

# Halogen-free Cables

## Applications

### ■ Application of halogen-free SABIX® data cables

Data cables are used for the transmission of signals, measuring values and control signals in electronic control appliances, data processing systems, railway technologies, weighing installations, office appliances or wherever small cross sections, bending radii, shielding or high flexibility is demanded. The excellent characteristics of these cables, in various versions are oil resistance, low temperature flexibility, heat resistance, weather resistance, flexibility and being halogen-free.

#### Exemplary applications:

<b>SABIX® D 305 FRNC</b>	Communication technologies
<b>SABIX® D 315 FRNC</b>	Electronic data processing systems, weighing installations, office appliances
<b>SABIX® D 345 FRNC TP</b>	Electronic data processing systems, weighing installations, office appliances, for increased requirements on transmission characteristics and near-end cross talk attenuation

### ■ Application of halogen-free SABIX® Rail Data and Rail Control tested acc. to EN 45545-2

In sensitive areas, such as in public buildings and facilities and rail vehicles, the requirements for the protection of the general security are very high. In addition, halogen-free cables must be flame-retardant and self extinguishing and must not contribute to fire propagation. All of these characteristics, can be found in our brand name of SABIX®. Our SABIX® Rail Cables meet the highest safety standards according to EN 45545-2, and are certified by the Fire Technology Laboratory Currenta GmbH.

#### Exemplary applications:

**SABIX® R 600 FRNC**  
**SABIX® R 638 FRNC**  
**SABIX® R 605 FRNC**  
**SABIX® R 615 FRNC**  
**SABIX® R 645 FRNC TP**  
**SABIX® R flex**  
**SAB RailLine 560**  
**SABIX® A 280 FRNC X**  
**SABIX® A 285 FRNC X**  
**SABIX® A 280 FRNC X (FR)**

Cables for internal wiring of rail vehicles acc. to EN 45545-2

**SABIX®** cables can be fully recycled and in separate components newly supplied to the resource cycle. Cables with FRNC outer sheath avoid flame propagation in case of local flaming and are flame retardant and self-extinguishing acc. to VDE, EN and IEC. They fulfil the smoke

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### ■ Application of halogen-free SABIX® BL data, control and power cables for shipbuilding

The development of the new BL cable series has been achieved with co-operation from our customers coming from the shipbuilding field. The new cables are available as halogen-free SABIX® BL cables. All SABIX® BL types are constructed with tinned copper strands in class 5 in order to offer advantages in corrosion resistance and flexibility. Their SABIX® characteristics fulfill the highest safety-related aspects in shipbuilding with regards to both fire performance as well as being halogen-free. Data cables, type SABIX® BL Data, are available with small cross sections beginning with 26 AWG. This results in a small outer diameter which offers an outstanding advantage particularly where there is only a little space. The types SABIX® BL Control as well as SABIX® BL Power complement the new product series with control and power supply cables for electrical components.

#### Exemplary applications:

<b>SABIX® BL 405 FRNC</b> <b>SABIX® BL 415 FRNC</b> <b>SABIX® BL 443 C FRNC TT</b> <b>SABIX® BL 445 C FRNC TP</b> <b>SABIX® BL 446 C FRNC FTP</b>	Installation and wiring of navigation and bridge electronics as BNWAS, power supply of electrical components  Data cables
<b>SABIX® BL 400 FRNC</b> <b>SABIX® BL 438 C FRNC</b>	Control cables
<b>SABIX® BL 402 FRNC</b> <b>SABIX® BL 408 FRNC</b> <b>SABIX® BL 409 C FRNC</b> <b>SABIX® BL 410 FRNC</b> <b>SABIX® BL 412 C FRNC</b>	Power cables

### ■ Application of halogen-free SABIX® Ultra - continuous flex with highest fire protection

Fire protection, halogen-free, flexibility and oil resistance are the characteristics united by our new product range SABIX® Ultra. Due to the new jacket material, the cable can be used for flexible applications and shows the highest fire protection features by the standards EN 60332-1-2, EN 60332-3 Cat C or D, IEC 60754-1, IEC 60754-2, EN 61034, NF C 32-070 C1, NF X 70-100.

