

15345000	<b>DATA SHEET</b>	
Valid from: 12.08.2022	<b>ÖLFLEX® TRAIN 345 C 600V</b>	

## Application

ÖLFLEX® TRAIN 345 C 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.

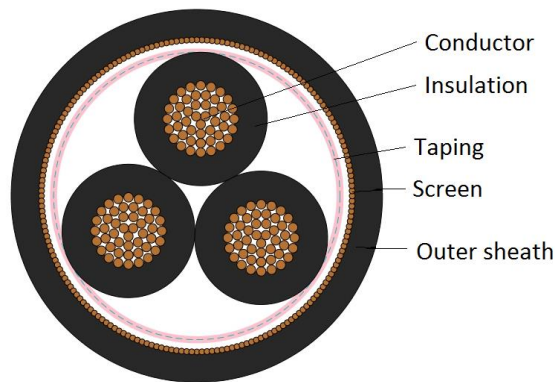
ÖLFLEX® TRAIN 345 C are oil-, fuel-, acid- and alkali resistant acc. to EN 50264-3-2.

The screen is a protection against electrical interference.

Application range:

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

## Design



Design	acc. to EN 50264-3-2, 600V, MM
Norm references	EN 50264-3-2. 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: depending on dimension (see table) 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 60228 resp. EN 60228, Class 5
Core isolation	electron beam cross-linked polymer compound EI 109 acc. to EN 50264-1
Core identification	acc. to EN 50264-3-2, with or without GN/YE ground conductor black cores with white numbers acc. to DIN EN 50334
Taping	plastic foil Taping
Screen	braid of tinned copper, coverage = 85% (nominal value)
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

Creator: HESC/PDC Released: ALTE/PDC	Document: DB15345000EN Version: 05	Page 1 of 4
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### 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 core / screen: 3.5 kV AC; 8.4 kV DC

### Mechanical and thermal properties

Min. bending radius	fixed installation $\leq 12$ mm:	3 x outer diameter
	fixed installation $> 12$ mm:	4 x outer diameter
	occasional flexing $\leq 12$ mm:	4 x outer diameter
	occasional flexing $> 12$ mm $\leq 20$ mm:	5 x outer diameter
	occasional flexing $> 20$ mm:	6 x outer 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° acc. 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 acc. to EN 50264-1 / EN 45545:

Classification	EN 45545-2: Hazard Level HL1, HL2, HL3	
Flammability	acc. to IEC 60332-1-2 resp. EN 60332-1-2	
No flame propagation acc. to	$\geq 12$ mm:	IEC 60332-3-24 resp. EN 60332-3-24
	$> 6$ mm und $< 12$ mm:	IEC 60332-3-25 resp. EN 60332-3-25
	$\leq 6$ mm:	EN 50305
Smoke density	acc. to EN 50264-1, 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 $\geq 4.3$ 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 ( $\leq 3$ ) acc. to EN 50305	

### Fire protection acc. to NF (depending on dimension, see table):

Classification	NF F 16-101: Internal Category A1, A2, B External Category A1, A2, B Category C for flame propagation Category F0 for smoke
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Creator: HESC/PDC Released: ALTE/PDC	Document: DB15345000EN Version: 05	Page 2 of 4
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15345000	<b>DATA SHEET</b>	
Valid from: 12.08.2022	<b>ÖLFLEX® TRAIN 345 C 600V</b>	

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

### Material properties

Ozone resistance acc. to EN 50264-3-2, method B  
acc. to EN 50305

Mineral oil resistance acc. to EN 50264-3-2

Fuel resistance acc. to EN 50264-3-2

Acid and alkali resistance acc. to EN 50264-3-2

UV resistance acc. to EN 50525-1 are cables with black sheath suitable for a permanent outdoor use.

Tests acc. to EN 50264-3-2

General requirements These cables are conform to the EU Directive 2014/35/EU (Low Voltage Directive)

Environmental information These cables meet the substance-specific requirements of the EU Directive 2011/65/EU (RoHS).

