



# Traction cable

## RADOX EN 50264-3-1 1800V MM

### Product description:

**RADOX EN 50264-3-1 1800V MM** Single core cables with reduced insulation wall dimensions, sheathed  
 Nominal voltage: 1800 / 3000 V AC  
 Hazard level: MM (extra low temperature, extra oil and extra fuel resistant)

### General features:

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

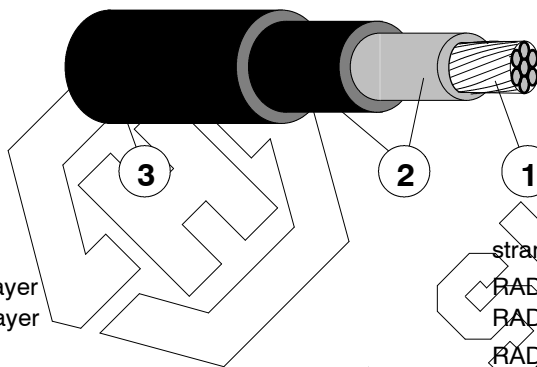
### Application:

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.

For unscreened cables the guidelines of EN 50153 shall be followed.

### 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
3. Sheath : RADOX EM 104, colour: black

Marking: HUBER+SUHNER RADOX EN 50264-3-1 1800V 1X[ $\times$ cross section] MM [part. No. + batch. No.] [date of manufacture]

### Technical Data :

Voltage rating cond.-earth	$U_0$	1800	V AC
Voltage rating cond.-cond.	$U$	3000	V AC
maximum permissible Voltage rating AC cond.-earth		2100	V AC
maximum permissible Voltage rating AC cond.-cond.	$U_m$	3600	V AC
maximum permissible Voltage rating DC cond.-earth	$V_0$	2700	V DC
maximum permissible Voltage rating DC cond.-cond.		4500	V DC
Test voltage 50 Hz, 15 min.		6.5	kV AC
Temperature range		- 40 ... + 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.

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:

<b>Fire protection on railway vehicles, hazard level</b> .....	<b>HL1 - HL3</b> .....	<b>CEN/TS 45545</b>
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 50266-2-5 (EN 50305, 9.1.1)
Vertical flame spread, bunched, D ≥ 12 mm .....	L ≤ 2.5 m .....	EN 50266-2-4
Smoke density .....	T ≥ 70 % .....	EN 61034-2
Toxicity .....	CIT <sub>c</sub> ≤ 0.75 .....	CEN/TS 45545-2, An. C.16.4

<b>Fire protection on railway vehicles, level of protection</b> .....	<b>1 - 4</b> .....	<b>DIN 5510</b>
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 50266-2-5 (EN 50305, 9.1.1)
Vertical flame spread, bunched, D ≥ 12 mm .....	L ≤ 2.5 m .....	EN 50266-2-4
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

<b>Fire protection on railway vehicles, category</b> .....	<b>A1, A2, B</b> .....	<b>NF F16-101</b>
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

### Requirement of hazard level code M

Extra low temperature .....	- 40°C
Extra oil resistance .....	IRM 902, 72h, 100°C
Extra fuel resistance .....	IRM 903, 168h, 70°C

### Applicable documents:

- EN 50355 Guide to use
- 586 554 Current rating for single core cables



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Core size mm <sup>2</sup>	Conductor nom.		Core dia. nom. mm	Cable dia. mm	R <sub>20</sub> max. Ω/km	C <sub>H2O</sub> nom. pF/m	Fireload nom. kJ/m	Weight nom.		H+S Part No.
	Construction n x mm	Dia. mm						Copper kg / 100m	Cable	
1.5	37x0.23	1.52	4.20	5.90±0.15	13.7	177	265	1.34	5.37	12 585 360
2.5	61x0.23	1.94	4.70	6.40±0.15	8.21	204	320	2.22	6.82	12 585 361
4	61x0.29	2.40	5.20	6.90±0.15	5.09	238	365	3.45	8.6	12 585 362
6	84x0.30	2.93	5.70	7.40±0.15	3.39	267	420	5.20	10.9	12 585 363
10	80x0.40	3.89	7.10	8.80±0.20	1.95	302	620	9.04	16.7	12 585 364
16	119x0.40	5.30	8.60	10.4±0.2	1.24	371	840	13.5	23.5	12 585 365
25	182x0.40	6.60	10.5	12.7±0.25	0.795	383	1240	20.6	35.4	12 585 366
35	266x0.40	7.80	11.7	13.9±0.25	0.565	435	1410	30.0	47	12 585 367
50	378x0.40	9.30	13.2	15.4±0.25	0.393	501	1590	42.9	61.5	12 585 368
70	348x0.50	11.4	15.4	17.7±0.3	0.277	590	2100	61.0	84.5	12 585 369
95	444x0.50	12.9	17.7	20.0±0.3	0.210	575	2640	77.8	107	12 585 370
120	570x0.50	14.9	19.8	22.5±0.3	0.164	615	3370	100	137	12 585 371
150	722x0.50	16.8	21.7	24.4±0.3	0.132	680	3790	127	167	12 585 372
185	874x0.50	18.3	23.6	26.4±0.4	0.108	691	4170	153	199	12 585 373
240	1147x0.50	21.1	26.5	29.4±0.4	0.0817	764	4770	201	253	12 585 374
300	1443x0.50	23.7	29.1	32.0±0.4	0.0654	845	5290	253	311	12 585 375

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

C<sub>H2O</sub>: Capacity in water

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