

RADOX 3 GKW EN 50264-3-1 600V M
Traction cable

Properties

- RADOX 3 GKW EN 50264-3-1 600V M Single core cables with reduced dimensions
- Nominal voltage: 600 / 1000 V AC
- Hazard level: M (extra low temperature, extra oil and extra fuel resistant)
- Halogen free
- Electron-beam crosslinked cores with improved behavior in case of fire
- Easy to strip
- Soldering iron resistant and flexible
- Meet the requirements of EN 50264-3-1 standard

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. The cores are used as sub-components in cables according to EN 50264-3-2.



Construction		
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, color white
4.	Insulation outer layer	RADOX EI 109, color black or grey, unless otherwise specified

Marking		
[a] HUBER+SUHNER RADOX 3 GKW EN 50264-3-1 600V [b] M [c]-[d] [e] [f] [g]		
		example :
[a]	Meter marking (in meter)	= 123456 = m
[b]	Cross section (in mm²)	1x150
[c]	Part number	12345678
[d]	Batch number	1234567
[e]	Production week and year	03-2017
[f]	Production place (only if China)	CN
[g]	China HST technical review number (only if available)	DC-CRCC-FZ-113-2024

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Technical data	
Voltage rating cond.-earth U_0	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_m	1200 V AC
Maximum permissible voltage rating DC cond.-earth V_0	900 V DC
Maximum permissible voltage rating DC cond.-cond.	1800 V DC
Test voltage AC	3500 V AC
Test voltage DC	8400 V DC
Temperature range	-50 °C ... +125 °C
Min. bending radius fixed installation Outer diameter ≤ 12 mm	3 x D
Min. bending radius fixed installation Outer diameter > 12 mm	4 x D
Min. bending radius sporadic movement Outer diameter ≤ 12 mm	4 x D
Min. bending radius sporadic movement Outer diameter > 12 mm	5 x D

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 behavior tests for 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	$50 < L \leq 540$ mm	EN 60332-1-2
Vertical flame spread, bunched, $D \leq 6$ mm	$L \leq 1.5$ m	EN 50305, 9.1.2
Vertical flame spread, bunched, $6 < D < 12$ mm	$L \leq 2.5$ m	EN 50305, 9.1.1 (EN 60332-3-25)
Vertical flame spread, bunched, $D \geq 12$ mm	$L \leq 2.5$ m	EN 60332-3-24
Smoke density	$T \geq 70$ %	EN 61034-2
Toxicity	$ITC \leq 6$	EN 50305, 9.2

The cables are in conformity with		
Fire protection on railway vehicles	Fulfilled	NFPA 130
Vertical flame spread, bunched	$L \leq 1.5$ m	UL 1685, 12 (FT4 exp.)
Smoke density	$PSRR \leq 0.40$ m ² /s, $TSR \leq 150$ m ²	UL 1685, 12 (FT4 exp.)

The cables are in conformity with	
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, 72 h, 100 °C
Extra fuel resistance	IRM 903, 168 h, 70 °C

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Table 1: Standard Types RADOX 3 GKW EN 50264-3-1 600V M

