



Traction cable

RADOX EN 50306-4 1E 300V MM

Product description:

RADOX EN 50306-4 1E 300V MM	Multicore cables, unshielded
Nominal voltage:	300 / 500 V AC
Type of installation:	Mechanically exposed
Hazard level:	M (extra low temperature resistant, extra oil and fuel resistant)

General properties:

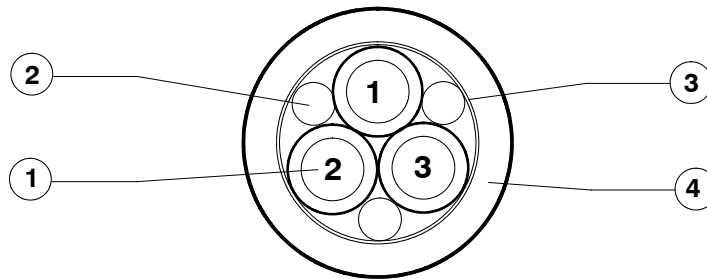
Halogen-free, electron-beam cross-linked cables with improved behaviour in case of fire, easy to strip, soldering resistant and flexible. Meets the requirements of the EN 50306-4 standard.

Application:

The cores are intended for fixed installation inside railway vehicles or for installation in applications where limited alternating bending stresses occur during operation.

Guidelines for selection and installation are described in the standards EN 50355 and EN 50343.

General composition of cable:



1.	EN 50306-2 300V cores	Conductor: tin plated copper wire, acc. to EN 50306-2 Insulation: RADOX EI 306 colour: white, black numbered green-yellow, optional
2.	Filler (optional)	RADOX 125 REC
3.	Wrapping	tape
4.	Sheath	RADOX EM 104, colour: black, yellow marked

Marking:

[a] HUBER+SUHNER RADOX EN 50306-4 1E 300V [b] MM 90 [c]-[d] [e] [f]

	example:
[a]	Meter marking (in m) = 1234 = m
[b]	Construction 3X1.5
[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	300	V AC
Voltage rating cond.- cond.	U	500	V AC
maximum permissible Voltage rating AC cond.- earth		360	V AC
maximum permissible Voltage rating AC cond.- cond.	U _m	600	V AC
maximum permissible Voltage rating DC cond.- earth	V ₀	450	V DC
maximum permissible Voltage rating DC cond.- cond.		750	V DC
Test voltage		2000	V AC

Temperature range - 40 ... + 120 °C

Min. bending radius

fixed installation	cable dia. ≤ 12 mm	3 x D
	cable dia. > 12 mm	4 x D
sporadic movement	cable dia. ≤ 12 mm	4 x D
	cable dia. > 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.

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)
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, hazard level	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, insulation	ITC ≤ 6	EN 50305, 9.2
Toxicity, filler and wrapping	ITC ≤ 3	EN 50305, 9.2
Toxicity, sheath	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 / 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

(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:

