

# HALOGEN-FREE CABLES

externally tested  
acc. to DIN 5510-2  
edition May 2009

ASTM E 162-09  
ASTM E 662-09

**SABIX® R 645 FRNC TP** SABIX® Rail Data,  
paired with overall copper screen

CENTS 45545-2



Marking for SABIX® R 645 FRNC TP 66450325:  
SAB BRÖCKSKES · D-VIERSEN · SABIX® R 645 FRNC TP 3 x 2 x 0,25 mm² CE

With our specially developed for rail vehicles data cable with colored conductors, overall copper screen and twisted pairs SABIX® R 645 FRNC TP we offer our customers maximum planning certainty and comfort for flexible installation in railway vehicles. In addition to high flexibility, these cables to the highest safety standards for the railway industry. For these cables the stringent requirements have been confirmed in accordance with DIN 5510-2.

## Construction:

<b>Conductor:</b>	bare copper strands with reference to IEC 60228, EN 6028, VDE 0295, class 5
<b>Insulation:</b>	special SABIX®
<b>Color code:</b>	with reference to DIN 47100
<b>Stranding:</b>	pairwise, pairs in layers
<b>Wrapping:</b>	PETP foil
<b>Screen:</b>	tinned copper braiding
<b>Jacket material:</b>	special SABIX®
<b>Sheath color:</b>	gray

## Outstanding features:

- halogen-free
- no flame propagation
- good EMC characteristics\*
- flame retardant and self-extinguishing
- fulfills fire protection level 1 - 4 acc. to DIN 5510-1
- externally tested acc. to DIN 5510-2
- tested acc. to American ASTM standard
- fulfills HL1 - HL3 acc. to CEN/TS 45545-2
- good transmission rates and crosstalk attenuation

\* Copper braiding should be connected circularly to optimize the EMC characteristics

## Technical data:

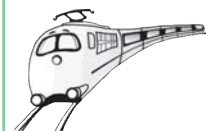
<b>Peak operating voltage:</b>	< 24 AWG = max. 350 V ≥ 24 AWG = max. 500 V
<b>Testing voltage:</b>	< 24 AWG = 800 V ≥ 24 AWG = 1200 V
<b>Min. bending radius</b> <i>fixed laying:</i>	5 x O. D.
<i>flexible application:</i>	10 x O. D.
<b>Temperature range</b> <i>fixed laying:</i>	-40/+90 °C
<i>flexible application:</i>	-30/+90 °C
<b>Zero halogen:</b>	acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0,5% acc. to EN 50267-2-1. pH-value is > 4,3 acc. to EN 50267-2-2. Conductivity is < 10,0 µS/mm acc. to EN 50267-2-2. Fluoric content < 0,1% acc. to EN 60684-2.
<b>Burning characteristics:</b>	For cable diameter ≥ 12 mm: no flame propagation acc. to EN 50266-2-4. For cable diameter > 6 mm < 12 mm: no flame propagation acc. to EN 50266-2-5 For cable diameter ≤ 6 mm: no flame propagation acc. to EN 50266-2-5 with configuration acc. to EN 50306-1 resp. EN 50264-1. Flame retardant and self-extinguishing acc. to EN 60332-1-2. Burning tests acc. to ASTM E 162-09.
<b>Toxicity:</b>	acc. to DIN EN 50305 + NF X 70-100-1 + NF X 70-100-2
<b>Smoke density:</b>	acc. to IEC 61034 + EN 61034 + ASTM E 662-09
<b>Flexibility:</b>	good
<b>Absence of harmful substances:</b>	acc. to RoHS directive of the European Union see page N/28

item no.	no. of pairs	nominal outer- inch	outer- mm	cable weight ≈ lbs/mft
<b>▶ 26 AWG (≈ 18/38) • 0.14 mm<sup>2</sup></b>				
66450214	2	0.205	5.2	26
66450314	3	0.224	5.7	30
66450414	4	0.256	6.5	36
66450514	5	0.276	7.0	43
66450614	6	0.283	7.2	48
66450814	8	0.307	7.8	56
66451014	10	0.350	8.9	71
66451214	12	0.382	9.7	81
66451614	16	0.413	10.5	99
66451814	18	0.437	11.1	117
66452414	24	0.504	12.8	150
<b>▶ 24 AWG (≈ 14/34) • 0.25 mm<sup>2</sup></b>				
66450225	2	0.224	5.7	31
66450325	3	0.252	6.4	41
66450425	4	0.283	7.2	48
66450525	5	0.303	7.7	56
66450625	6	0.311	7.9	62
66450825	8	0.354	9.0	80
66451025	10	0.386	9.8	93
66451225	12	0.429	10.9	116
66451625	16	0.469	11.9	143
66451825	18	0.500	12.7	165
66452425	24	0.559	14.2	199

item no.	no. of pairs	nominal outer- inch	outer- mm	cable weight ≈ lbs/mft
<b>▶ 22 AWG (≈ 7/30) • 0.34 mm<sup>2</sup></b>				
66450234	2	0.268	6.8	42
66450334	3	0.291	7.4	53
66450434	4	0.346	8.8	69
66450534	5	0.374	9.5	81
66450634	6	0.382	9.7	84
66450834	8	0.417	10.6	107
66451234	12	0.528	13.4	167
66451634	16	0.575	14.6	205
66451834	18	0.594	15.1	224
66452434	24	0.693	17.6	302
<b>▶ 20 AWG (≈ 16/32) • 0.50 mm<sup>2</sup></b>				
66450250	2	0.283	7.2	48
66450350	3	0.311	7.9	62
66450450	4	0.370	9.4	80
66450550	5	0.402	10.2	95
66450650	6	0.409	10.4	104
66450850	8	0.449	11.4	120
66451050	10	0.520	13.2	169
66451250	12	0.567	14.4	198
66451650	16	0.642	16.3	255
66451850	18	0.665	16.9	293
66452450	24	0.748	19.0	341

item no.	no. of pairs	nominal outer- inch	outer- mm	cable weight ≈ lbs/mft
<b>▶ 19 AWG (≈ 23/32) • 0.75 mm<sup>2</sup></b>				
66450275	2	0.335	8.5	69
66450375	3	0.370	9.4	86
66450475	4	0.429	10.9	112
66450575	5	0.461	11.7	135
66450675	6	0.492	12.5	161
66450875	8	0.539	13.7	187
66451275	12	0.673	17.1	282
66451675	16	0.732	18.6	351
66451875	18	0.760	19.3	390
66452475	24	0.858	21.8	480

Other dimensions and colors are possible on request.



**Especially  
for use in  
rail vehicles**

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