

Traction cable

RADOX 9 GWK-AX 3600V M

Product description:

RADOX 9 GWK-AX 3600V M Single core cables with reduced wall thickness
 Nominal voltage: 3600 / 6000 V AC
 Hazard level: M (extra low temperature, extra oil and extra 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. Excellent ozone, chemical, weather and UV resistance. The cables are in accordance to EN 50264-3-1, but significantly thinner.

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.
 For unscreened cables the guidelines of EN 50153 shall be followed.

General composition of cable:



- 1. Conductor: stranded tin plated copper, acc. to EN 60228 cl. 5
- 2. Inner Insulation: RADOX EI 110, colour: red
- 3. Outer Insulation: RADOX EI 109, colour: black (see Table 1) coloured (see Table 2)

Marking:

[a] HUBER+SUHNER RADOX 9 GWK-AX 3600V [b] M [c]-[d] [e] [f]

		example:
[a]	Meter marking (in m)	= 001234 = m
[b]	Construction	1X150
[c]	Part number	12345678
[d]	Batch number	1234567
[e]	Production week and year	03-2017
[f]	Production place (only if China)	CN

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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.

HUBER+SUHNER AG
Low Frequency Division
 CH-8330 Pfäffikon
 +41 (0)44 952 22 11
 +41 (0)44 952 26 40
www.hubersuhner.com

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Technical Data:

Voltage rating cond.-earth	U ₀	3600	V AC
Voltage rating cond.-cond.	U	6000	V AC
maximum permissible Voltage rating AC cond.-earth		4300	V AC
maximum permissible Voltage rating AC cond.-cond.	U _m	7200	V AC
maximum permissible Voltage rating DC cond.-earth	V ₀	5400	V DC
maximum permissible Voltage rating DC cond.-cond.		9000	V DC
Test voltage		11000	V AC
Temperature range		- 50 ... + 120	°C

Min. bending radius

fixed	D ≤ 12 mm	3 x D
	D > 12 mm	4 x D
sporadic movement	D ≤ 12 mm	4 x D
	D > 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
Corrosivity of combustion gases	pH ≥ 4.3, C ≤ 10 µS/mm	EN 60754-2
Amount of halogen acid gas	HCl + HBr ≤ 0.5 %	EN 60754-1
Content of fluorine	HF ≤ 0.1 %	EN 60684-2, 45.2
Toxicity	ITC ≤ 6	EN 50305, 9.2
Fire protection on railway vehicles, category	Ia, Ib, II	BS 6853, GM/RT 2130
Vertical flame spread	50 < L ≤ 540 mm	EN 60332-1-2
Vertical flame spread, bunched	L ≤ 2.5 m	EN 50266, BS 6853 An. D.8.7
Smoke density	A ₀ ≤ BS 6853	BS 6853 An. D.8.7
Toxicity	R ≤ 1.0	BS 6853 An. B.1
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	(acc. 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°	

Traction cable

RADOX 9 GKW-AX 3600V M

Table 1 : Outer Insulation colour: black

Cable type mm ²	Conductor ^{nom} construction		Cable dia. mm	R ₂₀ ¹⁾ max Ω / km	C _{H2O} ²⁾ nom pF/m	Fireload nom kJ / m	Weight ^{nom} copper cable		H+S Part. No.
	n x mm	D mm					kg / 100m		
1.5	37x0.22	1.5	4.5±0.1	13.7	215	315	1.3	3.5	12537829
2.5	61x0.23	1.9	5.1±0.1	8.21	242	405	2.2	4.9	12537830
4	61x0.28	2.4	5.7±0.1	5.09	280	490	3.5	6.8	12537831
6	84x0.3	2.9	6.3±0.1	3.39	309	580	5.1	9.0	12537832
10	80x0.4	3.8	7.5±0.15	1.95	363	780	8.6	14	12545520
16	121x0.4	5.3	9.4±0.15	1.24	416	1195	13	21	12544525
25	189x0.4	6.6	11.0±0.3	0.795	471	1590	20	30	12547257
35	266x0.4	7.7	12.6±0.3	0.565	502	2035	29	42	12547260
50	378x0.4	9.2	14.6±0.3	0.393	537	2660	41	58	12545521
70	348x0.5	11.4	16.7±0.3	0.277	637	3065	59	78	12547262
95	456x0.5	12.9	18.7±0.3	0.210	658	3765	77	101	12547264
120	570x0.5	14.5	21.0±0.3	0.164	704	4730	98	128	12545522
150	722x0.5	16.0	23.2±0.3	0.132	752	5820	122	158	12547268
185	874x0.5	17.8	25.0±0.3	0.108	781	6360	150	190	12545523
240	1147x0.5	20.8	28.0±0.3	0.0817	863	7145	196	241	12547678
300	1443x0.5	23.0	30.8±0.3	0.0654	933	8590	244	298	12551573
400	1952x0.5	26.5	35.3±0.5	0.0495	955	10935	330	398	12564160

Table 2 : Outer Insulation colour: see table

Cable type mm ²	Conductor ^{nom} construction		Cable dia. mm	R ₂₀ ¹⁾ max Ω / km	C _{H2O} ²⁾ nom pF/m	Fireload nom kJ / m	Weight ^{nom} copper cable		Colour ³⁾	H+S Part. No.
	n x mm	D mm					kg / 100m			
1.5	37x0.22	1.5	4.5±0.1	13.7	215	315	1.3	3.5	gy	84096994
4	61x0.28	2.4	5.7±0.1	5.09	280	490	3.5	6.8	og	12583016
6	84x0.4	2.9	6.3±0.1	3.39	309	580	5.1	9.0	og	85020961
10	80x0.4	3.8	7.5±0.15	1.95	363	780	8.6	14	og	12583017
16	121x0.4	5.3	9.4±0.15	1.24	416	1195	13	21	og	12583018
25	189x0.4	6.6	11.0±0.3	0.795	471	1590	20	30	og	85088677
50	378x0.4	9.2	14.6±0.3	0.393	537	2660	41	58	og	85018076
70	348x0.5	11.4	16.7±0.3	0.277	637	3065	59	78	og	85018068

1) conductor resistance according to EN 60228

2) capacity in water

3) gy: grey
og: orange