

Network Rail Telecommunications Cable

PACW/ solid polyethylene insulation/moisture barrier/HFFR sheath/Bonded Steel tape/
HFFR Sheath External Telephone Cable – suitable for tunnel and sub-surface applications

(Complies with Specifications NR/PS/TEL/00015 and BR1916/T1822)

Network Rail certificate of acceptance - PA05 /06233



HFFR trackside telecom cable Armoured (for tunnels and platforms)

Application

The cable is designed primarily for underground track-side railway installation. It is suitable for installation in ducts and on cable trays in tunnel wall. It is a twisted pair cable with Moisture barrier bonded to an inner HFFR Sheath. The cable is protected against crushing and rodent attack by the inclusion of a corrugated steel tape armour bonded to the outer HFFR sheath.

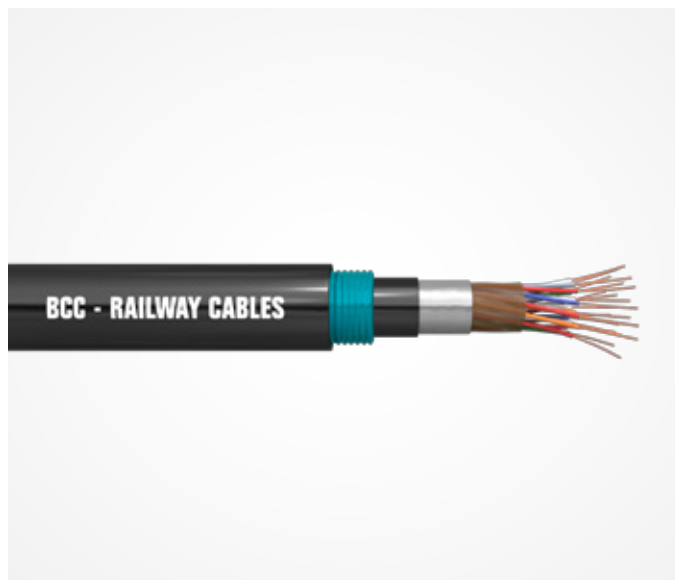
The product satisfies the requirements of Network Rail Specification NR/PS/TEL/00015 (formerly TR/E/PS/00015 & BR1916/BR1822)

Construction

Twisted pairs in 10 Pair Units. The pair range is 2 – 100.

Product description

Plain annealed solid copper wire, solid polyethylene insulation, twisted pairs, barrier tapes, black HFFR thermoplastic sheath incorporating a longitudinally applied aluminium/polyethylene moisture barrier, and corrugated steel tape armour bonded to a HFFR thermoplastic sheath.



Number Pairs	BCC P/N	Nominal Cdr Size (mm)	Minimum Elongation (%)	Nominal Ins. Diameter (mm)	Duct / Inner Sheath Cable		Armoured Cable		Min Bend Radius (mm)	Cable Weight (kg/km)
					Min. Radial (mm)	Diameter Max. (mm)	Min. Radial (mm)	Diameter Max. (mm)		
2	10187116	0.63	15	1.15	2.5	12.3	2.00	18.3	366	381
5	10187117	0.63	15	1.15	2.5	13.8	2.00	21.8	436	469
10	10187118	0.63	15	1.15	2.5	15.6	2.00	23.3	466	574
20	10187119	0.63	15	1.15	2.5	18.1	2.00	26.1	522	738
30	10187120	0.63	15	1.15	2.5	20.4	2.00	28.4	568	882
50	10187121	0.63	15	1.15	2.5	24.2	2.00	32.2	644	1131
75	10187122	0.63	15	1.15	2.5	28.2	2.00	36.2	724	1425
100	10187123	0.63	15	1.15	2.5	31.0	2.00	39.0	780	1692
2	10188117	0.90	15	1.50	2.5	13.3	2.00	28.5	570	405
5	10180973	0.90	15	1.50	2.5	16.1	2.00	29.3	586	532
10	10180974	0.90	15	1.50	2.5	18.0	2.00	33.0	660	674
20	10180975	0.90	15	1.50	2.5	21.9	2.00	37.0	740	918
30	10188118	0.90	15	1.50	2.5	25.2	2.00	40.0	800	1135
50	10180991	0.90	15	1.50	2.5	30.0	2.00	45.0	900	1525
75	10188119	0.90	15	1.50	2.5	35.8	2.00	51.0	1020	1980
100	10188120	0.90	15	1.50	2.5	39.1	2.00	54.0	1080	2411

Cu Size (mm)	Mutual Capacitance (nF/km)		Conductor Resistance @ 20°C (ohms)	
	Max Average	99%	Max Average	99%
0.63	61	68	58.0	60.0
0.90	65	70	28.0	30.0

Attenuation & Near –End Crosstalk	Cu Size (mm)	Measurement Frequency		
		1.0 kHz	2.4 kHz	1.024 MHz
Attenuation dB/km (Max Ave)	0.63	1.40	2.15	18.70
	0.90	0.95	1.46	14.60
NEXTA (dB Minimum)		70.00	65.00	Within Unit
				40.00
				Between Unit
				47.00

Insulation resistance

Insulation resistance measurements shall be made with not less than 500 volts D.C. After steady electrification for one minute the insulation resistance measured between each conductor and the remaining conductors connected together shall be not less than 1500 megohms per 1000 metres at 20°C.

Capacitance unbalance

Not more than 1% of the corrected capacitance unbalance measurements between adjacent pairs shall exceed the following values: Two-Pair (Quad) Cable 800pF. All other sizes 275pF.

Fire Test Performance

Smoke Emission

Compliant with BS6853, Appendix B and IEC 61034.

Flammability

Sheath materials has Temperature Index \geq 260°C (BS6853 Appendix A).

Low Smoke Sheath

\leq 0.05% Halogenated material.

Pair colour scheme, unit binder colours and cable make-up

Cabling Element No.	a-wire	b-wire	Unit Number	Binder Colour	Cable Size	No. and Pair Size of Unit in Centre and 1st Layer	
						Centre	1st layer
1	WHITE	BLUE	1	BLUE	2	1 x 2	-
2	WHITE	ORANGE	2	ORANGE	5	1 x 5	-
3	WHITE	GREEN	3	GREEN	10	1 x 10	-
4	WHITE	BROWN	4	BROWN	20	4 x 5	-
5	WHITE	Grey	5	Grey		2 x 10	-
6	RED	BLUE	6	WHITE	30	6 x 5	-
7	RED	ORANGE	7	RED		3 x 10	-
8	RED	GREEN	8	BLACK	50	5 x 10	-
9	RED	BROWN	9	YELLOW		1 x 10	4 x 10
10	RED	Grey	10	VIOLET	75	3 x 5	6 x 10
					100	2 x 10	8 x 10
						3 x 10	7 x 10
						4 x 5	8 x 10



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