



# Traction cable

## RADOX EN 50264-3-1 600V M

### Product description:

**RADOX EN 50264-3-1 600V M** Single core cables with reduced wall insulation dimensions  
 Nominal voltage: 600 / 1000 V AC  
 Hazard level: M (extra low temperature, extra oil and extra fuel resistant)

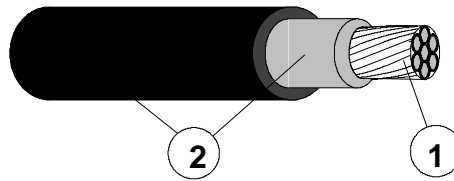
### General features:

Halogen free electrom-beam cross-linked cores with improved behaviour in case of fire, easy to strip, soldering iron resistant and flexible. Meet the requirements of EN 50264-3-1 standard.

### 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. The cores are used as sub-components in cables according to EN 50264-3-2.

### General composition of cable:



- |                 |  |
|-----------------|--|
| 1. Conductor :  | stranded tin plated copper, acc. to EN 60228 cl. 5 |
| 2. Insulation : |  |
| inner layer     | RADOX EI 110, colour: white                        |
| outer layer     | RADOX EI 109, colour: black or greenyellow         |

### Marking:

[a] HUBER+SUHNER RADOX EN 50264-3-1 600V [b] M [c]-[d] [e] [f]

		example:
[a]	Meter marking (in m)	= 123456 = m
[b]	Cross section (in mm <sup>2</sup> )	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 installation	cable diameter $\leq$ 12 mm	3 x D
	cable diameter $>$ 12 mm	4 x D
sporadic movement	cable diameter $\leq$ 12 mm	4 x D
	cable diameter $>$ 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.

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

### The cables are in conformity with:

<b>Fire protection on railway vehicles, hazard level</b>	<b>HL1 - HL3</b>	<b>EN 45545</b>
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
<b>Fire protection on railway vehicles, level of protection</b>	<b>1 - 4</b>	<b>DIN 5510</b>
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 50266-2-5 (EN 50305, 9.1.1)
Vertical flame spread, bunched, D $\geq$ 12 mm	L $\leq$ 2.5 m	EN 50266-2-4
Smoke density	T $\geq$ 60 %	EN 61034-2
Corrosivity of combustion gases	pH $\geq$ 4.3, C $\leq$ 10 mS/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, insulation	ITC $\leq$ 3	EN 50305, 9.2
<b>Fire protection on railway vehicles, category</b>	<b>A1</b>	<b>NF F16-101</b>
Fire protection on railway vehicles, class	C / F1	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	I.F. $\leq$ 5	X10-702-2, NF X70-100-1
<b>Fire protection on railway vehicles</b>	<b>Fulfilled</b>	<b>NFPA 130</b>
Vertical flame spread, bunched	L $\leq$ 1.5 m	UL 1685, 12 (FT4 exp.)
Smoke density	TSR $\leq$ 150 m <sup>2</sup> , PSRR $\leq$ 0.40 m <sup>2</sup> /s	UL 1685, 12 (FT4 exp.)
<b>Requirement of hazard level code M</b>	(according to EN 50264-1 or EN 50306-1)	
Extra low temperature	- 40°C	
Extra oil resistance	IRM 902, 72h, 100°C	
Extra fuel resistance	IRM 903, 168h, 70°C	

### Applicable documents:

- 586 554 Current rating for single core cables



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Core size mm <sup>2</sup>	Conductor <sup>nom.</sup> Construction		Core dia. mm	R <sub>20</sub> <sup>1)</sup> max. Ω / km	Fireload nom. kJ / m	Combustible material nom. Kg/100m	Weight <sup>nom.</sup> Cable kg / 100m	Colour	H+S Part No.
	n x mm	Dia. mm							
1 x 1	32 x 0.19	1.26	2.5±0.1	20.0	88	0.6	1.5	BK GNYE	85 096 345 85 096 351
1 x 1.5	27 x 0.25	1.49	3.0±0.2	13.7	126	0.8	2.2	BK GNYE	85 096 346 85 096 352
1 x 2.5	45 x 0.25	1.92	3.4±0.2	8.21	153	1.0	3.1	BK GNYE	85 096 347 85 096 353
1 x 4	52 x 0.29	2.44	4.0±0.2	5.09	188	1.3	4.7	BK GNYE	85 096 348 85 096 354
1 x 6	78 x 0.30	2.98	4.6±0.2	3.39	256	1.6	6.7	BK GNYE	85 096 349 85 096 355
1 x 10	74 x 0.4	4.0	5.5±0.2	1.95	318	2.0	11	BK GNYE	85 096 350 85 096 356
1 x 16	119 x 0.4	5.3	6.75±0.15	1.24	425	2.6	16	BK GNYE	85 097 024 85 097 025
1 x 25	182 x 0.4	6.6	8.45±0.15	0.795	676	4.1	25	BK GNYE	85 097 026 85 097 027
1 x 35	266 x 0.4	7.8	9.7±0.2	0.565	834	5.1	35	BK GNYE	85 097 028 85 097 029
1 x 50	378 x 0.4	9.3	11.4±0.2	0.393	1107	6.7	50	BK GNYE	85 097 030 85 097 031
1 x 70	348 x 0.5	11.4	13.80±0.25	0.277	1485	8.9	68	BK GNYE	85 097 032 85 097 033
1 x 95	456 x 0.5	12.9	15.30±0.25	0.210	1676	10	87	BK GNYE	85 097 034 85 097 036
1 x 120	570 x 0.5	14.5	17.2±0.3	0.164	2028	12	110	BK GNYE	85 097 037 85 097 038
1 x 150	722 x 0.5	16.0	19.2±0.3	0.132	2633	16	138	BK GNYE	85 097 039 85 097 040
1 x 185	874 x 0.5	17.8	21.4±0.3	0.108	3330	20	170	BK GNYE	85 097 048 85 097 049
1 x 240	1147 x 0.5	20.8	24.6±0.3	0.0817	3968	23	219	BK GNYE	85 097 050 85 097 051
1 x 300	1443 x 0.5	23.0	27.2±0.4	0.0654	4686	27	272	BK GNYE	85 097 052 85 097 053
1 x 400	1952 x 0.5	26.5	31.0±0.4	0.0495	5800	34	364	BK GNYE	85 097 718 85 097 719

<sup>1)</sup> R<sub>20</sub>: Conductor resistance according to EN 60228