Core Size [mm ²]	Conductor ¹⁾			Separator Tape	Core		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]	Color				
1X1	37 x 0.18	1.22	20	no	2.45±0.05	GY	85	0.56	1.43	85168797
1X1	37 x 0.18	1.22	20	no	2.45±0.05	BK	85	0.56	1.43	85205528
1X1	37 x 0.18	1.22	20	no	2.45±0.05	BN	85	0.56	1.43	85207975
1X1	37 x 0.18	1.22	20	no	2.45±0.05	BU	85	0.56	1.43	85207976
1X1	37 x 0.18	1.22	20	no	2.45±0.05	GN	85	0.56	1.43	85207977
1X1	37 x 0.18	1.22	20	no	2.45±0.05	GNYE	85	0.56	1.43	85205529
1X1	37 x 0.18	1.22	20	no	2.45±0.05	RD	85	0.56	1.43	85207978
1X1	37 x 0.18	1.22	20	no	2.45±0.05	WH	85	0.56	1.43	85207979
1X1	37 x 0.18	1.22	20	no	2.45±0.05	YE	85	0.56	1.43	85207980
1X1.5	37 x 0.22	1.45	13.7	no	2.85±0.05	GY	116	0.74	1.98	85156555
1X1.5	37 x 0.22	1.45	13.7	no	2.85±0.05	BK	116	0.74	1.98	85205532
1X1.5	37 x 0.22	1.45	13.7	no	2.85±0.05	BN	116	0.74	1.98	85207981
1X1.5	37 x 0.22	1.45	13.7	no	2.85±0.05	BU	116	0.74	1.98	85207988
1X1.5	37 x 0.22	1.45	13.7	no	2.85±0.05	GN	116	0.74	1.98	85241693
1X1.5	37 x 0.22	1.45	13.7	no	2.85±0.05	GNYE	116	0.74	1.98	85205533
1X1.5	37 x 0.22	1.45	13.7	no	2.85±0.05	RD	116	0.74	1.98	85207989
1X1.5	37 x 0.22	1.45	13.7	no	2.85±0.05	WH	116	0.74	1.98	85207990
1X1.5	37 x 0.22	1.45	13.7	no	2.85±0.05	YE	116	0.74	1.98	85124745
1X2.5	61 x 0.23	1.94	8.21	no	3.3±0.1	GY	134	0.9	3.1	85164787
1X2.5	61 x 0.23	1.94	8.21	no	3.3±0.1	BK	134	0.9	3.1	85205625
1X2.5	61 x 0.23	1.94	8.21	no	3.3±0.1	BU	134	0.9	3.1	85207991
1X2.5	61 x 0.23	1.94	8.21	no	3.3±0.1	GNYE	134	0.9	3.1	85205626
1X2.5	61 x 0.23	1.94	8.21	no	3.3±0.1	RD	134	0.9	3.1	85139053
1X2.5	61 x 0.23	1.94	8.21	no	3.3±0.1	YE	134	0.9	3.1	85207992
1X4	61 x 0.28	2.35	5.09	no	3.9±0.1	GY	186	1.19	4.6	85205630
1X4	61 x 0.28	2.35	5.09	no	3.9±0.1	BK	186	1.19	4.6	85205628
1X4	61 x 0.28	2.35	5.09	no	3.9±0.1	GNYE	186	1.19	4.6	85205629
1X6	84 x 0.30	2.85	3.39	no	4.3±0.1	GY	198	1.3	6.4	85205666
1X6	84 x 0.30	2.85	3.39	no	4.3±0.1	BK	198	1.3	6.4	85205631
1X6	84 x 0.30	2.85	3.39	no	4.3±0.1	BN	198	1.3	6.4	85207993
1X6	84 x 0.30	2.85	3.39	no	4.3±0.1	BU	198	1.3	6.4	85207994