Art. No.	Number of cores x cross section [mm <sup>2</sup> ]	Max. wire [Ø]	Max. conduct. resist. (20°C) [Ω/km]	Conductor Ø reference value [mm]	Core Ø reference value [mm]	Outer Ø [mm]	Fire load reference value [kJ/m]	Weight [kg/km]	NF F 16-101
15345040	2X0.5	0.21	40.1	0.95	2.15	6.5 -0.3/+0.5	0.16	68	-
15345041	4X0.5	0.21	40.1	0.95	2.15	7.4 -0.3/+0.5	0.22	96	-
15345042	7X0.5	0.21	40.1	0.95	2.15	8.7 -0.3/+0.5	0.28	125	-
15345043	9X0.5	0.21	40.1	0.95	2.15	11.0 -0.4/+0.6	0.57	221	-
15345044	12X0.5	0.21	40.1	0.95	2.15	11.5 -0.4/+0.6	0.55	239	-
15345045	19X0.5	0.21	40.1	0.95	2.15	13.8 -0.4/+0.6	0.82	341	-
15345046	24X0.5	0.21	40.1	0.95	2.15	15.9 -0.5/+0.7	1.02	445	-
15345047	32X0.5	0.21	40.1	0.95	2.15	17.8 -0.5/+0.7	1.33	564	-
15345048	37X0.5	0.21	40.1	0.95	2.15	18.7 -0.5/+0.7	1.48	621	-
15345049	40X0.5	0.21	40.1	0.95	2.15	19.7 -0.5/+0.7	1.65	688	-
15345050	2X0.75	0.21	26.7	1.15	2.35	6.9 -0.3/+0.5	0.18	77	-
15345051	4X0.75	0.21	26.7	1.15	2.35	7.8 -0.3/+0.5	0.23	109	-
15345052	7X0.75	0.21	26.7	1.15	2.35	9.3 -0.3/+0.5	0.31	153	-
15345053	9X0.75	0.21	26.7	1.15	2.35	11.8 -0.4/+0.6	0.64	266	-
15345054	12X0.75	0.21	26.7	1.15	2.35	12.4 -0.4/+0.6	0.61	282	-
15345055	19X0.75	0.21	26.7	1.15	2.35	15.0 -0.4/+0.6	0.94	435	-
15345056	24X0.75	0.21	26.7	1.15	2.35	17.5 -0.5/+0.7	1.21	557	-
15345057	32X0.75	0.21	26.7	1.15	2.35	19.1 -0.5/+0.7	1.47	684	-
15345058	37X0.75	0.21	26.7	1.15	2.35	20.1 -0.6/+0.8	1.63	756	-
15345059	40X0.75	0.21	26.7	1.15	2.35	21.2 -0.6/+0.8	1.84	836	-
15345060	2X1	0.21	20.0	1.3	2.5	7.2 -0.3/+0.5	0.19	87	-
15345061	4X1	0.21	20.0	1.3	2.5	8.2 -0.3/+0.5	0.25	123	-
15345062	7X1	0.21	20.0	1.3	2.5	9.7 -0.3/+0.5	0.32	177	-

Creator: HESC/PDC Released: ALTE/PDC	Document: DB15345000EN Version: 05	Page 3 of 4
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15345000	<b>DATA SHEET</b>	
Valid from: 12.08.2022	<b>ÖLFLEX® TRAIN 345 C 600V</b>	