#### Exemplary applications:

<b>SABIX® SD 705 FRNC C1</b> <b>SABIX® SD 715 FRNC C1</b> <b>SABIX® SD 745 FRNC C1 TP</b>	as festoon cable for polar cranes in nuclear power plants, in rail technology as sensor cable at the vehicle chassis, cable track applications with moderate mechanical stress
<b>SABIX® S 710 FRNC C1</b> <b>SABIX® S 712 C FRNC C1</b>	as festoon cable for polar cranes in nuclear power plants, in rail technology as sensor cable at the vehicle chassis or as flexible control cable at the train doors, cable chain applications with moderate mechanical stress

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# Halogen-free Cables

## Selection Table

		Cable Type											
		K/13	K/14	K/15	K/16	K/16	K/17	K/17	K/18	K/19	K/20	K/21	K/22
		SABIX® A 146 FRNC	SABIX® A 156 FRNC	SABIX® A 166 FRNC	SABIX® A 147 FRNC	SABIX® A 157 FRNC	SABIX® A 100 HT	SABIX® A 101 HT	SABIX® A 200 FRNC	SABIX® A 205 FRNC	SABIX® A 238 FRNC	SABIX® A 260 PUR	SABIX® A 130 HT
Basic construction	Single conductor	●	●	●	●	●	●	●					
	Shielded										●		
	Colored conductors									●			●
	Numbered conductors								●		●	●	●
	Twisted pairs												
	Inner jacket												
Temperature range fixed installation*	+220°C						●	●					●
	+105°C	●	●	●	●	●	●	●					●
	+90°C	●	●	●	●	●	●	●	●	●	●	●	●
	+85°C	●	●	●	●	●	●	●	●	●	●	●	●
	+70°C	●	●	●	●	●	●	●	●	●	●	●	●
	-30°C	●	●	●	●	●	●	●	●	●	●	●	●
	-40°C	●	●	●	●	●	●	●	●	●	●	●	●
	-50°C	●	●	●	●	●	●	●	●	●	●	●	●
Voltage	Peak operating voltage max. 350 V												
	Peak operating voltage max. 500 V												
	Nominal voltage Uo/U 300/500 V	●			●		●	●	●	●	●	●	●
	Nominal voltage Uo/U 450/750 V		●			●							
	Nominal voltage Uo/U 0.6/1 kV			●									
	Voltage UL resp. CSA 600 V				●								
	Voltage UL resp. CSA 1000 V					●							
	Testing voltage 1500 V												
	Testing voltage 2000 V	●			●		●	●					●
	Testing voltage 2500 V		●			●							
	Testing voltage 3000 V			●					●	●	●	●	
	Testing voltage 4000 V												
Standards	Halogen-free acc. to IEC 60754-1+ VDE 0482-754-1	●	●	●	●	●	●	●	●	●	●	●	●
	Fire performance: No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 cat. C resp. D			●	●	●			●	●	●		
	Fire performance: No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2	●	●										
	Fire performance: Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2	●	●	●	●	●	●	●	●	●	●		●
	Fire performance acc. to CSA FT1												
	Corrosiveness of conflagration gases: In compliance with IEC 60754-2 + VDE 0482-754-2 - no development of corrosive conflagration gases	●	●	●	●	●	●	●	●	●	●		●
	Smoke density acc. to IEC 61034 + EN 61034 UL resp. CSA	●	●	●	●	●			●	●	●		
Special Features	Very good oil resistance acc. to EN 50363-10-2 + DIN VDE 0207-363-10-2											●	
	Good chemical resistance											●	



\*The temperature range for flexible application is mentioned on the corresponding catalog page

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# Halogen-free Cables

## Selection Table

	Cable Type	K/23	K/25	K/27	K/29	K/30	K/31	K/33	K/35
		SABIX® CC 625 FRNC M	SABIX® CC 625 S FRNC M	SABIX® CC 625 SH FRNC M	SABIX® A 810 FRNC	SABIX® A 812 C FRNC	SABIX® D 305 FRNC	SABIX® D 315 FRNC	SABIX® D 345 FRNC TP
Basic construction	Single conductor								
	Shielded		●	●		●		●	●
	Colored conductors						●	●	●
	Numbered conductors	●	●	●	●	●			
	Twisted pairs								●
	Inner jacket			●		●			
Temperature range fixed installation*	+220°C								
	+105°C								
	+90°C	●	●	●					
	+85°C	●	●	●	●	●	●	●	●
	+70°C	●	●	●	●	●	●	●	●
	-30°C	●	●	●	●	●	●	●	●
	-40°C	●	●	●	●	●	●	●	●
	-50°C	●	●	●	●	●	●	●	●
Voltage	Peak operating voltage max. 350 V						●	●	●
	Peak operating voltage max. 500 V						●	●	●
	Nominal voltage Uo/U 300/500 V	●	●	●					
	Nominal voltage Uo/U 450/750 V								
	Nominal voltage Uo/U 0.6/1 kV				●	●			
	Voltage UL resp. CSA 600 V	●	●	●					
	Voltage UL resp. CSA 1000 V								
	Testing voltage 1500 V						●	●	●
	Testing voltage 2000 V								
	Testing voltage 2500 V								
	Testing voltage 3000 V	●	●	●					
	Testing voltage 4000 V				●	●			
Standards	Halogen-free acc. to IEC 60754-1 + VDE 0482-754-1	●	●	●	●	●	●	●	●
	Fire performance: No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 cat. C resp. D	●	●	●	●	●	●	●	●
	Fire performance: No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2								
	Fire performance: Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2	●	●	●	●	●	●	●	●
	Fire performance acc. to CSA FT1	●	●	●					
	Corrosiveness of conflagration gases: In compliance with IEC 60754-2 + VDE 0482-754-2 - no development of corrosive conflagration gases	●	●	●	●	●	●	●	●
	Smoke density acc. to IEC 61034 + EN 61034	●	●	●	●	●	●	●	●
	UL resp. CSA	●	●	●					
Special Features	Very good oil resistance acc. to EN 50363-10-2 + DIN VDE 0207-363-10-2								
	Good chemical resistance								



