Traction cable
RADOX 3 GKW 600V XM FR

Product description:

RADOX 3 GKW 600V XM FR	Multicore cables with flame barrier
Nominal voltage:	600 / 1000 V AC
Hazard level:	M (extra low temperature, extra oil and extra fuel resistant)

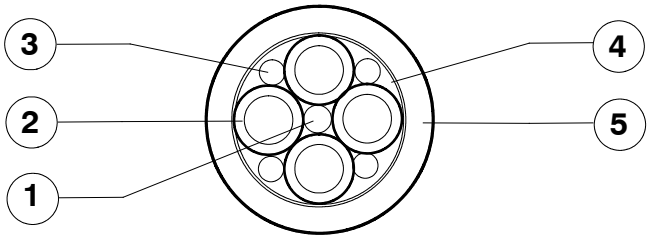
General features:

Halogen free, electron- beam cross- linked cables with improved behaviour in case of fire and maintains circuit integrity, easy to strip, soldering iron resistant and flexible.

Application:

The cables are intended for permanent installation in rail vehicles.
Guidelines for selection and installation are described in the standards EN 50355 and EN 50343.

General composition of cable:



1.	Centre (optional)	RADOX 125 REC	
2.	RADOX 3 GKW 600V FR cores	Conductor:	stranded tin plated copper, acc. to EN 60228 cl. 5
		Flame barrier:	MICA- tape
		Insulation:	RADOX EI 109 for cores < 6 mm^2
			RADOX EI 201 for cores ≥ 6 mm^2
		Colours:	grey, black numbered
			greenyellow (optional)
3.	Filler (optional)	RADOX 125 REC	
4.	Separator	Tape	
5.	Sheath	RADOX EM 104, colour: black, yellow marked	

Marking:

[a] **HUBER+SUHNER RADOX 3 GKW 600V** [b] **XM FR** [c]**-** [d] [e] [f]

		example:
[a]	Meter marking (in m)	= 1234 = m
[b]	Construction	4X0.75
[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			
fixed installation		- 50 ... + 120	°C
sporadic movement		- 25 ... + 90	°C
Min. bending radius			
fixed installation		6 x D	
sporadic movement		10 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:

Isolation receipt in the case of fire

Resistance to fire with mechanical shock, D > 20 mm	30 Min / 1030 V AC.	EN 50362
Resistance to fire with mechanical shock, D ≤ 20 mm	30 Min / 1030 V AC	EN 50200

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 60332-3-25
Vertical flame spread, bunched, D ≥ 12 mm	L ≤ 2.5 m	EN 60332-3-24
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

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 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 :

H+S : 563054 : Current rating for multicore cables

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Table :

Cable type [1]) n x mm²	Conductor Dia.nom. mm	Core [2]) Dia.nom. mm	Cable Dia. mm	R_{20} [3]) max. Ω/k	Fireload nom. kJ/m	Weight nom. Copper kg / 100m	Weight nom. Cable kg / 100m	H + S Part. No.
4x0.75	1.1	2.9	8.7±0.3	20.7	980	2.9	10.9	85 066 141
2x1.5	1.49	3.65	8.9±0.3	13.7	1140	2.7	11.5	85 023 787
4x1.5	1.49	3.65	11.1±0.4	13.7	1620	5.4	19.0	85 066 152
4G1.5	1.49	3.65	11.1±0.4	13.7	1620	5.4	19.0	12 568 277
7G1.5	1.49	3.65	13.1±0.4	13.7	2040	9.5	27.2	12 568 278
8x1.5	1.49	3.65	16.2±0.5	13.7	3800	10.9	40.1	85 066 211
3G2.5	1.94	4.05	10.7±0.4	8.21	1386	6.7	18.7	12 582 893
3x4	2.46	4.6	11.9±0.3	5.09	1544	10.5	23.9	12 565 106
4x4	2.46	4.6	13.7±0.4	5.09	2167	14	32.6	12 568 408
4x50	9.3	12.8	36.5±0.7	0.393	15142	174	282	12 568 900

1) X: one colour, numbered
G: one green- yellow core, others one colour, numbered
2) core details according to H+S Datasheet 559660
3) conductor resistance according to EN 60228