15345063	9X1	0.21	20.0	1.3	2.5	<b>12.4</b> -0.4/+0.6	0.69	300	-
15345064	12X1	0.21	20.0	1.3	2.5	<b>13.4</b> -0.4/+0.6	0.71	341	-
15345065	19X1	0.21	20.0	1.3	2.5	<b>15.7</b> -0.5/+0.7	0.99	505	-
15345066	24X1	0.21	20.0	1.3	2.5	<b>18.4</b> -0.5/+0.7	1.30	639	-
15345067	32X1	0.21	20.0	1.3	2.5	<b>20.1</b> -0.6/+0.8	1.59	790	-
15345068	37X1	0.21	20.0	1.3	2.5	<b>21.1</b> -0.6/+0.8	1.72	870	-
15345069	40X1	0.21	20.0	1.3	2.5	<b>23.0</b> -0.6/+0.8	2.16	1047	-
15345000	2X1.5	0.26	13.7	1.6	3.0	<b>8.2</b> -0.3/+0.5	0.30	125	X
15345001	3X1.5	0.26	13.7	1.6	3.0	<b>8.7</b> -0.2/+0.5	0.34	149	X
15345025	3G1.5								
15345002	4X1.5	0.26	13.7	1.6	3.0	<b>9.4</b> -0.3/+0.5	0.40	180	X
15345026	4G1.5								
15345070	7X1.5	0.26	13.7	1.6	3.0	<b>11.6</b> -0.4/+0.6	0.45	261	-
15345071	9X1.5	0.26	13.7	1.6	3.0	<b>14.7</b> -0.4/+0.6	0.83	390	-
15345072	12X1.5	0.26	13.7	1.6	3.0	<b>15.7</b> -0.5/+0.7	0.78	448	-
15345073	19X1.5	0.26	13.7	1.6	3.0	<b>18.6</b> -0.5/+0.7	1.17	649	-
15345074	24X1.5	0.26	13.7	1.6	3.0	<b>21.3</b> -0.6/+0.8	1.42	801	-
15345075	32X1.5	0.26	13.7	1.6	3.0	<b>24.0</b> -0.6/+0.8	1.90	1066	-
15345076	37X1.5	0.26	13.7	1.6	3.0	<b>25.2</b> -0.8/+1.0	2.11	1202	-
15345003	2X2.5	0.26	8.21	2.0	3.4	<b>9.0</b> -0.3/+0.6	0.36	160	X
15345004	3X2.5	0.26	8.21	2.0	3.4	<b>9.5</b> -0.3/+0.6	0.40	196	X
15345027	3G2.5								
15345005	4X2.5	0.26	8.21	2.0	3.4	<b>10.8</b> -0.4/+0.7	0.50	259	X
15345028	4G2.5								
15345077	7X2.5	0.26	8.21	2.0	3.4	<b>13.2</b> -0.4/+0.6	0.57	362	-
15345078	9X2.5	0.26	8.21	2.0	3.4	<b>16.5</b> -0.5/+0.7	0.98	538	-
15345079	12X2.5	0.26	8.21	2.0	3.4	<b>17.7</b> -0.5/+0.7	0.95	615	-
15345080	19X2.5	0.26	8.21	2.0	3.4	<b>20.6</b> -0.6/+0.8	1.31	874	-
15345081	24X2.5	0.26	8.21	2.0	3.4	<b>24.3</b> -0.6/+0.8	1.79	1160	-
15345006	2X4	0.31	5.09	2.7	4.1	<b>10.8</b> -0.4/+0.7	0.50	237	X
15345007	3X4	0.31	5.09	2.7	4.1	<b>11.4</b> -0.4/+0.7	0.55	290	X
15345008	4X4	0.31	5.09	2.7	4.1	<b>12.4</b> -0.4/+0.7	0.64	354	X
15345009	2X6	0.31	3.39	3.2	4.6	<b>11.8</b> -0.4/+0.7	0.55	294	X
15345010	3X6	0.31	3.39	3.2	4.6	<b>12.5</b> -0.4/+0.7	0.61	368	X
15345011	4X6	0.31	3.39	3.2	4.6	<b>14.0</b> -0.4/+0.7	0.78	470	X
15345012	2X10	0.41	1.95	4.2	5.6	<b>14.2</b> -0.4/+1.4	0.76	428	X
15345013	3X10	0.41	1.95	4.2	5.6	<b>15.2</b> -0.5/+1.5	0.87	572	X
15345014	4X10	0.41	1.95	4.2	5.6	<b>16.6</b> -0.5/+1.5	1.01	711	X
15345015	2X16	0.41	1.24	5.2	6.6	<b>16.4</b> -0.4/+1.5	1.01	637	X
15345016	3X16	0.41	1.24	5.2	6.6	<b>17.8</b> -0.4/+1.6	1.18	836	X
15345017	4X16	0.41	1.24	5.2	6.6	<b>19.4</b> -0.1/+1.8	1.35	1040	X
15345018	2X25	0.41	0.795	6.5	8.3	<b>20.2</b> -0.4/+1.6	1.49	940	X
15345019	3X25	0.41	0.795	6.5	8.3	<b>21.4</b> -0.1/+1.8	1.61	1219	X
15345020	4X25	0.41	0.795	6.5	8.3	<b>24.1</b> -0.1/+2.1	2.04	1601	X
15345021	2X35	0.41	0.565	7.7	9.5	<b>23.2</b> -0.4/+2.2	1.95	1287	X
15345022	3X35	0.41	0.565	7.7	9.5	<b>24.6</b> -0.1/+2.4	2.09	1668	X
15345023	2X50	0.41	0.393	9.7	11.7	<b>27.6</b> -0.8/+2.4	2.51	1733	X
15345024	3X50	0.41	0.393	9.7	11.7	<b>29.8</b> -1.0/+2.6	2.81	2336	X

Creator: HESC/PDC Released: ALTE/PDC	Document: DB15345000EN Version: 05	Page 4 of 4
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