 05 RN-F and H 07 RN-F	
H = EEC Harmonised standards	
05 = Rated voltage 300/500 V	
07 = Rated voltage 450/750 V	
R = Insulation, natural or synthetic rubber (or both)	
N = Sheathing material, Polychloroprene	

Physical Properties of Sheathing Materials				
Property	Units	GP	HD	EHD
Tensile Strength (min)	MPa	8	11	15
Elongation at Break (min)	%	250	250	250
Tear Resistance (min)	N/mm	5	7.5	10

Abbreviations			
TSC	Tinned soft copper	IND SCR	Individually screened
EPM	Ethylene Propylene Monomer	ECC	Earth continuity conductor
CR	Polychloroprene	PCD	Pitch circle diameter
CM	Chlorinated Polyethylene		

Comparison Table for American Wire Gauges (Copper)		
AWG No.	Diameter (mm)	Cross-sectional Area (mm ²)
5/0	13.12	135.10
4/0	11.68	107.20
3/0	10.40	85.00
2/0	9.27	67.50
0	8.25	53.40
1	7.35	42.40
2	6.54	33.60
3	5.83	26.70
4	5.19	21.20
5	4.62	16.80
6	4.11	13.30
7	3.67	10.60
8	3.26	8.35
9	2.91	6.62
10	2.59	5.27
11	2.30	4.15
12	2.05	3.31
13	1.83	2.63
14	1.63	2.08
15	1.45	1.65
16	1.29	1.31
17	1.15	1.04
18	1.024	0.823
19	0.912	0.653
20	0.812	0.519

Tested to SABS Test Methods STM 503, 504 and 506

Product Range

Our Services are Wide but Specialised



The Aberdare Group's product range and services are wide but specialised. Tried and tested and carrying South African Bureau of Standards (SABS) marks and complying with International Standards, we stand by our products.

Medium Voltage XLPE Cables (6.6 kV to 33 kV)

- Individually Screened
- Copper or Aluminium Conductors up to 300 mm² (3 core) & 1000 mm² (Single Core)

Paper Insulated Cables (6.6 kV to 33 kV)

- Screened or belted
- Fully impregnated, general purpose, heavy duty or drained
- Copper or Aluminium conductors up to 400 mm² (3 core) & 1000 mm² (single core)

High Voltage XLPE Insulated Cables (44 kV to 132 kV)

- Corrugated seamless Aluminium (CSA Sheath)
- Copper or aluminium conductors up to 1000 mm² (single core)

Elastomeric Cables (300/500 V to 19/33 kV)

- Flexible Cable (Types HO5 RN-F, HO7 RN-F)
- General Welding Cable
- Mining Trailing Cable (Up to 33 kV)

Overhead Aluminium Conductors

- AAC (All Aluminium Conductors)
- AAAC (All Aluminium Alloy Conductors)
- ACSR (Aluminium Conductor Steel Reinforced)
- Hard Drawn Copper

General Wire Insulated & Bare Copper Wire (300/500 V & 600/1000 V)

- Surfix Cable
- Flat Twin and Earth Cable
- Cabtyre Cable

- Submersible Pump Cable
- Audio cord (Ripcord)
- Welding cable
- Panel Flex Cable
- Illumination Cable
- PVC Nitrile Panel Cable
- Nitrile Trailing Cable
- Bare Copper
- Single Core PVC 1 kV Cable
- Single Core XLPE PVC 3.3 kV Cable

Low Voltage Armoured Cables (600/1000 V & 1.9/3.3 kV)

- Bells and Mains Cable
- Multicore Cable
- Single Core Cable

Electrodac Cables (600/1000 V)

- Aerial Bundle Conductor (ABC) (LV & MV)
- Airdac SNE Cable
- Airdac CNE Cable
- SaferDac CNE and SNE Cables

Intermediate Voltage Cables (1.9/3.3 kV)

- Armadac Cable
- Farmadac Cable

Specialised Cables

- Solar PV Cable (1.5/1.5 kV)

Theft Prevention Technology

- Unique Cable and Conductor Marking



NOTICE TO THE USER OF ELECTRIC CABLE PRODUCTS MANUFACTURED BY ABERDARE CABLES:

- **“WARNING: Electrical equipment (including cable) and installations which form part of a facility, whether fixed, mobile or moveable are by nature inherently dangerous when energized with electrical power as contact with un-insulated or damaged components of such a facility may result in injury, loss of life and damage to property. Only qualified persons should attend to the installation of such electrical equipment, the maintenance thereof, and the repair of any faulty facilities which have an electrical component.”**
 - Selection and Installation of the product must be carried out as per the applicable compulsory specifications by appropriately qualified persons and certified by a competent person so authorized by law prior to being put into service. All fixed electrical Low Voltage installations must have a valid Certificate of Compliance (COC)
 - Low voltage electrical installations up to 600/1000V must conform to the compulsory specification SANS 10142-1 “The Wiring of Premises Part 1: Low voltage installations”
 - SA Legislation determines that the User or Lessor is responsible for the safety of the electrical installation.
 - All Medium Voltage installations above 1 kV must conform to the specification SANS 10198 “The Selection, Handling and installation of electric power cables of rating not exceeding 33 kV”, and where applicable SABS 10142-2 “The wiring of premises Part 2: Medium voltage installations above 1 kV a.c. and not exceeding 22kV a.c. and up to and including 3 000 kW installed capacity”.
 - The following **Compulsory Safety Standards** are applicable to Electric Cables manufactured, imported and used in South Africa and no product may be used which does not comply to the applicable standard:
 - (VC 8075) SANS 1507: Electric Cables with solid dielectric insulation for fixed installations (300/500V to 1900/3300V)
 - (VC 8077) SANS 1339: Electric Cables Cross linked Polyethylene (XLPE) insulated cables for rated voltages 3,8/6,6 kV to 19/33 kV
 - (VC 8077) SANS 97: Electric Cables Impregnated paper insulated metal sheathed cables for rated voltages 3,3/3,3 kV to 19/33 kV
 - (VC8006) SANS 1574: Electric Flexible Cables with solid dielectric insulation.
 - All cables manufactured to a compulsory safety standard must be clearly marked with the applicable SANS standard number as well as the Manufacturer's name.
 - Aberdare Cables manufactures all Electric Cables made to Compulsory standards under the SABS Mark scheme. Products manufactured under the SABS mark scheme carries the wording “SABS” to show that the manufacturer is a licensed Mark Holder. The SABS Mark gives the user the assurance that the South African Bureau of Standards monitors the quality of the products which carries this mark and verifies the quality system used by Aberdare Cables to manufacture these products, on an ongoing basis.
 - Compulsory specifications (VC's) may be downloaded for free from the SABS website www.sabs.co.za.
 - The user of electric cable products has the right to take up any issue of concern with the **National Regulator of Compulsory Specifications** at +27(0)12 428 5000
-

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