

Traction cable

RADOX GKW-LW (EN 50306-4 1P) 600V MM

HUBER+SUHNER

Product description:

RADOX GKW-LW (EN50306-4 1P) 600V MM	Multicore cables, unscreened
Nominal voltage:	600 / 1000 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, soldering iron resistant and flexible.

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. Filler (optional)	RADOX 125 REC
2. Conductor	Stranded tin plated copper, acc. to EN 50306-2
3. Insulation	RADOX TI 301, colour: white, unless otherwise specified
4. Separator	Tape
5. Sheath	RADOX EM 104, colour: black, unless otherwise specified

Marking:

[a] **HUBER+SUHNER RADOX GKW-LW (EN 50306-4 1P) 600V** [b] **MM** [c]-[d] [e] [f] [g]

	example:
[a] Meter marking (in m)	= 1234 = m
[b] Construction	3G1.5
[c] Part number	12345678
[d] Batch number	1234567
[e] Production week and year	03-2017
[f] Production place (only if China)	CN
[g] CRCC certificate (only if available)	CRCC10218P11529R1M

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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	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.		1500	V DC

Test voltage 3500 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 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 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 45545-2
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
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

Fire protection on railway vehicles	Fulfilled	NFPA 130
Vertical flame spread, bunched	$L \leq 1.5$ m	UL 1685, 12 (FT4 exp.)
Smoke density	$TSR \leq 150$ m ²	
	$PSRR \leq 0.40$ 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:

- 563078: Current rating for multicore cables

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Table 1A: Customized Types RADOX GKW-LW (EN 50306-4 1P) 600V MM

Cable ¹⁾ Type [nXmm ²]	Conductor ²⁾		Core ²⁾		Cable		Fire	Combustible	Cable	H+S
	Ø nom. [mm]	R ₂₀ max. [Ω/km]	Ø nom. [mm]	Colours	Ø [mm]	Colour	Load nom. [kJ/m]	Material nom. [kg/100m]	Weight nom. [kg/100m]	Part No.
3X0.4	0.8	54.7	1.18	WH	4.2 ± 0.3	BK	268	1.8	2.9	84134931
2X0.5	0.9	40.1	1.30	WH	4.0 ± 0.2	BK	245	1.7	2.7	12556756
3X0.5	0.9	40.1	1.30	WH	4.2 ± 0.2	BK	265	1.7	3.1	12556757
4X0.5	0.9	40.1	1.30	WH	4.5 ± 0.2	BK	305	1.8	3.7	12556758
5X 0.5	0.9	40.1	1.30	WH	5.0 ± 0.2	BK	375	2.3	4.6	12556759
6X0.5	0.9	40.1	1.30	WH	5.4 ± 0.2	BK	440	2.5	5.3	12556760
7X0.5	0.9	40.1	1.30	WH	5.8 ± 0.3	BK	515	3.0	6.2	12556761
9X0.5	0.9	40.1	1.30	WH	6.7 ± 0.3	BK	600	3.4	7.6	12561299
10X0.5	0.9	40.1	1.30	WH	6.7 ± 0.3	BK	595	3.3	7.9	12556762
12X0.5	0.9	40.1	1.30	WH	6.9 ± 0.3	BK	660	3.5	9	12556763
16X0.5	0.9	40.1	1.30	WH	7.8 ± 0.3	BK	860	4.5	12	12556764
24X0.5	0.9	40.1	1.30	WH	9.5 ± 0.3	BK	1145	5.8	17	12556766
25X0.5	0.9	40.1	1.30	WH	9.5 ± 0.3	BK	1175	5.6	17	12561301
2X0.75	1.1	26.7	1.52	WH	4.4 ± 0.2	BK	290	2.0	3.4	12556767
2X0.75	1.1	26.7	1.52	WH	4.4 ± 0.2	RD	290	2.0	3.4	84144497
3X0.75	1.1	26.7	1.52	WH	4.6 ± 0.2	BK	310	2.0	4.1	12556768
3G0.75	1.1	26.7	1.52	WH - GNYE	4.6 ± 0.2	BK	310	2.0	4.1	12562758
4X0.75	1.1	26.7	1.52	WH	5.0 ± 0.2	BK	355	2.2	5	12556769
4X0.75	1.1	26.7	1.52	WH	5.0 ± 0.2	RD	355	2.2	5	84144495
5X0.75	1.1	26.7	1.52	WH	5.7 ± 0.3	BK	460	2.8	6.3	12556770
5G0.75	1.1	26.7	1.52	WH - GNYE	5.7 ± 0.3	BK	460	2.8	6.3	12562262
6X0.75	1.1	26.7	1.52	WH	6.0 ± 0.3	BK	520	2.9	7.2	12556771
9X0.75	1.1	26.7	1.52	WH	7.7 ± 0.3	BK	755	4.3	11	12581701
9G0.75	1.1	26.7	1.52	WH - GNYE	7.7 ± 0.3	BK	755	4.3	11	12581833
10X0.75	1.1	26.7	1.52	WH	7.7 ± 0.3	BK	750	4.2	11	12556773
16X0.75	1.1	26.7	1.52	WH	9.0 ± 0.3	BK	1082	5.6	17	12556774
24X0.75	1.1	26.7	1.52	WH	11.1 ± 0.4	BK	1485	7.7	25	12556776
2X1	1.2	20.0	1.67	WH	4.7 ± 0.2	BK	320	2.3	4.1	12556777
3X1	1.2	20.0	1.67	WH	5.0 ± 0.2	BK	350	2.3	5	12556778
4X1	1.2	20.0	1.67	WH	5.5 ± 0.2	BK	405	2.5	6.1	12556779
5X1	1.2	20.0	1.67	WH	6.0 ± 0.3	BK	500	3.0	7.5	12556780
5G1	1.2	20.0	1.67	WH - GNYE	6.0 ± 0.3	BK	500	3.0	7.5	12563051
6X1	1.2	20.0	1.67	WH	6.6 ± 0.3	BK	605	3.6	9	12556781
7X1	1.2	20.0	1.67	WH	7.3 ± 0.3	BK	750	4.4	11	12556475
12X1	1.2	20.0	1.67	WH	8.6 ± 0.3	BK	920	4.9	16	12556783
16X1	1.2	20.0	1.67	WH	9.6 ± 0.3	BK	1170	6.0	21	12556784
16X1	1.2	20.0	1.67	WH	9.7 ± 0.3	BK	1255	6.9	21	85012841 ³⁾
20X1	1.2	20.0	1.67	WH	11.2 ± 0.4	BK	1600	8.5	27	12556476
20X1	1.2	20.0	1.67	WH	11.2 ± 0.4	BK	1825	9.2	27	85012861 ³⁾
2X1.5	1.5	13.7	2.04	WH	5.4 ± 0.3	BK	420	3.0	5.7	12556786

