



# Traction cable

## RADOX EN 50264-3-2 600V MM

### Product description:

**RADOX EN 50264-3-2 600V MM** Multicore cables with reduced insulation wall dimensions  
 Nominal voltage: 600 / 1000 V AC  
 Hazard level: MM (extra low temperature, extra oil and extra fuel resistant)

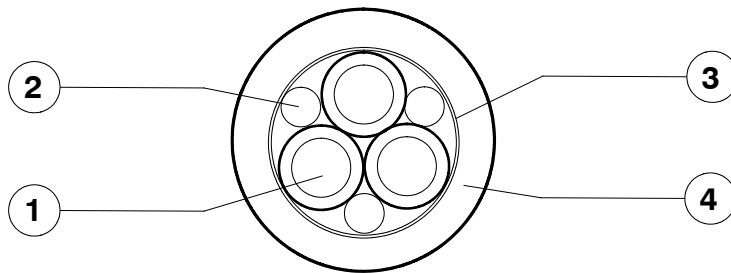
### General features:

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 50264-3-2

### 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. | EN 50264-3-1 600V cores: | Conductor:                  | stranded tin plated copper, acc. to EN 60228 cl. 5 |
|    |                          | Insulation:                 | RADOX EI 110 / EI 109                              |
|    |                          | Colours:                    | black, numbered<br>green yellow, optional          |
| 2. | Filler (optional)::      | RADOX 125 REC               |  |
| 3. | Separator:               | Tape                        |  |
| 4. | Sheath:                  | RADOX EM 104, colour: black |  |

### Marking:

[a] HUBER+SUHNER RADOX EN 50264-3-2 600V [b] MM [c]-[d] [e] [f]

		example:
[a]	Meter marking (in m)	= 1234 = m
[b]	Cross section (in mm <sup>2</sup> )	2X150
[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 <sub>0</sub>	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 <sub>m</sub>	1200	V AC
maximum permissible Voltage rating DC cond.- earth	V <sub>0</sub>	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 ≤ 12 mm	3 x D	
	cable diameter > 12 mm	4 x D	
sporadic movement	cable diameter ≤ 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 60811-504/505 respectively low temperature behaviour tests 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.

### 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)
Smoke density	T ≥ 70 %	EN 61034-2
Toxicity	ITC ≤ 6	EN 50305, 9.2

#### 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 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

\* Insulation, filler, wrapping and sheath

#### Fire protection on railway vehicles, category ..... A1, A2, B ..... NF F16-101

Fire protection on railway vehicles, class	C / F1	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

(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:

- 585 389 Datasheet of cores
- 586 556 Current rating for multi core cables



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Construction 1) n x mm <sup>2</sup>	Conductor		Core dia. nom. mm	Cable dia. mm	R <sub>20</sub> <sup>2)</sup> max. Ω/km	C' <sup>3)</sup> nom. pF/m	Fireload nom. kJ/m	Weight nom.		H+S Item No.
	Dia.	mm						Copper	Cable	
							kg/100m			
2X1.5	1.52		3.00	7.6±0.3	13.7	100	810	2.8	8.7	12 586 174
3X1.5 3G1.5	1.52		3.00	8.1±0.3	13.7	100	880	4.2	11	12 585 380 12 586 176
4X1.5 4G1.5	1.52		3.00	9.0±0.3	13.7	100	1070	5.7	14	12 586 177 12 586 178
2X2.5	1.94		3.35	8.3±0.3	8.21	115	930	4.4	11	12 586 179
3X2.5 3G2.5	1.94		3.35	8.9±0.3	8.21	115	1010	6.7	15	12 586 180 85 063 958
4X2.5 4G2.5	1.94		3.35	10.1±0.3	8.21	115	1290	8.9	18	12 586 181 12 586 182
2X4	2.40		4.25	10.4±0.4	5.09	110	1575	7.0	18	12 586 183
3X4	2.40		4.25	11.1±0.4	5.09	110	1695	10	22	12 586 184
4X4 4G4	2.40		4.25	12.6±0.4	5.09	110	2065	14	29	12 586 186 12 586 187
3X6	2.93		4.85	12.5±0.4	3.39	120	2040	16	30	12 586 189
4X6 4G6	2.93		4.85	14.3±0.4	3.39	120	2730	21	40	12 586 190 12 586 191
2X10	3.89		5.75	13.8±0.4	1.95	140	2510	18	36	12 586 192
3X10 3G10	4.0		5.5	13.9±0.4	1.95	140	2475	27	44	85 106 040 85 106 041
4X10 4G10	3.89		5.75	16.8±0.5	1.95	140	3405	36	61	12 586 195 12 586 196
2X16	5.30		6.75	15.7±0.5	1.24	160	3330	27	50	85 106 028
4X16	5.30		6.75	19.1±0.5	1.24	160	4370	54	84	85 105 965
4X25	6.60		8.60	24.4±0.5	0.795	165	6840	84	128	12 586 203
2X50	9.30		11.6	26.7±0.6	0.393	175	8690	86	146	12 586 207
3X50	9.30		11.6	28.8±0.6	0.393	175	9190	129	195	12 585 381
3X50 +1G25	9.30 6.60		11.6 8.60	31.9±0.6	0.393 0.795	175	13480	150	237	12 586 209



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### Customized Types

Meet the requirements of the EN 50264-3-2 standard, the mechanical data are not listed in the related tables 4, 6, 8.

Construction <sup>1)</sup> n x mm <sup>2</sup>	Conductor dia. nom. mm	Core dia. nom. mm	Cable dia. mm	R <sub>20</sub> <sup>2)</sup> max. Ω/km	C' <sup>3)</sup> nom. pF/m	Fireload nom. kJ/m	Weight nom.		H+S Item No.
							Copper	Cable kg/100m	
12X0.75	1.1	2.35	11.8±0.4	26.7	80	1830	8.6	22	85 070 991
2X1	1.22	2.50	6.6±0.3	20	96	625	1.8	6.4	84 090 647
4X1	1.22	2.50	7.9±0.3	20	96	830	3.6	9.9	84 090 705
9G1	1.22	2.50	12.1±0.4	20	96	2095	8.1	23	84 090 707
5X1.5 5G1.5	1.52	3.00	9.9±0.3	13.7	100	1295	7.2	17	85 003 500 85 003 501
7G1.5	1.52	3.00	10.9±0.4	13.7	100	1540	9.5	22	84 122 375
9G1.5	1.52	3.00	14.6±0.4	13.7	100	3020	12	34	84 122 376
12G1.5	1.52	3.00	15.0±0.4	13.7	100	2655	17	37	12 586 240
6X2.5	1.94	3.35	12.4±0.4	8.21	115	2150	13	29	85 108 607
5G10	3.89	5.75	18.7±0.5	1.95	140	4255	46	75	12 586 208

- 1) X: one colour, numbered  
G: one green- yellow core, others one colour, numbered  
V: various colours  
2) R<sub>20</sub>: Conductor resistance according to EN 60228  
3) C': Capacity per unit length, core/core