Traction cable
RADOX 3 GKW 600V

Product description:

RADOX 3 GKW 600V	Single core cables with reduced wall thickness
Nominal voltage:	600 / 1000 V AC

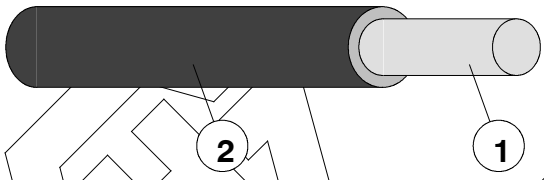
General Properties :

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
2.	Insulation :		RADOX EI 201, colour : see Table 1
	Cable Marking:	0.5...4mm^2:	HUBER+SUHNER RADOX 3 GKW 600V 1X[cross section] [part-No.] [prod.-place]
		6...400mm^2:	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 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	**Ia, Ib, 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 GKW single core cables
H+S 0000355663	Technical specification
EN 50355	Guide to use

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Table 1 :

Cable type mm²	Conductor nom. Construction n x mm	Conductor nom. Dia. mm	Cable Dia. mm	R_{20} max Ω / km	C_{H2O} nom. pF/m	Fireload nom. kJ / m	Weight nom. Copper kg / 100m	Weight nom. Cable kg / 100m	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
									greenyellow	12 553 865
0.75	24 x 0.21	1.10	2.2 ± 0.1	26.7	385	70	0.70	1.1	grey	12 548 126
									greenyellow	12 553 867
									black	12 582 701
1	37 x 0.18	1.22	2.45 ± 0.1	20.0	400	85	0.88	1.4	grey	12 551 402
									greenyellow	12 553 869
									black	12 566 002
1.5	30 x 0.25	1.49	2.7 ± 0.1	13.7	450	95	1.4	1.9	grey	12 545 286
									greenyellow	12 553 871
									black	12 561 390
2	37 x 0.25	1.70	3.0 ± 0.1	10.5	470	115	1.6	2.4	grey	12 559 586
2.5	50 x 0.25	1.94	3.3 ± 0.1	8.21	500	135	2.2	3.1	grey	12 545 288
									greenyellow	12 553 873
									black	12 566 004
4	56 x 0.30	2.45	3.95 ± 0.1	5.09	565	180	3.5	4.6	grey	12 545 290
									greenyellow	12 553 875
									black	12 566 006
6	84 x 0.30	2.93	4.7 ± 0.15	3.39	565	255	5.2	6.8	grey	12 548 127
									greenyellow	12 553 877
									black	12 566 861
10	80 x 0.40	3.89	5.85 ± 0.15	1.95	655	365	9.1	11	grey	12 545 153
									greenyellow	12 547 689
									black	12 547 688

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Cable type mm²	Conductor nom. Construction n x mm	Conductor nom. Dia. mm	Cable Dia. mm	R_{20} max Ω / km	C_{H2O} nom. pF/m	Fireload nom. kJ / m	Weight nom. Copper kg / 100m	Weight nom. Cable kg / 100m	Colour	H+S Part No.
16	119 x 0.40	5.3	7.25 ± 0.15	1.24	850	465	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	675	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	820	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	1045	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	1415	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	1690	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	1870	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	2830	150	171	grey	12 551 404
240	1147 x 0.50	21.1	25.2 ± 0.5	0.0817	1500	3600	200	224	grey	12 551 406
300	1443 x 0.50	23.7	28.0 ± 0.5	0.0654	1600	4220	250	279	grey	12 555 741
400	1952 x 0.50	27.3	31.9 ± 0.5	0.0495	1780	5170	342	375	grey	12 557 104

R_{20}: Conductor resistance according to EN 60228
C_{H2O}: Capacity in water