



Traction cable

RADOX 3 GWK 600V

Product description:

RADOX 3 GWK 600V

Single core cables with reduced wall thickness

Nominal voltage:

600 / 1000 V AC

General Properties:

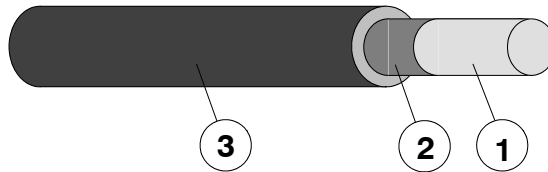
Halogen free, electron-beam cross-linked cables with improved behaviour in case of fire, easy to strip, soldering resistant and flexible.

Application:

The cables are intended for permanent 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. Separator (optional) : Tape
3. Insulation : RADOX EI 201, colour : see Table 1

Marking:

A) Cross section: 0.5 - 4 mm²: (without meter marking, batch number and production date)

HUBER+SUHNER RADOX 3 GWK 600V [b] [c]- [f]

B) Cross section: 6 - 400 mm²: standard marking

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

		example:
[a]	Meter marking (in m)	= 1234 = 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

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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	$D \leq 12 \text{ mm}$	3 x D
	$D > 12 \text{ mm}$	4 x D
sporadic movement	$D \leq 12 \text{ mm}$	4 x D
	$D > 12 \text{ mm}$	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- 1- 4 Par. 8, 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.



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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 50305, 9.1.1 (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
Toxicity	ITC ≤ 6	EN 50305, 9.2
Fire protection on railway vehicles, category	la, lb, II	BS 6853, GM/RT 2130
Vertical flame spread	50 < L ≤ 540 mm	EN 60332- 1- 2
Vertical flame spread, bunched	L ≤ 2.5 m	EN 50266, BS 6853 An. D.8.7
Smoke density	A ₀ ≤ BS 6853	BS 6853 An. D.8.7
Toxicity	R ≤ 1.0	BS 6853 An. B.1
Fire protection on railway vehicles, level of protection	1 - 4	DIN 5510
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 ≥ 60 %	EN 61034- 2
Corrosivity of combustion gases	pH ≥ 4.3, C ≤ 10 μS/mm	EN 50267- 2- 2
Amount of halogen acid gas	HCl + HBr ≤ 0.5 %	EN 50267- 2- 1
Content of fluorine	HF ≤ 0.1 %	EN 60684- 2, 45.2
Toxicity	ITC ≤ 3	EN 50305, 9.2
Fire protection on railway vehicles, category	A1, A2, B	NF F16- 101
Fire protection on railway vehicles, class	C / F0	NF F16- 101
Vertical flame spread	50 < L ≤ 540 mm	NF C32- 070, 2.1
Vertical flame spread, bunched	L ≤ 300 mm	NF C32- 070, 2.2
Smoke index	I.F. ≤ 5	X10- 702- 2, NF X70- 100- 1
Fire protection on railway vehicles, hazard level	LR1 - LR4	UNI CEI 11170
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 50267- 2- 2
Amount of halogen acid gas	HCl + HBr ≤ 0.5 %	EN 50267- 2- 1
Toxicity	ITC ≤ 3	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.)

Applicable documents:

H+S 560392 (e) Current rating for RADOX 3 GWK single core cables



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Table 1:

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	60	0.45	0.83	grey	12 548 125
									white	12 585 331
									blue	12 584 285
									greenyellow	12 553 865
									red	12 561 562
0.75	24 x 0.21	1.1	2.2 ± 0.1	26.7	385	70	0.70	1.1	grey	12 548 126
									white	84 101 701
									brown	85 028 348
									blue	12 584 171
									greenyellow	12 553 867
									black	12 582 701
									red	12 563 587
									yellow	12 581 048
1	37 x 0.18	1.2	2.45 ± 0.1	20.0	400	85	0.88	1.4	grey	12 551 402
									white	12 582 310
									brown	12 583 113
									blue	12 568 697
									greenyellow	12 553 869
									black	12 566 002
									red	12 583 112
									yellow	12 568 448
									green	12 583 114
1.5	30 x 0.25	1.5	2.7 ± 0.1	13.7	450	100	1.4	1.9	grey	12 545 286
									white	12 583 115
									brown	12 583 116
									blue	12 583 117
									greenyellow	12 553 871
									black	12 561 390
									red	12 583 118
									yellow	12 568 449
									green	85 021 685
2	37 x 0.25	1.7	3.0 ± 0.1	10.5	470	120	1.6	2.4	grey	12 559 586



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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	50 x 0.25	1.9	3.3 ± 0.1	8.21	500	140	2.2	3.1	grey	12 545 288
									greenyellow	12 553 873
									brown	12 583 120
									blue	12 583 121
									black	12 566 004
									red	12 583 122
									yellow	12 568 450
									green	12 582 278
4	56 x 0.30	2.5	3.95 ± 0.1	5.09	565	190	3.5	4.6	grey	12 545 290
									greenyellow	12 553 875
									black	12 566 006
									green	12 582 098
									dark blue	85 066 106
6	84 x 0.30	2.9	4.7 ± 0.15	3.39	565	265	5.2	6.8	grey	12 548 127
									brown	12 583 125
									blue	12 583 126
									greenyellow	12 553 877
									black	12 566 861
									red	12 583 123
									yellow	12 568 452
									dark blue	85 066 130
10	80 x 0.40	3.9	5.85 ± 0.15	1.95	655	375	9.1	11	grey	12 545 153
									greenyellow	12 547 689
									black	12 547 688



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	Construction n x mm	Dia. mm					Copper	Cable		
16	119 x 0.40	5.3	7.25 ± 0.15	1.24	850	555	13	17	grey	12 545 292
									greenyellow	12 553 879
									black	12 566 864
25	182 x 0.40	6.6	8.9 ± 0.2	0.795	895	820	21	25	grey	12 543 216
									greenyellow	12 553 881
									black	12 561 393
35	266 x 0.40	7.8	10.2 ± 0.2	0.565	995	1010	30	36	grey	12 548 128
									greenyellow	12 553 883
									black	12 563 646
50	378 x 0.40	9.3	11.9 ± 0.2	0.393	1080	1310	43	50	grey	12 545 155
									greenyellow	12 553 885
									black	12 581 509
70	348 x 0.50	11.4	14.3 ± 0.3	0.277	1180	1725	61	71	grey	12 543 214
									greenyellow	12 553 887
									black	12 581 801
95	444 x 0.50	12.8	15.9 ± 0.3	0.210	1230	2015	78	89	grey	12 548 671
									greenyellow	12 553 889
									black	12 566 865
120	570 x 0.50	14.9	17.9 ± 0.4	0.164	1455	2290	100	112	grey	12 542 936
									greenyellow	12 553 891
									black	12 581 802
150	722 x 0.50	16.8	20.3 ± 0.4	0.132	1410	3005	127	146	grey	12 548 673
									greenyellow	12 553 893
									black	12 582 790
185	874 x 0.50	18.3	22.0 ± 0.4	0.108	1450	3440	150	171	grey	12 551 404
									greenyellow	12 555 739
240	1147 x 0.50	21.1	25.2 ± 0.5	0.0817	1500	4180	200	224	grey	12 551 406
									black	12 581 803
300	1443 x 0.50	23.7	28.0 ± 0.5	0.0654	1600	4945	250	279	grey	12 555 741
400	1952 x 0.50	27.3	31.9 ± 0.5	0.0495	1780	5905	342	375	grey	12 557 104

¹⁾ R₂₀: Conductor resistance according to EN 60228

²⁾ C_{H2O}: Capacity in water