



Traction cable

RADOX 3 GKW 600V

Product description:

RADOX 3 GKW 600V

Nominal voltage:

Single core cables with reduced wall thickness

600 / 1000 V AC

General Properties :

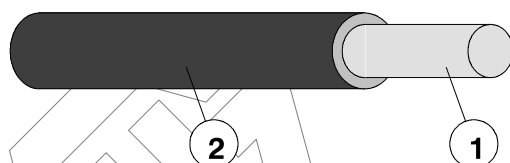
Halogen free, electron-beam cross-linked cables with improved behaviour in case of fire, easy to strip, soldering resistant and flexible.

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. Insulation : RADOX EI 201, colour : see Table 1
- Cable Marking: 0.5...4mm²: HUBER+SUHNER RADOX 3 GKW 600V 1X[cross section] [part-No.] [prod.-place]
6...400mm²: HUBER+SUHNER RADOX 3 GKW 600V 1X[cross section] [part-No.] - [batch-No.] [prod.-place]

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
		8400	V DC
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 60811-1-4 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 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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The cables are in conformity with:

Fire protection on railway vehicles, hazard level	HL1 - HL3	EN 45545
Vertical flame spread	$50 < L \leq 540$ mm	EN 60332-1-2
Vertical flame spread, bunched, $D \leq 6$ mm	$L \leq 1.5$ m	EN 50305, 9.1.2
Vertical flame spread, bunched, $6 < D < 12$ mm	$L \leq 2.5$ m	EN 50305, 9.1.1 (EN 60332-3-25)
Vertical flame spread, bunched, $D \geq 12$ mm	$L \leq 2.5$ m	EN 60332-3-24
Smoke density	$T \geq 70$ %	EN 61034-2
Toxicity	$ITC \leq 6$	EN 50305, 9.2
Fire protection on railway vehicles, category	la, lb, II	BS 6853, GM/RT 2130
Vertical flame spread	$50 < L \leq 540$ mm	EN 60332-1-2
Vertical flame spread, bunched	$L \leq 2.5$ m	EN 50266, BS 6853 An. D.8.7
Smoke density	$A_0 \leq$ BS 6853	BS 6853 An. D.8.7
Toxicity	$R \leq 1.0$	BS 6853 An. B.1
Fire protection on railway vehicles, level of protection	1 - 4	DIN 5510
Vertical flame spread	$50 < L \leq 540$ mm	EN 60332-1-2
Vertical flame spread, bunched, $D \leq 6$ mm	$L \leq 1.5$ m	EN 50305, 9.1.2
Vertical flame spread, bunched, $6 < D < 12$ mm	$L \leq 2.5$ m	EN 60332-3-25
Vertical flame spread, bunched, $D \geq 12$ mm	$L \leq 2.5$ m	EN 60332-3-24
Smoke density	$T \geq 60$ %	EN 61034-2
Corrosivity of combustion gases	$pH \geq 4.3$, $C \leq 10$ μ S/mm	EN 50267-2-2
Amount of halogen acid gas	$HCl + HBr \leq 0.5$ %	EN 50267-2-1
Content of fluorine	$HF \leq 0.1$ %	EN 60684-2, 45.2
Toxicity	$ITC \leq 3$	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	$50 < L \leq 540$ mm	NF C32-070, 2.1
Vertical flame spread, bunched	$L \leq 300$ mm	NF C32-070, 2.2
Smoke index	$IF \leq 5$	X10-702-2, NF X70-100-1
Fire protection on railway vehicles, hazard level	LR1 - LR4	UNI CEI 11170
Vertical flame spread	$50 < L \leq 540$ mm	EN 60332-1-2
Vertical flame spread, bunched, $D \leq 6$ mm	$L \leq 1.5$ m	EN 50305, 9.1.2
Vertical flame spread, bunched, $6 < D < 12$ mm	$L \leq 2.5$ m	EN 60332-3-25
Vertical flame spread, bunched, $D \geq 12$ mm	$L \leq 2.5$ m	EN 60332-3-24
Smoke density	$T \geq 70$ %	EN 61034-2
Corrosivity of combustion gases	$pH \geq 4.3$, $C \leq 10$ μ S/mm	EN 50267-2-2
Amount of halogen acid gas	$HCl + HBr \leq 0.5$ %	EN 50267-2-1
Toxicity	$ITC \leq 3$	EN 50305, 9.2
Fire protection on railway vehicles	Fulfilled	NFPA 130
Vertical flame spread, bunched	$L \leq 1.5$ m	UL 1685, 12 (FT4 exp.)
Smoke density	$TSR \leq 150$ m ² , $PSRR \leq 0.40$ m ² /s.....	UL 1685, 12 (FT4 exp.)

Applicable documents:

H+S 560392 (e)	Current rating for RADOX 3 GKW single core cables
H+S 0000355663	Technical specification
EN 50355	Guide to use



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Table 1 :

Cable type mm ²	Conductor Construction n x mm	nom. Dia. mm	Cable Dia. mm	R ₂₀ max Ω / km	C _{H2O} nom. pF/m	Fireload nom. kJ / m	Weight Copper kg / 100m	nom. Cable	Colour	H+S Part No.
0.5	19 x 0.18	0.88	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	1.10	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	1.22	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
1.5	30 x 0.25	1.49	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
2	37 x 0.25	1.70	3.0 ± 0.1	10.5	470	120	1.6	2.4	green	85 021 685
									grey	12 559 586



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Cable type mm ²	Conductor Construction n x mm	nom. Dia. mm	Cable Dia. mm	R ₂₀ max Ω / km	C _{H2O} nom. pF/m	Fireload nom. kJ / m	Weight Copper kg / 100m	nom. Cable kg / 100m	Colour	H+S Part No.
2.5	50 x 0.25	1.94	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
									greenyellow	12 553 873
									black	12 566 004
									red	12 583 122
									yellow	12 568 450
4	56 x 0.30	2.45	3.95 ± 0.1	5.09	565	190	3.5	4.6	green	12 582 278
									grey	12 545 290
									greenyellow	12 553 875
6	84 x 0.30	2.93	4.7 ± 0.15	3.39	565	265	5.2	6.8	black	12 566 006
									grey	12 548 127
									greenyellow	12 553 877
10	80 x 0.40	3.89	5.85 ± 0.15	1.95	655	375	9.1	11	black	12 566 861
									grey	12 545 153
									greenyellow	12 547 689
									black	12 547 688



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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
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
185	874 x 0.50	18.3	22.0 ± 0.4	0.108	1450	3440	150	171	grey	12 551 404
240	1147 x 0.50	21.1	25.2 ± 0.5	0.0817	1500	4180	200	224	grey	12 551 406
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

R₂₀: Conductor resistance according to EN 60228

C_{H2O}: Capacity in water