

Traction cable

RADOX 3 GWK 600V

General Properties:

Halogen free, electron-beam cross-linked cables with improved behaviour in case of fire, easy to strip and flexible.

Single core power and signal cables with reduced wall thickness

Nominal voltage: 600 / 1000 V AC

Application:

The single core cables are intended for fix installation in rail vehicles or for applications in which a limited alternating bending stress occur during service. Guidelines for selection and installation are described in the standards EN 50355 and EN 50343.

General composition of cable:



1. Conductor : stranded tin plated copper, acc. to EN 60228 cl.5
2. Insulation : RADOX EI 201, colour : see Table

Marking:

[a] HUBER+SUHNER RADOX 3 GWK 600V [b] [c]- [d] [e] [f] [g]

		example:
[a]	Meter marking (in m)	= 001234 = m
[b]	Construction (n x mm ²)	1X150
[c]	Part number	12345678
[d]	Batch number	1234567
[e]	Production week and year	03- 2017
[f]	Production place (only if China)	CN
[g]	CRCC certification (only if applicable)	CRCC10218P11529R1M-2

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The product fulfils the test and specification requirements described in this document for the stated areas of application and operating conditions. HUBER+SUHNER AG does not expressly or implicitly guarantee performance under additional or changed conditions. Deviations are to be agreed upon in writing.

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Technical Data:

Voltage rating cond.- earth U ₀	600 V AC
Voltage rating cond.- cond. U	1000 V AC
maximum permissible Voltage rating AC cond.- earth	.....	720	..... V AC
maximum permissible Voltage rating AC cond.- cond.	..... U _m	1200	..... V AC
maximum permissible Voltage rating DC cond.- earth	..... V ₀	900	..... V DC
maximum permissible Voltage rating DC cond.- cond.	.....	1500	..... V DC
Test voltage.	.....	3500	..... V AC
Temperature range	.....	- 50 ... + 120	..... °C

Min. bending radius

fixed	..... D ≤ 12 mm	..... 3 x D
.....	..... D > 12 mm	..... 4 x D
sporadic movement	..... D ≤ 12 mm	..... 4 x D
.....	..... D > 12 mm	..... 5 x D

NB:

The upper temperature limit is determined by long term ageing according to EN 50305 Par. 7 and extrapolation to 20,000 hours.

The lower temperature limit is determined by bending and elongation tests according to EN 60811-504/505, respectively low temperature behaviour tests for according to GOST 20.57.406-81, method 204- 1 and GOST 17491- 80. (fixed installation)

The specified bending radii require a careful and proper handling using proven fastening technologies.

The cables are in conformity with:

Fire protection on railway vehicles, hazard level	HL1 - HL3	EN 45545
Vertical flame spread	50 < L ≤ 540 mm	EN 60332- 1- 2
Vertical flame spread, bunched, D ≤ 6 mm	L ≤ 1.5 m	EN 50305, 9.1.2
Vertical flame spread, bunched, 6 < D < 12 mm	L ≤ 2.5 m	EN 60332- 3- 25
Vertical flame spread, bunched, D ≥ 12 mm	L ≤ 2.5 m	EN 60332- 3- 24
Smoke density	T ≥ 70 %	EN 61034- 2
Corrosivity of combustion gases	pH ≥ 4.3, C ≤ 10 μS/mm	EN 60754- 2
Amount of halogen acid gas	HCl + HBr ≤ 0.5 %	EN 60754- 1
Content of fluorine	HF ≤ 0.1 %	EN 60684- 2, 45.2
Toxicity	ITC ≤ 6	EN 50305, 9.2

Fire protection on railway vehicles	Fulfilled	NFPA 130
Vertical flame spread, bunched	L ≤ 1.5 m	UL 1685, 12 (FT4 exp.)
Smoke density	TSR ≤ 150 m ² , PSRR ≤ 0.40 m ² /s	UL 1685, 12 (FT4 exp.)

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Table 1: Packaging Spool

Cable type mm ²	Conductor nom.		Cable Dia. mm	R ₂₀ ¹⁾ max Ω / km	C _{H2O} ²⁾ nom. pF/m	Fireload nom. kJ / m	Weight nom.		Colour	H+S Part No.
	Construction n x mm	Dia. mm					Copper	Cable		
0.5	19 x 0.18	0.9	2.0 ± 0.1	40.1	325	65	0.42	0.82	grey	12548125
									white	12585331
									blue	12584285
									black	85149493
									greenyellow	12553865
									red	12561562
0.75	24 x 0.20	1.1	2.2 ± 0.1	26.7	385	70	0.70	1.1	grey	12548126
									white	84101701
									blue	12584171
									greenyellow	12553867
									black	12582701
									red	12563587
1	37 x 0.18	1.2	2.45 ± 0.1	20.0	400	85	0.88	1.4	grey	12551402
									white	12582310
									brown	12583113
									blue	12568697
									greenyellow	12553869
									black	12566002
									red	12583112
									yellow	12568448
green	12583114									
1.5	37 x 0.22	1.5	2.7 ± 0.1	13.7	450	100	1.2	1.9	grey	12545286
									white	12583115
									brown	12583116
									blue	12583117
									greenyellow	12553871
									black	12561390
									red	12583118
									yellow	12568449
green	85021685									
2	37 x 0.25	1.7	3.0 ± 0.1	10.5	470	120	1.6	2.4	grey	12559586