- 585 536 Datasheet of cores
- 586 555 Current rating for single core cables



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Construction ¹⁾ n x mm ²	Conductor ^{nom.} Construction Dia n x mm mm		Core ²⁾ Dia. nom. mm	Cable dia. mm	R ₂₀ ³⁾ max. Ω/km	Fireload nom. kJ/m	Weight ^{nom.} Copper Cable kg / 100m		H + S Part No.
4x0.5	19 x 0.18	0.9	1.42	5.85±0.3	40.1	505	1.8	5.5	12586075
7x0.5	19 x 0.18	0.9	1.42	6.8±0.3	40.1	720	3.2	8.0	12586076
13x0.5	19 x 0.18	0.9	1.42	8.9±0.3	40.1	1170	5.9	13.5	12586077
19x0.5	19 x 0.18	0.9	1.42	9.7±0.3	40.1	1410	8.7	17.4	12586078
37x0.5	19 x 0.18	0.9	1.42	12.8±0.4	40.1	2420	16.9	31.2	12586079
4x0.75	19 x 0.23	1.1	1.62	6.5±0.3	26.7	640	2.8	7.3	12586080
7x0.75	19 x 0.23	1.1	1.62	7.4±0.3	26.7	840	4.9	10.5	12586081
13x0.75	19 x 0.23	1.1	1.62	9.8±0.3	26.7	1390	9.1	18.0	12586082
19x0.75	19 x 0.23	1.1	1.62	10.7±0.4	26.7	1680	13.3	23.6	12586083
37x0.75	19 x 0.23	1.1	1.62	14.0±0.4	26.7	2810	26.0	42.2	12586084
48x0.75	19 x 0.23	1.1	1.62	15.9±0.5	26.7	3500	33.7	53.5	12586085
4x1	19 x 0.26	1.2	1.77	6.9±0.3	20.0	695	3.6	8.5	12586086
7x1	19 x 0.26	1.2	1.77	7.9±0.3	20.0	915	6.3	12.4	12586087
7G1	19 x 0.26	1.2	1.77	7.9±0.3	20.0	915	6.3	12.4	85007953
13x1	19 x 0.26	1.2	1.77	10.5±0.4	20.0	1510	11.7	21.3	12586088
19x1	19 x 0.26	1.2	1.77	11.5±0.4	20.0	1830	17.0	28.3	12586089
37x1	19 x 0.26	1.2	1.77	15.1±0.5	20.0	3040	33.2	50.8	12586090
4x1.5	19 x 0.31	1.5	2.17	7.9±0.3	13.7	875	5.2	11.5	12586091
7x1.5	19 x 0.31	1.5	2.17	9.0±0.3	13.7	1170	9.1	16.8	12586092
7G1.5	19 x 0.31	1.5	2.17	9.0±0.3	13.7	1170	9.1	16.8	12586099
13x1.5	19 x 0.31	1.5	2.17	12.3±0.4	13.7	2080	17.0	30.1	12586093
19x1.5	19 x 0.31	1.5	2.17	13.5±0.4	13.7	2500	24.9	39.9	12586094
37x1.5	19 x 0.31	1.5	2.17	18.2±0.5	13.7	4380	48.6	73.9	12586095
2x2.5	19 x 0.40	1.9	2.75	8.0±0.3	8.21	935	4.3	11.1	12586096
3x2.5	19 x 0.40	1.9	2.75	8.5±0.3	8.21	1030	6.5	13.7	12586097
4x2.5	19 x 0.40	1.9	2.75	9.5±0.3	8.21	1280	8.7	17.5	12586098



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Customized types:

Meet the requirements of the EN 50306-4, the mechanical data are not listed in the table of the related standard.

Construction ¹⁾ n x mm ²	Conductor Construction n x mm	nom. Dia mm	Core ²⁾ Dia.-nom. mm	Cable dia. mm	R ₂₀ ³⁾ max. Ω/km	Fireload nom. kJ/m	Weight ^{nom.} Copper Cable kg / 100m		H + S Part No.
2x0.75	19 x 0.23	1.1	1.63	5.7±0.3	26.7	500	1.4	5.1	84143033
3x0.75	19 x 0.23	1.1	1.62	5.95±0.3	26.7	515	2.1	6.0	85006859
2x1	19 x 0.26	1.2	1.77	6.0±0.3	20.0	520	1.8	5.8	84105080
3x1	19 x 0.26	1.2	1.77	6.25±0.3	20.0	580	2.7	6.8	85006861
2x1.5	19 x 0.31	1.5	2.17	6.9±0.3	13.7	695	2.6	7.9	85007955
3x1.5	19 x 0.31	1.5	2.17	7.1±0.3	13.7	740	3.9	9.1	85006863
7x2.5	19 x 0.40	1.9	2.75	10.9±0.4	8.21	1660	15.3	25.9	85007965
13x2.5	19 x 0.40	1.9	2.75	15.1±0.4	8.21	2990	28.4	46.8	85007966

- 1) X: one colour, numbered
G: one green- yellow core, others one colour, numbered
2) Cores: Tolerances of core diameter see H+S Datasheet 585536
3) R₂₀: Conductor resistance according to EN 50306-2