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Core Size [mm ²]	Conductor ¹⁾			Separator Tape	Core		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]	Color				
1X6	84 x 0.30	2.85	3.39	no	4.3±0.1	GNYE	198	1.3	6.4	85205632
1X6	84 x 0.30	2.85	3.39	no	4.3±0.1	RD	198	1.3	6.4	85207995
1X10	80 x 0.40	3.78	1.95	no	5.2±0.1	GY	248	1.6	10.2	85205636
1X10	80 x 0.40	3.78	1.95	no	5.2±0.1	BK	248	1.6	10.2	85205633
1X10	80 x 0.40	3.78	1.95	no	5.2±0.1	GNYE	248	1.6	10.2	85205635
1X16	121 x 0.40	5.3	1.24	yes	6.75±0.15	GY	418	2.5	15.5	85205637
1X16	121 x 0.40	5.3	1.24	yes	6.75±0.15	BK	418	2.5	15.5	85097024
1X16	121 x 0.40	5.3	1.24	yes	6.75±0.15	GNYE	418	2.5	15.5	85097025
1X25	189 x 0.40	6.55	0.795	yes	8.3±0.15	GY	643	3.9	24.2	85205640
1X25	189 x 0.40	6.55	0.795	yes	8.3±0.15	BK	643	3.9	24.2	85205638
1X25	189 x 0.40	6.55	0.795	yes	8.3±0.15	BN	643	3.9	24.2	85207996
1X25	189 x 0.40	6.55	0.795	yes	8.3±0.15	BU	643	3.9	24.2	85207997
1X25	189 x 0.40	6.55	0.795	yes	8.3±0.15	GNYE	643	3.9	24.2	85205639
1X35	266 x 0.40	7.7	0.565	yes	9.5±0.15	GY	787	4.8	33.3	85205643
1X35	266 x 0.40	7.7	0.565	yes	9.5±0.15	BK	787	4.8	33.3	85205641
1X35	266 x 0.40	7.7	0.565	yes	9.5±0.15	GNYE	787	4.8	33.3	85205642
1X50	378 x 0.40	9.2	0.393	yes	11.2±0.15	GY	1084	6.3	46.9	85205646
1X50	378 x 0.40	9.2	0.393	yes	11.2±0.15	BK	1084	6.3	46.9	85205644
1X50	378 x 0.40	9.2	0.393	yes	11.2±0.15	GNYE	1084	6.3	46.9	85205645
1X70	348 x 0.50	11.4	0.273	yes	13.6±0.15	GY	1401	8.2	67	85205649
1X70	348 x 0.50	11.4	0.273	yes	13.6±0.15	BK	1401	8.2	67	85205647
1X70	348 x 0.50	11.4	0.273	yes	13.6±0.15	GNYE	1401	8.2	67	85205648
1X95	456 x 0.50	12.9	0.207	yes	15.2±0.2	GY	1650	9.7	86.8	85205652
1X95	456 x 0.50	12.9	0.207	yes	15.2±0.2	BK	1650	9.7	86.8	85205650
1X95	456 x 0.50	12.9	0.207	yes	15.2±0.2	GNYE	1650	9.7	86.8	85205651
1X120	570 x 0.50	14.5	0.164	yes	17.1±0.2	GY	2022	11.8	109.7	85205655
1X120	570 x 0.50	14.5	0.164	yes	17.1±0.2	BK	2022	11.8	109.7	85205653
1X120	570 x 0.50	14.5	0.164	yes	17.1±0.2	GNYE	2022	11.8	109.7	85205654
1X150	722 x 0.50	16	0.132	yes	19.0±0.3	GY	2567	14.9	136.9	85205657
1X150	722 x 0.50	16	0.132	yes	19.0±0.3	BK	2567	14.9	136.9	85205656
1X185	874 x 0.50	17.8	0.108	yes	21.3±0.3	GY	3294	19.2	169.3	85205659

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Core Size [mm ²]	Conductor ¹⁾ Type nom. [n x mm]	Ø nom. [mm]	R ₂₀ max. [Ω/km]	Separator Tape	Core Ø [mm]	Color	Fire Load nom. [kJ/m]	Combustible Material nom. [kg/100m]	Cable Weight nom. [kg/100m]	H+S Part No.
1X185	874 x 0.50	17.8	0.108	yes	21.3±0.3	BK	3294	19.2	169.3	85205658
1X240	1147 x 0.50	20.8	0.0817	yes	24.5±0.3	GY	3893	22.8	218.7	85205661
1X240	1147 x 0.50	20.8	0.0817	yes	24.5±0.3	BK	3893	22.8	218.7	85205660
1X300	1443 x 0.50	23	0.0654	yes	26.9±0.3	GY	4512	26.5	270.7	85205663
1X300	1443 x 0.50	23	0.0654	yes	26.9±0.3	BK	4512	26.5	270.7	85205662
1X400	1952 x 0.50	26.5	0.0495	yes	31.0±0.4	BK	5630	33.8	363.7	85097718

¹⁾ Conductor according to EN 60228

Table 1.1: Standard Types RADOX 3 GKW EN 50264-3-1 600V M Packaging Coil CK4 (h x d = 400mm x 400mm)

