

# Traction cable

## RADOX 4 GKW-AX EN 50264-3-1 1800V M

### Product description:

<b>RADOX 4 GKW-AX EN 50264-3-1 1800V M</b>	Single core cables with reduced wall insulation dimensions
Nominal voltage:	1800 / 3000 V AC
Hazard level:	M (extra low temperature, extra oil and extra fuel resistant)

### General features:

Halogen free, electron-beam crosslinked cables with improved behaviour in case of fire, easy to strip and flexible. Excellent ozone, chemical, weather and UV resistance (for black). Meet the requirements of standard EN 50264-3-1. Customized cables RADOX 4 GKW-AX (EN 50264-3-1) 1800V M are in accordance with EN 50264-3-1, but significantly thinner.

### Application:

The cables are intended for fix 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. Separator (by definition, not used in every cable design)	Tape
3. Insulation inner layer	RADOX EI 110, colour: white
4. Insulation outer layer	RADOX EI 109, colour: black, unless otherwise specified

### Marking:

[a] HUBER+SUHNER RADOX 4 GKW-AX [b]EN 50264-3-1[b] 1800V [c] M [d]-[e] [f] [g] [h]

	example:
[a] Meter marking (in m)	= 001234 = m
[b] Brackets (only if thin wall)	( )
[c] Construction	1X150
[d] Part number	12345678
[e] Batch number	1234567
[f] Production week and year	03-2017
[g] Production place (only if China)	CN
[h] China HST technical review number (only if available)	DC-CRCC-FZ-113-2024

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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>	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 <sub>m</sub>	3600	V AC
maximum permissible Voltage rating DC cond.-earth	V <sub>0</sub>	2700	V DC
maximum permissible Voltage rating DC cond.-cond.		4500	V DC
Test voltage		6500	V AC
		15000	V DC
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 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 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 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** ..... **NFPA 130**

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

- 586554 Current rating for single core cables

# Traction cable

## RADOX 4 GKW-AX EN 50264-3-1 1800V M

Table 1: Standard Types RADOX 4 GKW-AX EN 50264-3-1 1800V M

Core Size [mm <sup>2</sup> ]	Conductor <sup>1)</sup>			Tape optional	Core <sup>2)</sup>		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 <sub>20</sub> max. [Ω/km]		Ø [mm]	Colours				
1X1.5	37 x 0.22	1.50	13.7	no	5.45±0.15	<b>BK</b>	545	3.3	4.5	85148070
1X2.5	61 x 0.23	1.90	8.21	no	5.95±0.15	<b>BK</b>	625	3.7	6	85148073
						GNYE				85148074
1X4	61 x 0.28	2.40	5.09	no	6.35±0.15	<b>BK</b>	690	4.1	7.5	85148075
						GNYE				85148076
1X6	84 x 0.30	2.90	3.39	no	6.85±0.15	<b>BK</b>	770	4.6	9.7	85148077
1X10	80 x 0.40	3.80	1.95	no	7.80±0.15	<b>BK</b>	930	5.5	14.1	85148079
						GNYE				85148080
1X16	121 x 0.40	5.30	1.24	yes	9.30±0.20	<b>BK</b>	1245	7.3	20.3	85148081
1X25	189 x 0.40	6.60	0.795	yes	10.60±0.20	<b>BK</b>	1515	8.9	29.2	85148083
						GNYE				85208144
1X35	266 x 0.40	7.70	0.565	yes	11.70±0.20	<b>BK</b>	1730	10	39	85148084
						GNYE				85148085
						OG				85175265
						RD				85148086
1X50	378 x 0.40	9.20	0.393	yes	13.30±0.25	<b>BK</b>	2110	12	53	85148089
						GNYE				85148090
						OG				85175266
						RD				85148091
1X70	348 x 0.50	11.4	0.277	yes	15.50±0.25	<b>BK</b>	2515	15	73	85148093
						GNYE				85148094
						RD				85148095
1X95	456 x 0.50	12.9	0.210	yes	17.40±0.30	<b>BK</b>	3090	18	95	85148096
1X120	570 x 0.50	14.5	0.164	yes	19.10±0.30	<b>BK</b>	3440	20	118	85148098
1X150	722 x 0.50	16.0	0.132	yes	20.60±0.30	<b>BK</b>	3800	22	144	85148099
						RD				85148101
1X185	874 x 0.50	17.8	0.108	yes	22.80±0.30	<b>BK</b>	4595	27	177	85148103
1X240	1147 x 0.50	20.8	0.0817	yes	25.90±0.40	<b>BK</b>	5275	31	227	85146006
1X300	1443 x 0.50	23.0	0.0654	yes	28.10±0.40	<b>BK</b>	5855	34	278	85148105
1X400	1952 x 0.50	26.5	0.0495	yes	32.10±0.40	<b>BK</b>	7160	42	372	85146304

<sup>1)</sup> Conductor according to EN 60228

<sup>2)</sup> Core colour in bold is the H+S standard core colour

# Traction cable

## RADOX 4 GKW-AX EN 50264-3-1 1800V M

Table 1A: Customized Types RADOX 4 GKW-AX (EN 50264-3-1) 1800V M

Core Size [mm <sup>2</sup> ]	Conductor <sup>1)</sup>			Tape optional	Core <sup>2)</sup>		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 <sub>20</sub> max. [Ω/km]		Ø [mm]	Colours				
1X0.5	19 x 0.18	0.90	40.1	no	2.45±0.10	<b>BK</b>	95	0.6	1.1	84118052
						BN				84118053
						BU				84118056
						GY				84118058
						OG				85068090
						RD				84118057
1X0.75	24 x 0.20	1.10	26.7	no	2.65±0.10	<b>BK</b>	105	0.7	1.4	84118059
						BK				85002685 <sup>3)</sup>
1X1	37 x 0.18	1.20	20.0	no	2.80±0.10	<b>BK</b>	115	0.8	1.7	85148011
						WH				85148012
						YE				85148013
1X1.5	37 x 0.22	1.50	13.7	no	3.20±0.10	<b>BK</b>	150	1.0	2.2	85203003
						BU				85148043
						GY				85148044
						RD				85148045
						YE				85148047
1X2.5	61 x 0.23	1.90	8.21	no	3.65±0.10	<b>BK</b>	180	1.2	3.4	85148048
						BU				85148050
						RD				85148051
						YE				85148052
1X4	61 x 0.28	2.35	5.09	no	4.5±0.10	<b>BK</b>	275	1.8	5.2	12536694
						BU				85066538
						RD				12559555
						WH				85023707
						YE				85067561
1X6	84 x 0.30	2.90	3.39	no	5.10±0.15	<b>BK</b>	340	2.2	7.3	85148053
						BU				85148054
						RD				85148055
						YE				85148057
1X10	80 x 0.40	3.80	1.95	no	6.25±0.15	<b>BK</b>	480	3.0	11.6	85148058
						RD				85148060
1X16	121 x 0.40	5.30	1.24	yes	8.25±0.15	<b>BK</b>	860	5.2	18.2	85148062
						RD				85148064
1X25	189 x 0.40	6.60	0.795	yes	10.10±0.20	<b>BK</b>	1300	7.7	28.0	85148066
						RD				85148067

<sup>1)</sup> Conductor according to EN 60228

<sup>2)</sup> Core colour in bold is the H+S standard core colour

<sup>3)</sup> Customer Marking