

Traction cable

RADOX TENUIS-TW 600V M

General Properties:

Halogen free, electron-beam cross-linked cables with improved behaviour in case of fire, easy to strip and flexible. Meet the requirements of standard EN 50306-2.

Single core signal and control cables with thin wall dimensions

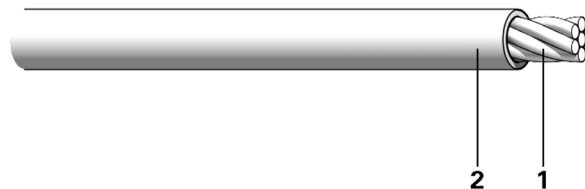
Nominal voltage: 600 / 1000 V AC

Hazard level: M (extra low temperature, extra oil and extra fuel resistant)

Application:

The single core 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 50306-2
2. Insulation: RADOX EI 303
Colors: see table

Marking:

[a] HUBER+SUHNER RADOX TENUIS-TW 600V [b] M [c]-[d] [e] [f] [g]

		example:
[a]	Meter marking (in m)	= 001234 = m
[b]	Construction (n x mm ²)	1X1.5
[c]	Part number	12345678
[d]	Batch number	1234567
[e]	Production week and year	03-2017
[f]	Production place (only if China)	CN
[g]	CRCC certification (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
		8400	V DC
Temperature range		- 50 ... + 125	°C
Min. bending radius			
fixed installation		3 x D	
sporadic movement		4 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 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
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
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 safety, class	O1.8.1.2.1 (single)	GOST 31565
	P1b.8.1.2.1 (bundle)	
Vertical flame spread	50 mm < L ≤ 540 mm	EN 60332-1-2
Vertical flame spread, bunched	L ≤ 2.5 m	EN 60332-3-22
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
Toxicity	40 < Tx ≤ 120 g/m ³	GOST 12.1.044-89
Smoke density	T ≥ 60 %	EN 61034-2
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 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, 24h, 100°C	
Extra fuel resistance	IRM 903, 168h, 70°	

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Table 1: Packaging Spool

Construction n x mm ²	Conductor nom. Construction		Cable diameter mm	R ₂₀ max. Ω/km	C _{H2O} nom. pF/m	Fire load nom. kJ/m	Combustible material nom. kg/100m	Cable weight nom. kg/100m	Colour	H+S Part No.
	n x mm	D mm								
1 x 0.14 *)	19x0.10	0.49	1.03±0.03	133.0	232	20	0.09	0.23	WH	85082261
1 x 0.25 *)	19x0.13	0.60	1.17±0.03	84.0	258	24	0.12	0.33	WH	85021029
1 x 0.34	19x0.16	0.76	1.30±0.03	52.1	321	27	0.13	0.48	WH	85027590
1 x 0.5	19x0.18	0.84	1.42±0.03	40.1	328	32	0.16	0.58	WH	12564379
									GNYE	85087154
									BK	85026405
									BN	85067272
									BU	85067273
									RD	85067274
GY	85067275									
1 x 0.75	19x0.22	1.04	1.62±0.03	26.7	389	38	0.18	0.82	WH	12566838
									BK	85026406
1 x 1.0	19x0.26	1.21	1.77±0.03	20.0	453	42	0.21	1.05	WH	12561500
									GNYE	12581111
									BK	12581116
									VT	12581360
									GN	12581146
									BN	12581141
									RD	12581136
BU	12581131									
1 x 1.5	19x0.30	1.44	2.17±0.03	13.7	420	66	0.32	1.54	WH	12564381
									GNYE	12581112
									BK	85026407
1 x 2.5	19x0.40	1.85	2.75±0.05	8.21	435	103	0.5	2.54	WH	12564382
									GNYE	12581113
									BK	85026408
									BN	85068296
									GN	85068297
BU	85068298									
1 x 4.0	61x0.28	2.35	3.35±0.05	5.09	486	138	0.66	4.05	WH	12581455
									GNYE	12581487
									BK	85026409

R₂₀: Conductor resistance

C_{H2O}: Capacity in water

*) not covered with existing fire safety certificates

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Table 2: Packaging Coil CK2 (h x d = 250mm x 400mm)

Construction n x mm ²	Conductor nom. Construction		Cable diameter mm	R ₂₀ max. Ω/km	C _{H2O} nom. pF/m	Fire load nom. kJ/m	Combustible material nom. kg/100m	Cable weight nom. kg/100m	Colour	H+S Part No.
	n x mm	D mm								
1 x 0.34	19x0.16	0.76	1.30±0.03	52.1	321	27	0.35	0.48	WH	85145846

R₂₀: Conductor resistance

C_{H2O}: Capacity in water

Table 3: Packaging Coil CK4 (h x d = 400mm x 400mm)

Construction n x mm ²	Conductor nom. Construction		Cable diameter mm	R ₂₀ max. Ω/km	C _{H2O} nom. pF/m	Fire load nom. kJ/m	Combustible material nom. kg/100m	Cable weight nom. kg/100m	Colour	H+S Part No.
	n x mm	D mm								
1 x 1.0	19x0.26	1.21	1.77±0.03	20.0	453	42	0.21	1.05	WH	12581778
1 x 1.5	19x0.30	1.44	2.17±0.03	13.7	420	66	0.32	1.54	WH	12581779
1 x 2.5	19x0.40	1.85	2.75±0.05	8.21	435	103	0.5	2.54	WH	12581780
1 x 4.0	61x0.28	2.35	3.35±0.05	5.09	486	138	0.66	4.05	WH	85138777

R₂₀: Conductor resistance

C_{H2O}: Capacity in water