Core Size [mm ²]	Conductor ¹⁾ Type nom. [n x mm]	Ø nom. [mm]	R ₂₀ max. [Ω/km]	Separator Tape	Core Ø [mm]	Color	Fire Load nom. [kJ/m]	Combustible Material nom. [kg/100m]	Cable Weight nom. [kg/100m]	H+S Part No.
1X1	37 x 0.18	1.22	20	no	2.45±0.05	GY	85	0.56	1.43	85208012
1X1	37 x 0.18	1.22	20	no	2.45±0.05	BK	85	0.56	1.43	85208079
1X1.5	37 x 0.22	1.45	13.7	no	2.85±0.05	GY	116	0.74	1.98	85208017
1X1.5	37 x 0.22	1.45	13.7	no	2.85±0.05	BK	116	0.74	1.98	85208013
1X1.5	37 x 0.22	1.45	13.7	no	2.85±0.05	BN	116	0.74	1.98	85208014
1X1.5	37 x 0.22	1.45	13.7	no	2.85±0.05	BU	116	0.74	1.98	85208015
1X1.5	37 x 0.22	1.45	13.7	no	2.85±0.05	GNYE	116	0.74	1.98	85208016
1X2.5	61 x 0.23	1.94	8.21	no	3.3±0.1	GY	134	0.9	3.1	85208018
1X4	61 x 0.28	2.35	5.09	no	3.9±0.1	GY	186	1.19	4.6	85208019

¹⁾ Conductor according to EN 60228

Table 1A: Customized Types RADOX 3 GKW (EN 50264-3-1) 600V M

Core Size [mm ²]	Conductor ¹⁾ Type nom. [n x mm]	Ø nom. [mm]	R ₂₀ max. [Ω/km]	Separator Tape	Core Ø [mm]	Color	Fire Load nom. [kJ/m]	Combustible Material nom. [kg/100m]	Cable Weight nom. [kg/100m]	H+S Part No.
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	GY	57	0.38	0.81	85205664
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	BK	57	0.38	0.81	85208000
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	BU	57	0.38	0.81	85208001
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	GNYE	57	0.38	0.81	85208002
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	RD	57	0.38	0.81	85208003
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	WH	57	0.38	0.81	85208004
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	YE	57	0.38	0.81	85208005

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Core Size [mm ²]	Conductor ¹⁾ Type nom. [n x mm]	Ø nom. [mm]	R ₂₀ max. [Ω/km]	Separator Tape	Core Ø [mm]	Core Color	Fire Load nom. [kJ/m]	Combustible Material nom. [kg/100m]	Cable Weight nom. [kg/100m]	H+S Part No.
1X0.75	24 x 0.20	1.1	26.7	no	2.20±0.05	GY	68	0.45	1.16	85205665
1X0.75	24 x 0.20	1.1	26.7	no	2.20±0.05	BK	68	0.45	1.16	85208006
1X0.75	24 x 0.20	1.1	26.7	no	2.20±0.05	BU	68	0.45	1.16	85208007
1X0.75	24 x 0.20	1.1	26.7	no	2.20±0.05	GNYE	68	0.45	1.16	85208008
1X0.75	24 x 0.20	1.1	26.7	no	2.20±0.05	RD	68	0.45	1.16	85208009
1X0.75	24 x 0.20	1.1	26.7	no	2.20±0.05	WH	68	0.45	1.16	85208010
1X0.75	24 x 0.20	1.1	26.7	no	2.20±0.05	YE	68	0.45	1.16	85208011
1X1.5	37 x 0.22	1.45	13.7	no	2.70±0.05	GY	98	0.64	1.88	85241565
1X1.5	37 x 0.22	1.45	13.7	no	2.70±0.05	BK	98	0.64	1.88	85241563
1X1.5	37 x 0.22	1.45	13.7	no	2.70±0.05	GNYE	98	0.64	1.88	85241564

¹⁾ Conductor according to EN 60228

Table 1.1A: Customized Types RADOX 3 GKW (EN 50264-3-1) 600V M Packaging Coil CK4 (h x d = 400mm x 400mm)

Core Size [mm ²]	Conductor ¹⁾ Type nom. [n x mm]	Ø nom. [mm]	R ₂₀ max. [Ω/km]	Separator Tape	Core Ø [mm]	Core Color	Fire Load nom. [kJ/m]	Combustible Material nom. [kg/100m]	Cable Weight nom. [kg/100m]	H+S Part No.
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	GY	57	0.38	0.81	85208022
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	BK	57	0.38	0.81	85208020
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	BN	57	0.38	0.81	85208021
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	BU	57	0.38	0.81	85208080
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	GN	57	0.38	0.81	85208081
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	OG	57	0.38	0.81	85208023
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	RD	57	0.38	0.81	85208024
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	VT	57	0.38	0.81	85208025
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	WH	57	0.38	0.81	85208026
1X0.5	19 x 0.18	0.84	40.1	no	1.95±0.05	YE	57	0.38	0.81	85208082

