Traction cable
RADOX EN 50264-3-2 600V MM S

Product description:

RADOX EN 50264-3-2 600V MM S	Multicore cables with reduced wall dimensions, screened (overall screen)
Nominal voltage:	600 / 1000 V AC
Hazard level:	MM (extra low temperature, extra oil and extra fuel resistant)

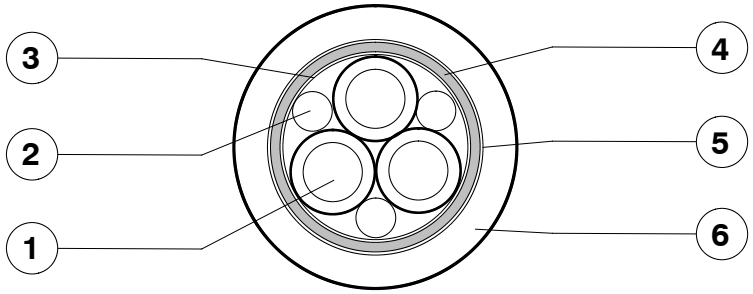
General features:

Halogen free, electron-beam cross-linked cables with improved behaviour in case of fire, easy to strip, soldering iron resistant and flexible. Meet the requirements of EN 50264-3-2.

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.	EN 50264-3-1 600V cores	Conductor:	stranded tin plated copper, acc. to EN 60228 cl. 5
		Insulation:	RADOX EI 110 / EI 109
		Colours:	black, numbered
			greenyellow, optional
2.	Filler (optional)	RADOX 125 REC	
3.	Wrapping (optional)	Tape	
4.	EMC-screen	Tin plated copper braid	
5.	Wrapping	Tape	
6.	Sheath	RADOX EM 104, colour: black	

Marking:

[a] **HUBER+SUHNER RADOX EN 50264-3-2 600V** [b] **MM S** [c]-[d] [e] [f]

		example:
[a]	Meter marking (in m)	= 1234 = m
[b]	Construction	2X150
[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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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 ...+ 120	°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 60811-1-4 Par. 8, 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.

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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
Vertical flame spread, bunched, 6 < D < 12 mm	L ≤ 2.5 m	EN 50305, 9.1.1 (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, level of protection	**1 – 4**	**DIN 5510**
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 50266-2-5 (EN 50305, 9.1.1)
Vertical flame spread, bunched, D ≥ 12 mm	L ≤ 2.5 m	EN 50266-2-4
Smoke density	T ≥ 60 %	EN 61034-2
Corrosivity of combustion gases*	pH ≥ 4.3, C ≤ 10 µS/mm	EN 50267-2-2
Amount of halogen acid gas*	HCl + HBr ≤ 0.5 %	EN 50267-2-1
Content of fluorine*	HF ≤ 0.1 %	EN 60684-2, 45.2
Toxicity*	ITC ≤ 3	EN 50305, 9.2

* Insulation, filler, wrapping and sheath

Fire protection on railway vehicles, category	**A1, A2, B**	**NF F16-101**
Fire protection on railway vehicles, class	C / F1	NF F16-101
Vertical flame spread	50 < L ≤ 540 mm	NF C32-070, 2.1
Vertical flame spread, bunched	L ≤ 300 mm	NF C32-070, 2.2
Smoke index	I.F. ≤ 5	X10-702-2, NF X70-100-1

Fire protection on railway vehicles, hazard level	**LR1 – LR4**	**UNI CEI 11170**
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 50267-2-2
Amount of halogen acid gas	HCl + HBr ≤ 0.5 %	EN 50267-2-1
Toxicity	ITC ≤ 3	EN 50305, 9.2

Requirement of hazard level code M	(according to EN 50264-1 or 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:

