



Traction cable

RADOX EN 50306-4 3E 300V MM S

Product description:

RADOX EN 50306-4 3E 300V MM S	Multicore cables, screened (overall screen)
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:

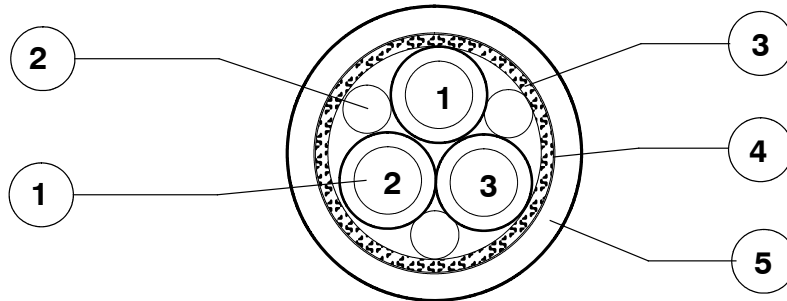
Halogen-free, electron-beam cross-linked cables with improved behaviour in case of fire, easy to strip, soldering resistant and flexible. Meets the requirements of the EN 50306-4 standard.

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.	EMC-screen	Tin plated copper braid
4.	Wrapping	Plastic tape
5.	Sheath	RADOX EM 104, colour: black, yellow marked

Marking:

[a] HUBER+SUHNER RADOX EN 50306-4 3E 300V [b] MM S 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

Copyright 2018 HUBER+SUHNER AG. This document may not be amended and its content is confidential. It may not be passed on to third party which are not bound by confidentiality.

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.

HUBER+SUHNER AC
Low Frequency Division

CH- 8330 Pfäffikon

+41 (0)44 952 22 11

+41 (0)44 952 26 40

FAX

www.hubersuhner.com



Traction cable

RADOX EN 50306-4 3E 300V MM S

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		- 50 ... + 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, respectively log temperature behaviour test 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)
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



Traction cable

RADOX EN 50306-4 3E 300V MM S

Construction n x mm ²	Conductor Dia. nom mm	Core ¹⁾ Dia. nom. mm	Screen Dia. mm	Cable dia. mm	R ₂₀ ²⁾ max. Ω/km	Z _T max. mΩ/m	Fireload nom. kJ/m	Weight nom.		H + S Part No.
								Copper	Cable kg / 100m	
2x0.5	0.9	1.42	3.3	5.9±0.3	40.1	200	490	1.6	5.4	12586101
3x0.5	0.9	1.42	3.5	6.1±0.3	40.1	180	520	2.1	6.0	12586102
4x0.5	0.9	1.42	3.9	6.6±0.3	40.1	150	600	2.7	7.2	12586103
6x0.5	0.9	1.42	5.0	7.5±0.3	40.1	100	800	4.3	9.9	12586104
8x0.5	0.9	1.42	5.6	8.2±0.3	40.1	90	930	5.4	11.9	12586105
2x0.75	1.1	1.62	3.7	6.3±0.3	26.7	160	555	2.1	6.4	12586106
3x0.75	1.1	1.62	4.0	6.6±0.3	26.7	150	620	3.0	7.5	12586107
4x0.75	1.1	1.62	4.6	7.1±0.3	26.7	120	700	4.2	9.2	12586108
6x0.75	1.1	1.62	5.7	8.2±0.3	26.7	90	960	6.0	12.5	12586109
8x0.75	1.1	1.62	6.7	8.9±0.3	26.7	80	1080	7.6	15.0	12586110
2x1	1.2	1.77	4.0	6.6±0.3	20.0	150	595	2.6	7.2	12586111
3x1	1.2	1.77	4.4	6.9±0.3	20.0	130	660	3.7	8.5	12586112
4x1	1.2	1.77	4.8	7.25±0.3	20.0	90	680	4.7	9.7	12586113
6x1	1.2	1.77	6.0	8.5±0.3	20.0	80	990	7.4	14.1	12586114
8x1	1.2	1.77	7.0	9.0±0.3	20.0	70	1050	9.2	16.2	12586115
2x1.5	1.5	2.17	4.8	7.5±0.3	13.7	110	780	3.6	9.6	12586116
3x1.5	1.5	2.17	5.3	7.8±0.3	13.7	100	840	5.0	11.0	12586117
4x1.5	1.5	2.17	5.8	8.3±0.3	13.7	80	890	6.9	13.4	12586118
6x1.5	1.5	2.17	7.2	9.7±0.3	13.7	60	1305	10.2	18.8	12586119
8x1.5	1.5	2.17	8.7	11.1±0.3	13.7	50	1730	14.2	25.2	12586120
2x2.5	1.9	2.75	6.1	8.7±0.3	8.21	80	1040	6.0	13.6	12586121
3x2.5	1.9	2.75	6.6	9.1±0.3	8.21	70	1100	8.6	16.3	12586122
4x2.5	1.9	2.75	7.5	10.0±0.4	8.21	60	1330	11.0	20.1	12586123



Traction cable

RADOX EN 50306-4 3E 300V MM S

Multipair cables, screened (overall screen)

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

Construction n x mm ²	Conductor Dia. nom mm	Core ¹⁾ Dia. nom. mm	Screen Dia. mm	Cable dia. mm	R ₂₀ ²⁾ max. Ω/km	Z _T max. mΩ/m	Fireload nom. kJ/m	Weight nom.		H + S Part No.
								Copper kg / 100m	Cable kg / 100m	
2 x 2 x 0.5	0.9	1.42	6.2	8.65±0.3	40.1	80	1005	3.8	11	85084449
3 x 2 x 0.5	0.9	1.42	6.3	8.75±0.3	40.1	80	945	4.6	12	85084450
4 x 2 x 0.5	0.9	1.42	6.9	9.35±0.3	40.1	70	1005	6.1	13	85084451
6 x 2 x 0.5	0.9	1.42	8.7	11.3±0.4	40.1	50	1600	8.4	20	85109559
2 x 2 x 0.75	1.1	1.62	7.2	9.65±0.3	26.7	70	1200	5.5	14	85084452
3 x 2 x 0.75	1.1	1.62	7.3	9.75±0.3	26.7	70	1110	6.7	15	85109560
2 x 2 x 1.0	1.2	1.77	7.6	10.2±0.4	20.0	60	1360	5.8	16	85084453
3 x 2 x 1.0	1.2	1.77	7.7	10.3±0.4	20.0	60	1235	7.8	17	85084454
4 x 2 x 1.0	1.2	1.77	8.3	10.9±0.4	20.0	50	1330	9.8	20	85084455
7 x 2 x 1.0	1.2	1.77	10.6	13.2±0.4	20.0	40	1775	17	30	85109561
2 x 2 x 1.5	1.5	2.17	9.2	11.8±0.4	13.7	50	1840	8.1	21	85109562

¹⁾ Cores: Tolerances of core diameter see H+S Datasheet 585536

²⁾ R₂₀: Conductor resistance according to EN 50306-2