\*The temperature range for flexible application is mentioned on the corresponding catalog page

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## Selection Table

Cables for Railway Technology acc. to EN 45545-2

EN 45545-2



		Cable Type	K/36	K/37	K/38	K/40	K/42	K/43	K/45	K/46	K/47	K/22	
Applications	Single conductor	SABIX® R 600 FRNC								●			
	Multi-conductor cable	SABIX® R 638 FRNC	●	●	●	●	●	●	●	●	●	●	
	Shielded	SABIX® R 605 FRNC		●		●	●	●	●		●		
	Wiring cable	SABIX® R 615 FRNC				●	●			●			
	Data cable	SABIX® R 645 FRNC TP					●						
	Control cable	SABIX® R flex	●	●			●	●	●	●	●	●	
	Cross linked type	SAB RailLine 560						●	●	●	●	●	
Standards	Halogen-free	Tested acc. to EN 45545-2	●	●	●	●	●	●	●	●	●	●	
		acc. to EN 50306-1 + EN 50264-1 are fulfilled. Development of HCl is < 0.5% acc. to IEC 60754-1. pH-value is > 4,3 acc. to IEC 60754-2. Conductivity is < 10.0 µS/mm acc. to IEC 60754-2. Fluoric content < 0.1% acc. to IEC 60684-2	●	●	●	●	●	●	●	●	●	●	●
	Fire Performance	No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 and EN 50305 + VDE 0260-305 section 9.1.2. Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2	●	●	●	●	●	●	●	●	●	●	●
		Burning test acc. to ASTM E 162-09				●	●						
		Flame retardant ISO 6722 (UN/ECE R118)			●	●	●						
		Insulation integrity in case of fire acc. to EN 50200 PH 30, VDE 0482-200, IEC 60331-21 FE 180 + VDE 0482-331-21											●
		Toxicity acc. to EN 50305 + VDE 0260-305	●	●	●	●	●	●	●	●	●	●	●
		Smoke density acc. to IEC 61034 + VDE 0482-1034	●	●	●	●	●	●	●	●	●	●	●
		Smoke density acc. to ASTM E 662-09				●	●						
		Oil and fuel resistance acc. to EN 50264-1 + VDE 0260-264-1							●	●			
Temperature range fixed installation*	+125 °C		●	●	●	●	●	●	●	●	●	●	
	+ 90 °C		●	●	●	●	●	●	●	●	●	●	
	- 40 °C		●	●	●	●	●	●	●	●	●	●	
	- 50 °C		●	●	●	●	●	●	●	●	●	●	
			●	●	●	●	●	●	●	●	●	●	
Voltage	Peak operating voltage: < 0.25 mm <sup>2</sup> = max. 350 V ≥ 0.25 mm <sup>2</sup> = max. 500 V				●	●	●						
	Nominal voltage U <sub>0</sub> /U 300/500 V	●	●					●	●	●	●	●	
	Nominal voltage U <sub>0</sub> /U 0.6/1 kV								●				
	Testing voltage 1500 V			●	●	●							
	Testing voltage 2000 V							●	●	●	●	●	
	Testing voltage 3000 V	●	●										
	Testing voltage 4000 V								●				

