

15381000	<b>DATA SHEET</b>	
Valid from: 14.09.2018	<b>ÖLFLEX® TRAIN 381 3.6kV</b>	

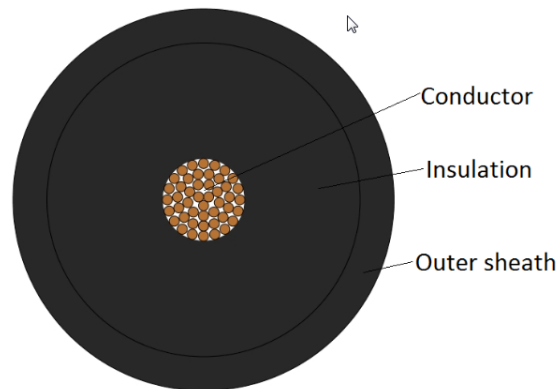
## Application

ÖLFLEX® TRAIN 381 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 381 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, 3600 V, MM
Approvals / Norm references	EN 50264-3-1 (VDE 0260-264-3-1). Code designation MM MM = 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 F1 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
Outer sheath	electron beam cross-linked polymer compound, halogen free and flame retardant, EM 104 acc. to EN 50264-1 colour: Black, similar RAL 9005

## Electrical properties

Nominal voltage	$U_0 / U$ : 3.6/6 kV AC
Max. permissible operating voltage	$U_m$ : 7.2 kV AC $V_0$ : 5.4 kV DC
Test voltage	core / core: 11 kV AC; 26 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 und < 12mm:	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 ≤ 10µS/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:

Classification	NF F 16-101: Internal Category A1, A2, B External Category A1, A2, B Category C for flame propagation Category F1 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	

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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

Art. No.	Conductor cross section [mm <sup>2</sup> ]	Max. wire ø [mm]	Max. conductor resistance (20°C) [Ohm/km]	Conductor ø reference value [mm]	Core ø reference value [mm]	Outer ø [mm]	Fire load reference value [kWh/m]	Weight [kg/km]
15381000	2.5	0.26	8.21	2.0	7.4	<b>9.0</b> -0.3+0.4	0.42	118
15381001	4	0.31	5.09	2.7	8.1	<b>9.7</b> ±0.3	0.48	146
15381002	6	0.31	3.39	3.2	8.6	<b>10.2</b> ±0.3	0.53	176
15381003	10	0.41	1.95	4.2	9.6	<b>11.2</b> -0.3+0.4	0.58	232
15381004	16	0.41	1.24	5.2	10.6	<b>12.2</b> -0.4+0.9	0.67	303
15381005	25	0.41	0.795	6.5	12.5	<b>14.5</b> -0.4+1.0	0.92	445
15381006	35	0.41	0.565	7.7	13.7	<b>15.7</b> -0.4+1.1	1.04	566
15381007	50	0.41	0.393	9.7	15.7	<b>17.7</b> -0.4+1.0	1.20	747
15381008	70	0.51	0.277	11.4	17.4	<b>19.4</b> -0.4+1.2	1.35	972
15381009	95	0.51	0.210	13.4	19.4	<b>21.4</b> -0.4+1.1	1.52	1250
15381010	120	0.51	0.164	15.0	21.0	<b>23.4</b> -0.4+0.9	1.82	1557
15381011	150	0.51	0.132	17.0	23.0	<b>25.4</b> -0.5+0.8	2.05	1895
15381012	185	0.51	0.108	18.5	25.1	<b>27.5</b> -0.5+1.1	2.27	2281
15381013	240	0.51	0.0817	22.0	29.0	<b>31.8</b> -0.6+0.9	3.05	2982
15381014	300	0.51	0.0654	23.2	30.2	<b>33.0</b> -0.6+1.9	3.17	3554

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