- 585 389 Datasheet of cores
- 586 556 Current rating for multi core cables

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Con-struction [1] n x mm²	Conductor nom. Construction n x mm	Dia. mm²	Core dia. [2] nom. mm	Screen nom. Dia. mm	Section mm²	Cable dia. mm	R_{20} [3] max. Ω/km	Z_T max. mΩ/m	C' [4] nom c/c pF/m	c/s pF/m	Fireload nom. kJ/m	Weight nom Copper kg/100m	Cable kg/100m	H+S Part No.
7G1	37x0.18	1.22	2.50	8.0	2.7	9.9±0.3	20	50	145	245	1250	8.8	18.2	85 013 471
2x1.5	37x0.23	1.52	3.00	6.5	2.1	8.3±0.3	13.7	80	150	255	850	4.9	11	12 585 382
3x1.5 3G1.5	37x0.23	1.52	3.00	7.0	2.4	8.7±0.3	13.7	70	150	255	940	6.6	14	12 586 211 12 586 212
4x1.5 4G1.5	37x0.23	1.52	3.00	8.1	3.3	10.0±0.3	13.7	60	150	255	1220	8.7	18	12 586 213 12 586 214
2x2.5	61x0.23	1.94	3.35	7.3	2.4	9.0±0.3	8.21	70	177	300	1010	6.9	14	12 586 215
3x2.5 3G2.5	61x0.23	1.94	3.35	7.9	2.3	9.5±0.3	8.21	60	177	300	1100	9.1	18	12 586 216 84 085 219
4x2.5 4G2.5	61x0.23	1.94	3.35	9.0	3.8	11.1±0.4	8.21	50	177	300	1500	13	24	12 586 217 12 586 218
2x4	61x0.29	2.40	4.25	9.2	3.7	11.3±0.4	5.09	50	170	290	1720	11	23	12 586 219
3x4	61x0.29	2.40	4.25	10.1	5.5	12.2±0.4	5.09	50	170	290	1780	16	29	12 586 220
4x4 4G4	61x0.29	2.40	4.25	11.4	6.3	13.5±0.4	5.09	40	170	290	2145	20	36	12 586 221 85 006 436
2x6	84x0.30	2.93	4.85	10.6	5.5	12.7±0.4	3.39	40	190	322	2065	16	31	12 586 222
3x6	84x0.30	2.93	4.85	11.4	6.3	13.6±0.4	3.39	40	190	322	2205	22	38	12 586 223
4x6 4G6	84x0.30	2.93	4.85	12.9	7.1	15.1±0.4	3.39	40	190	322	2770	28	47	12 586 224 12 586 225
2x10	80x0.40	3.89	5.75	12.4	7.1	14.7±0.4	1.95	40	227	385	2630	26	44	12 586 226
3x10	80x0.40	3.89	5.75	13.3	7.1	15.6±0.4	1.95	30	227	385	2810	34	54	12 586 227
4G10	80x0.40	3.89	5.75	14.9	8.3	17.7±0.5	1.95	30	227	385	3545	45	70	12 586 229
3x16	119x0.40	5.30	7.05	16.4	10.6	19.2±0.5	1.24	30	280	476	3900	52	80	12 586 231
4x16	119x0.40	5.30	7.05	18.4	12.3	21.4±0.5	1.24	25	280	476	4880	67	102	12 586 232
5G16	119x0.40	5.30	7.05	20.9	13.7	24.2±0.5	1.24	25	280	476	6265	81.6	126	85 002 921
3x25	182x0.40	6.60	8.60	19.7	12.4	22.7±0.5	0.795	25	290	493	5670	75	115	12 586 234

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3x35 +1G25	266x0.40 182x0.40	7.8 6.6	9.7 8.45	25.1	17.6	28.9±0.6	0.565 0.795	20	1127	1916	9445	1.3	1.95	85 106 727
3x50	378x0.40	9.30	11.60	26.4	20.8	30.8±0.6	0.393	20	320	545	9570	150	215	12 585 383

[1] X: one colour, numered
G: one green-yellow core, others one colour, numered
V: various colours
[1] Cores: Tolerances of core diameter see H+S Datasheet 585 389
[2] R_{20}: Conductor resistance according to EN 60228
[3] C': Capacity per unit length, core/core (c/c) and core/sheet (c/s)