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# Halogen-free Cables

## Selection Table

SABIX® BL - Cables for Shipbuilding



		K/49	K/50	K/51	K/52	K/53	K/54	K/55	K/56	K/57	K/58	K/59	K/60
		Cable Type											
		SABIX® BL 405	SABIX® BL 415 C FRNC	SABIX® BL 443 C FRNC TT	SABIX® BL 445 C FRNC TP	SABIX® BL 446 C FRNC TP	SABIX® BL 400 FRNC	SABIX® BL 438 C FRNC	SABIX® BL 402 FRNC	SABIX® BL 408 FRNC	SABIX® BL 409 C FRNC	SABIX® BL 410 FRNC	SABIX® BL 412 C FRNC
Construction	Data cable	●	●	●	●	●							
	Control cable						●	●					
	Power cable								●	●			
	Shielded		●	●	●	●		●			●		●
	Twisted pairs				●	●							
	Twisted triple			●									
Temperature range fixed installation*	+ 90 °C	●	●	●	●	●	●	●	●	●	●	●	●
	- 40 °C	●	●	●	●	●	●	●	●	●	●	●	●
Voltage Range	Peak operating voltage max. 300 V			●		●							
	Peak operating voltage max. 350 V	●	●		●								
	Nominal voltage U <sub>0</sub> /U 300/500 V						●	●					
	Nominal voltage U <sub>0</sub> /U 0.6/1 kV								●	●	●	●	●
	Testing voltage 1500 V	●	●	●	●	●							
	Testing voltage 2000 V						●	●					
	Testing voltage 4000 V								●	●	●	●	●
Standards	Halogen-free acc. to IEC 60754-1 + VDE 0482-754-1	●	●	●	●	●	●	●	●	●	●	●	●
	Fire performance: No flame propagation acc. to IEC 60332-3-22 + VDE 0482-332-3-22 Cat. A	●	●	●	●	●	●	●	●	●	●	●	●
	Fire performance: Flame retardant and self-extinguishing acc. to IEC 60332-1-2 + VDE 0482-332-1-2	●	●	●	●	●	●	●	●	●	●	●	●
	Corrosiveness of conflagration gases: In compliance with IEC 60754-2 + VDE 0482-754-2 - no development of corrosive conflagration gases	●	●	●	●	●	●	●	●	●	●	●	●
	Smoke density acc. to IEC 61034 + VDE 0482-1034	●	●	●	●	●	●	●	●	●	●	●	●
Approvals	DNV-GL	●	●	●	●	●	●	●	●	●	●	●	●
	Russian Maritime Register of Shipping	●	●		●		●	●				●	●
Characteristics	flexible conductor stranding	●	●	●	●	●	●	●				●	●
	extended cross section range	●	●		●								

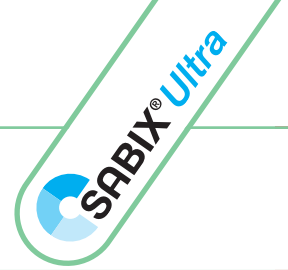


\*The temperature range for flexible application is mentioned on the corresponding catalog page

# Halogen-free Cables

## Selection Table

Continuously flexible with highest fire protection



		K/61	K/62	K/63	K/64	K/65	
		Cable Type	SABIX® SD 705 FRNC C1	SABIX® SD 710 FRNC C1	SABIX® SD 715 FRNC C1	SABIX® SD 712 FRNC C1	SABIX® SD 745 FRNC C1 TP
Construction	Data cable	●		●		●	
	Control cable		●		●		
	Shielded			●	●	●	
	Twisted pairs					●	
Temperature range fixed installation*	+ 90 °C						
	- 40 °C						
Voltage Range	Peak operating voltage < 0.25 mm <sup>2</sup> = max. 350 V ≥ 0.25 mm <sup>2</sup> = max. 500 V	●		●		●	
	Nominal voltage U <sub>0</sub> /U 0.6/1 kV		●		●		
	Testing voltage 1500 V	●		●		●	
	Testing voltage 4000 V		●		●		
Standards	Halogen-free acc. to IEC 60754-1 + VDE 0482-754-1	●	●	●	●	●	
	Fire performance: No flame propagation acc. to IEC 60332-3-24 + VDE 0482-332-3-24 resp. IEC 60332-3-25 + VDE 0482-332-3-25 cat. C resp. D	●	●	●	●	●	
	Flame retardant and self-extinguishing acc. to IEC 60332-1-2, VDE 0482-332-1-2 + NF C 32-070 C1	●	●	●	●	●	
	Corrosiveness of conflagration gases: In compliance with IEC 60754-2 + VDE 0482-754-2 - no development of corrosive conflagration gases	●	●	●	●	●	
	Smoke density acc. to IEC 61034 + VDE 0482-1034	●	●	●	●	●	
	Toxicity acc. to NF X 70-100	●	●	●	●	●	
	Oil and fuel resistance acc. to EN 50264-1 + VDE 0260-264-1	●	●	●	●	●	



\*The temperature range for flexible application is mentioned on the corresponding catalog page