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Cable ¹⁾ Type [nXmm ²]	Conductor ²⁾		Core ²⁾		Cable		Fire Load nom. [kJ/m]	Combustible Material nom. [kg/100m]	Cable Weight nom. [kg/100m]	H+S Part No.
	Ø nom. [mm]	R ₂₀ max. [Ω/km]	Ø nom. [mm]	Colours	Ø [mm]	Colour				
3X1.5	1.5	13.7	2.04	WH	5.8 ± 0.3	BK	465	3.1	7.2	12555404
3G1.5	1.5	13.7	2.04	WH - GNYE	5.8 ± 0.3	BK	465	3.1	7.2	12559973
4X1.5	1.5	13.7	2.04	WH	6.5 ± 0.3	BK	570	3.7	9.1	12556787
4G1.5	1.5	13.7	2.04	WH - GNYE	6.5 ± 0.3	BK	570	3.7	9.1	12562759
5X1.5	1.5	13.7	2.04	WH	7.2 ± 0.3	BK	705	4.5	11	12555405
5G1.5	1.5	13.7	2.04	WH - GNYE	7.2 ± 0.3	BK	705	4.5	11	12559974
6X1.5	1.5	13.7	2.04	WH	7.9 ± 0.3	BK	855	5.4	14	12556788
6G1.5	1.5	13.7	2.04	WH - GNYE	7.9 ± 0.3	BK	855	5.4	14	12563990
7X1.5	1.5	13.7	2.04	WH	8.4 ± 0.3	BK	1000	6.2	16	12556789
7G1.5	1.5	13.7	2.04	WH - GNYE	8.4 ± 0.3	BK	1000	6.2	16	12559975
8X1.5	1.5	13.7	2.04	WH	9.3 ± 0.3	BK	1235	7.7	18	12559717
10X1.5	1.5	13.7	2.04	WH	10.0 ± 0.3	BK	1180	7.4	21	12556791
10G1.5	1.5	13.7	2.04	WH - GNYE	10.0 ± 0.3	BK	1180	7.4	21	12566521
12X1.5	1.5	13.7	2.04	WH	10.4 ± 0.4	BK	1330	8.3	24	12555406
16X1.5	1.5	13.7	2.04	WH	11.7 ± 0.4	BK	1705	10	32	12556792
18X1.5	1.5	13.7	2.04	WH	12.5 ± 0.4	BK	1950	12	36	12556793
24X1.5	1.5	13.7	2.04	WH	14.5 ± 0.4	BK	2325	14	47	12556818
25G1.5	1.5	13.7	2.04	WH - GNYE	14.6 ± 0.4	BK	2430	15	48	12564477
36X1.5	1.5	13.7	2.04	WH	17.1 ± 0.5	BK	3490	21	69	12555408
2X2	1.7	10.3	2.29	WH	6.1 ± 0.3	BK	498	2.7	6.5	12566059
2X2.5	1.9	8.21	2.54	WH	6.6 ± 0.3	BK	630	4.1	8.5	12556794
3X2.5	1.9	8.21	2.54	WH	7.0 ± 0.3	BK	690	3.9	11	12556415
3G2.5	1.9	8.21	2.54	WH - GNYE	7.0 ± 0.3	BK	690	3.9	11	12564478
4X2.5	1.9	8.21	2.54	WH	7.9 ± 0.3	BK	865	4.7	14	12556795
4G2.5	1.9	8.21	2.54	WH - GNYE	7.9 ± 0.3	BK	865	4.7	14	12562760
5G2.5	1.9	8.21	2.54	WH - GNYE	8.8 ± 0.3	BK	1060	5.7	17	12567459
7X2.5	1.9	8.21	2.54	WH	10.5 ± 0.4	BK	1575	8.3	24	12556798
7G2.5	1.9	8.21	2.54	WH - GNYE	10.5 ± 0.4	BK	1575	8.3	24	12566649
12X2.5	1.9	8.21	2.54	WH	12.6 ± 0.4	BK	1975	9.4	36	12556416
20X2.5	1.9	8.21	2.54	WH	16.2 ± 0.5	BK	3355	16	60	12562080
35X2.5	1.9	8.21	2.54	WH	21.1 ± 0.5	BK	5370	24	101	12562081

¹⁾ X: one colour, numbered

G: one green-yellow core, others one colour, numbered

V: various colours

²⁾ Core details according to technical datasheet 554550

³⁾ Customized marking