

Traction cable

RADOX 4 GKW-AX 1800V M

HUBER+SUHNER

Product description:

RADOX 4 GKW-AX 1800V M

Nominal voltage:

Single core cables with reduced wall insulation dimensions

1800 / 3000 V AC

Hazard level:

M (extra low temperature, extra oil and extra fuel resistant)

General features:

Halogen free, electron-beam crosslinked cores with improved behaviour in case of fire, easy to strip, soldering iron resistant and flexible. Excellent ozone, chemical, weather and UV resistance (for black).

The cables are in accordance with standard EN 50264-3-1 but significantly thinner 1.5 ... 16mm².

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. Conductor | Stranded tin plated copper, acc. to EN 60228 cl. 5 |
| 2. Insulation inner layer | RADOX EI 110, colour: white |
| 3. Insulation outer layer | RADOX EI 109, colour: black, unless otherwise specified |

Marking:

[a] **HUBER+SUHNER RADOX 4 GKW-AX 1800V** [b] **M** [c]-[d] [e] [f] [g]

	example:
[a] Meter marking (in m)	= 123456 = m
[b] Cross section (in mm ²)	1X150
[c] Part number	12345678
[d] Batch number	1234567
[e] Production week and year	03-2017
[f] Production place (only if China)	CN
[g] CRCC certification (only if available)	CRCC10218P11529R1M-2

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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	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		6500	V AC
Temperature range		- 50 ... + 125	°C

Min. bending radius

fixed installation	cable diameter ≤ 12 mm	3 x D
	cable diameter > 12 mm	4 x D
sporadic movements	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 for static conditions, e.g. for fixed installation 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:

Fire protection on railway vehicles, hazard level	HL1 - HL3	EN 45545-2
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 Fulfilled NFPA 130

Vertical flame spread, bunched	L ≤ 1.5 m	UL 1685, 12 (FT4 exp.)
Smoke density	TSR ≤ 150 m ² , PSRR ≤ 0.40 m ² /s	UL 1685, 12 (FT4 exp.)

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:

- 557578 Current rating for single core cables

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Table 1: Standard Types RADOX 4 GKW- AX 1800V M

Core Size [mm ²]	Conductor ¹⁾			Core ²⁾		Fire Load nom. [kJ/m]	Combustible Material nom. [kg/100m]	Cable Weight nom. [kg/100m]	H+S Part No.
	Type nom. [n x mm]	Ø nom. [mm]	R ₂₀ max. [Ω/km]	Ø [mm]	Colours				
1X1	37 x 0.18	1.20	20.0	3.0±0.1	BK	135	0.92	1.8	12555986
1X1.5	37 x 0.22	1.50	13.7	3.35±0.1	BK	160	1.2	2.5	12536686
1X2.5	61 x 0.23	1.90	8.21	3.75±0.1	BK	190	1.3	3.5	12536692
1X6	84 x 0.30	2.90	3.39	5.2±0.15	BK	355	2.3	7.4	12536696
1X10	80 x 0.40	3.80	1.95	6.4±0.15	BK	500	3.4	12	12545527
1X16	121 x 0.40	5.30	1.24	8.4±0.2	BK	860	6	19	12545528
1X25	189 x 0.40	6.60	0.795	10.2±0.3	BK	1265	8	28	12545529
1X35	266 x 0.40	7.70	0.565	11.7±0.3	BK	1630	10	39	12545530
1X50	378 x 0.40	9.20	0.393	13.5±0.3	BK	2090	13	54	12545531
1X70	348 x 0.50	11.4	0.277	15.8±0.3	BK	2520	16	75	12545532
1X95	456 x 0.50	12.9	0.210	17.5±0.3	BK	2965	19	96	12545533
1X120	570 x 0.50	14.5	0.164	19.8±0.3	BK	3805	24	122	12544522
1X150	722 x 0.50	16.0	0.132	22.1±0.3	BK	4890	30	152	12545534
1X185	874 x 0.50	17.8	0.108	24.0±0.3	BK	5455	34	184	12544523
1X240	1147 x 0.50	20.8	0.0817	27.0±0.3	BK	6130	38	234	12547684
1X300	1443 x 0.50	23.0	0.0654	29.9±0.4	BK	7565	47	291	12552906
1X400	1952 x 0.50	26.5	0.0495	34.1±0.5	BK	9355	59	389	12555997

¹⁾ Conductor according to EN 60228

²⁾ Core colour in bold is the H+S standard core colour

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RADOX 4 GKW-AX 1800V M

Table 1A: Customized Types RADOX 4 GKW- AX 1800V M

Core Size [mm ²]	Conductor ¹⁾			Core ²⁾		Fire Load nom. [kJ/m]	Combustible Material nom. [kg/100m]	Cable Weight nom. [kg/100m]	H+S Part No.
	Type nom. [n x mm]	Ø nom. [mm]	R ₂₀ max. [Ω/km]	Ø [mm]	Colours				
1X0.5	19 x 0.18	0.90	40.1	2.45±0.1	various	95	0.6	1.1	see Technical Datasheet 586851
1X0.75	24 x 0.20	1.10	26.7	2.65±0.1	various	105	0.7	1.4	see Technical Datasheet 586851
1X1	37 x 0.18	1.20	20.0	3.00±0.1	WH	135	0.92	1.8	85095527
					YE				12586321
1X1.5	37 x 0.22	1.50	13.7	3.35±0.1	BU	160	1.2	2.5	12543842
					GY				12567226
					RD				12555769
					YE				12562189
1X2.5	61 x 0.23	1.90	8.21	3.75±0.1	BN	190	1.3	3.5	12584664
					BU				85067625
					GY				84091279
					RD				12554310
					YE				85067621
1X4	61 x 0.28	2.35	5.09	4.5±0.1	various	275	1.8	5.2	see Technical Datasheet 586851
1X6	84 x 0.3	2.90	3.39	5.2±0.15	BU	355	2.3	7.4	12568594
					RD				12582984
					YE				85031740
1X10	80 x 0.4	3.80	1.95	6.4±0.15	BU	500	3.4	12	85067547
					RD				12582985
					YE				85067546
1X16	121 x 0.4	5.30	1.24	8.4±0.2	BU	860	6	19	85067520
					RD				12566008
1X25	189 x 0.4	6.60	0.795	10.2±0.3	RD	1255	8	28	12568968
1X35	266 x 0.4	7.70	0.565	11.7±0.3	RD	1630	10	39	12568008
1X50	378 x 0.4	9.20	0.393	13.5±0.3	RD	2090	13	54	12582459
1X70	348 x 0.5	11.4	0.277	15.8±0.3	RD	2520	16	75	12566010
1X150	722 x 0.5	16.0	0.132	22.1±0.3	RD	4890	30	152	85067468

¹⁾ Conductor according to EN 60228

²⁾ Core colour in bold is the H+S standard core colour