

15331000	DATA SHEET	
Valid from: 11.01.2019	ÖLFLEX® TRAIN 331 600V	

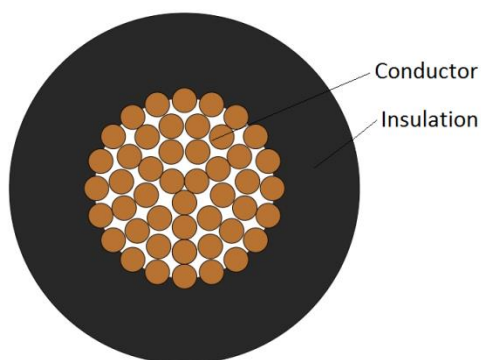
Application

ÖLFLEX® TRAIN 331 are halogen-free, highly flame retardant cables for use in railway vehicles and buses. They are designed for fixed installation and for applications, where limited movement may occur. They are particularly used in areas, where human and animal life as well as valuable property are exposed to high risk of fire hazards. ÖLFLEX® TRAIN 331 are oil-, fuel-, acid- and alkali resistant acc. to EN 50264-3-1.

Application range:

railway vehicles and buses: connecting lamps, heating equipment, switchgear, terminal boxes and power supply

Design



Design	according to EN 50264-3-1, 600 V, M
Norm references	EN 50264-3-1 (VDE 0260-264-3-1). Code designation M M = extra low temperature, extra oil and fuel resistant
Classification	EN 45545-2: Hazard Level HL1, HL2, HL3 NF F 16-101: Internal Category A1, A2, B External Category A1, A2, B Category C for flame propagation Category F0 for smoke
Conductor	fine wire strands of tinned copper acc. to IEC/EN 60228 resp. VDE 0295, Class 5
Core isolation	electron beam cross-linked polymer compound EI 109 acc. to EN 50264-1
Core identification	black, red, blue, GN/YE

Electrical properties

Nominal voltage	U_0 / U : 0.6/1 kV AC
Max. permissible operating voltage:	U_m : 1.2 kV AC V_0 : 0.9 kV DC
Test voltage	core / core: 3.5 kV AC; 8.4 kV DC

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Mechanical and thermal properties

Min. bending radius	fixed installation ≤ 12 mm:	3 x cable diameter
	fixed installation > 12 mm:	4 x cable diameter
	occasional flexing ≤ 12 mm:	4 x cable diameter
	occasional flexing > 12 mm ≤ 20 mm:	5 x cable diameter
	occasional flexing > 20 mm:	6 x cable diameter
Temperature range	fixed installation:	-45 °C up to +120 °C max. conductor temp. (20.000h)
	occasional flexing:	-35 °C up to +120 °C max. conductor temp. (20.000h)
	- 50° according to GOST 33326-2015 and GOST 20.57.406-81 (method 203-1 und 205-1)	
Short circuit temperature	max. +200°C (5s)	

Fire protection according to EN 50264-1 / EN 45545:

Classification	EN 45545-2: Hazard Level HL1, HL2, HL3	
Flammability	acc. to	EN 60332-1-2 resp. VDE 0482-332-1-2
No flame propagation acc. to	≥ 12 mm:	EN 60332-3-24 resp. VDE 0482-332-3-24
	> 6 mm and < 12 mm:	EN 60332-3-25 resp. VDE 0482-332-3-25
	≤ 6 mm:	EN 50305
Smoke density	acc. to EN 50306-1, light transmission:	min. 70%
	acc. to IEC 61034-2; EN 61034-2	
Halogen-free	acc. to IEC 60754-1; EN 60754-1; EN 50267-2-1 (chlorine and bromine)	
	acc. to EN 60684-2 (fluorine)	
Corrosivity	acc. to EN 50264-1, pH ≥ 4.3 and conductivity $\leq 10\mu\text{S}/\text{mm}$	
	acc. to IEC 60754-2; EN 60754-2; EN 50267-2-2	
Toxicity	acc. to EN 50264-1 (≤ 3)	
	acc. to EN 50305	

Fire protection according to NF (only for black and GNYE cores):

Classification	NF F 16-101: Internal Category A1, A2, B External Category A1, A2, B Category C for flame propagation Category F0 for smoke	
Flammability	acc. to NF C 32-070, Category C1 and C2	
Smoke density	acc. to NF X 10-702	
Toxicity	acc. to NF X 70-100	

Fire protection acc. to NFPA 130:

Flammability	FT4/IEEE1202 acc. to UL1685
Vertical-Tray Fire-Propagation	
Smoke release	acc. to UL 1685

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Material properties

Ozone resistance	acc. to EN 50264-3-1, method B acc. to EN 50305
Mineral oil resistance	acc. to EN 50264-3-1
Fuel resistance	acc. to EN 50264-3-1
Acid and alkali resistance	acc. to EN 50264-3-1
UV resistance	acc. to EN 50525-1 (VDE 0285-525-1) are cables with black sheath suitable for a permanent outdoor use.
Tests	acc. to EN 50264-3-1
EU Directives	These cables are conform to the EU-Directives 2014/35/EC (Low Voltage Directive)

Art. No.	Colour*	Conductor cross section [mm ²]	Max. wire ø [mm]	Max. conductor resistance (20°C) [Ohm/km]	Conductor ø reference value [mm]	Core ø [mm]	Fire load reference value [kWh/m]	Weight [kg/km]
15331000 15331017	BK GNYE	1	0.21	20.0	1.3	2.5 -0.1+0.3	0.02	15
15331001 15331018	BK GNYE	1.5	0.26	13.7	1.6	3.0 -0.2+0.3	0.03	22
15331002 15331019	BK GNYE	2.5	0.26	8.21	2.0	3.4 -0.2+0.3	0.04	33
15331003 15331020	BK GNYE	4	0.31	5.09	2.7	4.1 ±0.3	0.05	49
15331004 15331021	BK GNYE	6	0.31	3.39	3.2	4.6 ±0.3	0.06	70
15331005 15331022	BK GNYE	10	0.41	1.95	4.2	5.6 ±0.3	0.07	112
15331006 15331023	BK GNYE	16	0.41	1.24	5.2	6.6 -0.4+0.6	0.09	174
15331007 15331024	BK GNYE	25	0.41	0.795	6.5	8.3 -0.4+0.6	0.15	273
15331008 15331025	BK GNYE	35	0.41	0.565	7.7	9.5 -0.4+0.8	0.17	374
15331009 15331026	BK GNYE	50	0.41	0.393	9.7	11.7 -0.4+0.7	0.23	531
15331010 15331027	BK GNYE	70	0.51	0.277	11.4	13.6 -0.4+0.9	0.30	739
15331011 15331028	BK GNYE	95	0.51	0.210	13.4	15.6 -0.4+0.7	0.34	988
15331012	BK	120	0.51	0.164	15.0	17.4 -0.4+0.8	0.41	1243
15331013	BK	150	0.51	0.132	17.0	19.8 -0.5+0.8	0.53	1558
15331014	BK	185	0.51	0.108	18.5	21.7 -0.5+0.9	0.68	1927
15331015	BK	240	0.51	0.0817	22.0	25.4 -0.6+0.6	0.82	2487
15331016	BK	300	0.51	0.0654	23.2	26.8 -0.6+1.6	0.92	3085

*The values in the table are also valid for the red and blue cores.

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