¹⁾ Conductor according to EN 60228

Table 1B: Customized Types RADOX 3 GKW EN 50264-3-1 600V M

Core Size [mm ²]	Conductor ¹⁾ Type nom. [n x mm]	Ø nom. [mm]	R ₂₀ max. [Ω/km]	Separator Tape	Core Ø [mm]	Core Color	Fire Load nom. [kJ/m]	Combustible Material nom. [kg/100m]	Cable Weight nom. [kg/100m]	H+S Part No.
1X1	32 x 0.19	1.26	20	no	2.51±0.1	BK	88	0.58	1.52	85096345
1X1	32 x 0.19	1.26	20	no	2.51±0.1	GNYE	88	0.58	1.52	85096351

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Core Size [mm ²]	Conductor ¹⁾			Separator Tape	Core		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]	Color				
1X1.5	27 x 0.25	1.49	13.7	no	3.0±0.2	BK	126	0.84	2.22	85096346
1X1.5	27 x 0.25	1.49	13.7	no	3.0±0.2	GNYE	126	0.84	2.22	85096352
1X2.5	45 x 0.25	1.92	8.21	no	3.4±0.2	BK	153	1	3.1	85096347
1X2.5	45 x 0.25	1.92	8.21	no	3.4±0.2	GNYE	153	1	3.1	85096353
1X4	52 x 0.30	2.44	5.09	no	4.0±0.2	BK	188	1.24	4.7	85096348
1X4	52 x 0.30	2.44	5.09	no	4.0±0.2	GNYE	188	1.24	4.7	85096354
1X6	78 x 0.30	2.98	3.39	no	4.6±0.2	BK	256	1.6	6.7	85096349
1X6	78 x 0.30	2.98	3.39	no	4.6±0.2	GNYE	256	1.6	6.7	85096355
1X10	74 x 0.40	4	1.95	no	5.5±0.2	BK	318	2	10.9	85096350
1X10	74 x 0.40	4	1.95	no	5.5±0.2	GNYE	318	2	10.9	85096356
1X25	189 x 0.40	6.55	0.795	no	8.45±0.15	BK	686	4.2	24.5	85097026
1X25	189 x 0.40	6.55	0.795	no	8.45±0.15	GNYE	686	4.2	24.5	85097027
1X35	266 x 0.40	7.7	0.565	no	9.7±0.2	BK	858	5.16	33.7	85097028
1X35	266 x 0.40	7.7	0.565	no	9.7±0.2	GNYE	858	5.16	33.7	85097029
1X50	378 x 0.40	9.2	0.393	no	11.4±0.2	BK	1153	6.9	47.5	85097030
1X50	378 x 0.40	9.2	0.393	no	11.4±0.2	GNYE	1153	6.9	47.5	85097031
1X70	348 x 0.50	11.4	0.273	no	13.8±0.25	BK	1485	8.8	67.7	85097032
1X70	348 x 0.50	11.4	0.273	no	13.8±0.25	GNYE	1485	8.8	67.7	85097033
1X95	456 x 0.50	12.9	0.207	no	15.3±0.25	BK	1676	10.1	87.2	85097034
1X95	456 x 0.50	12.9	0.207	no	15.3±0.25	GNYE	1676	10.1	87.2	85097036
1X120	570 x 0.50	14.5	0.164	no	17.2±0.3	BK	2028	12.3	110.2	85097037
1X120	570 x 0.50	14.5	0.164	no	17.2±0.3	GNYE	2028	12.3	110.2	85097038
1X150	722 x 0.50	16	0.132	no	19.2±0.3	BK	2633	15.9	137.9	85097039
1X185	874 x 0.50	17.8	0.108	no	21.4±0.3	BK	3330	19.8	169.9	85097048
1X240	1147 x 0.50	20.8	0.0817	no	24.6±0.3	BK	3968	23.4	219	85097050

¹⁾ Conductor according to EN 60228

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