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Cable type mm ²	Conductor nom.		Cable Dia. mm	R ₂₀ ¹⁾ max Ω / km	C _{H2O} ²⁾ nom. pF/m	Fireload nom. kJ / m	Weight nom.		Colour	H+S Part No.
	Construction n x mm	Dia. mm					Copper	Cable		
2.5	61 x 0.23	1.9	3.3 ± 0.1	8.21	500	140	2.2	3.1	grey	12545288
									greenyellow	12553873
									blue	12583121
									black	12566004
									red	12583122
									yellow	12568450
4	61 x 0.28	2.4	3.95 ± 0.1	5.09	565	195	3.4	4.6	grey	12545290
									greenyellow	12553875
									black	12566006
6	84 x 0.3	2.9	4.7 ± 0.15	3.39	565	265	5.1	6.8	grey	12548127
									brown	12583125
									blue	12583126
									greenyellow	12553877
									black	12566861
									red	12583123
10	80 x 0.4	3.8	5.85 ± 0.15	1.95	655	390	8.6	11	grey	12545153
									greenyellow	12547689
									black	12547688

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Cable type mm ²	Conductor nom.		Cable Dia. mm	R ₂₀ ¹⁾ max Ω / km	C _{H2O} ²⁾ nom. pF/m	Fireload nom. kJ / m	Weight nom.		Colour	H+S Part No.
	Construction n x mm	Dia. mm					Copper	Cable		
16	121 x 0.4	5.3	7.25 ± 0.15	1.24	850	545	13	16	grey	12545292
									greenyellow	12553879
									black	12566864
25	189 x 0.4	6.6	8.9 ± 0.2	0.795	895	820	20	25	grey	12543216
									greenyellow	12553881
									black	12561393
35	266 x 0.4	7.7	10.2 ± 0.2	0.565	995	1030	29	35	grey	12548128
									greenyellow	12553883
									black	12563646
50	378 x 0.4	9.2	11.9 ± 0.2	0.393	1080	1345	41	49	grey	12545155
									greenyellow	12553885
70	348 x 0.5	11.4	14.3 ± 0.3	0.277	1180	1705	59	69	grey	12543214
									greenyellow	12553887
95	456 x 0.5	12.9	15.9 ± 0.3	0.210	1230	1995	77	89	grey	12548671
									greenyellow	12553889
									black	12566865
120	570 x 0.5	14.5	17.9 ± 0.4	0.164	1455	2455	98	113	grey	12542936
									greenyellow	12553891
150	722 x 0.5	16.0	20.3 ± 0.4	0.132	1410	3400	122	143	grey	12548673
185	874 x 0.5	17.8	22.0 ± 0.4	0.108	1450	3700	150	173	grey	12551404
240	1147 x 0.5	20.8	25.2 ± 0.5	0.0817	1500	4375	196	223	grey	12551406
300	1443 x 0.5	23.0	28.0 ± 0.5	0.0654	1600	5460	244	278	grey	12555741

¹⁾ R₂₀: Conductor resistance according to EN 60228

²⁾ C_{H2O}: Capacity in water

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Table 2: Packaging Coil CK4 (d x h = 400mm x 400mm)

Cable type mm ²	Conductor nom.		Cable Dia. mm	R ₂₀ ¹⁾ max Ω / km	C _{H2O} ²⁾ nom. pF/m	Fireload nom. kJ / m	Weight nom.		Colour	H+S Part No.
	Construction n x mm	Dia. mm					Copper	Cable		
0.5	19 x 0.18	0.9	2.0 ± 0.1	40.1	325	65	0.42	0.82	grey	85113413
									white	85113411
									brown	85112946
									green	85112994
									orange	85112995
									violet	85112998
									yellow	85112983
									black	85112997
									red	85113408
blue	85112999									
1	37 x 0.18	1.2	2.45 ± 0.1	20.0	400	85	0.88	1.4	grey	84110448
1.5	37 x 0.22	1.5	2.7 ± 0.1	13.7	450	100	1.2	1.9	grey	12551429
									brown	85113538
									blue	85113510
									greenyellow	85113520
									black	85113526
2.5	61 x 0.23	1.9	3.3 ± 0.1	8.21	500	140	2.2	3.1	grey	12551428
4	61 x 0.28	2.4	3.95 ± 0.1	5.09	565	190	3.4	4.6	grey	85138812

¹⁾ R₂₀: Conductor resistance according to EN 60228

²⁾ C_{H2O}: Capacity in water