

15320000	DATA SHEET	
valid from 2025-04-22	ÖLFLEX® TRAIN 320 TW-E 300 V	

Application

ÖLFLEX® TRAIN 320 TW-E are halogen-free, highly flame retardant cables with reduced insulation wall thickness for use in railway vehicles.

They are designed for fixed installation and for applications, where limited movement may occur.

They are particularly used in areas, where human life as well as valuable property are exposed to high risk of fire hazards.

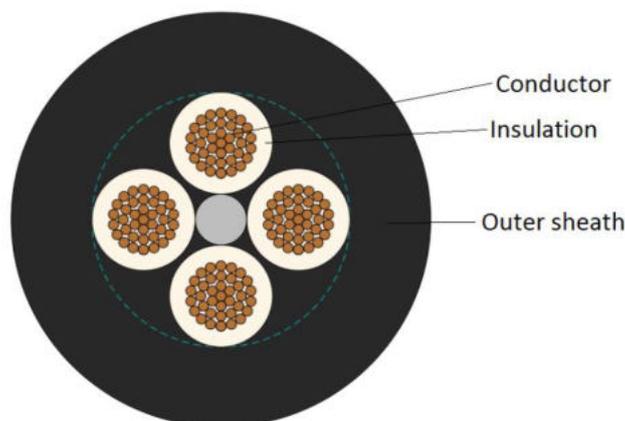
ÖLFLEX® TRAIN 320 TW-E are oil-, fuel-, acid- and alkali resistant acc. to EN 50306-2 and EN 50264-1 (EM 104).

Relevant for the installation are the indications in EN 50355 and EN 50343.

Application range:

railway vehicles, control and monitoring circuits as well as locking circuits and internal wiring of equipment in trains and locomotives.

Design



Design	acc. to EN 50306-4, class 1E
Norm references	EN 50306-4. 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 F0 for smoke
Conductor	tinned- copper strand, 19 or 37 wires, SRC (Special Round Conductor) acc. to EN 50306-2
Core isolation	electron beam cross-linked polymer compound acc. to EN 50306-2
Core identification	white cores with black numbers acc. to DIN EN 50334
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 at 20 °C

Nominal voltage	U_0 / U : 300/500 V AC acc. to EN 50306-4 U_m : 550V AC acc. to EN 50355 U_0 / U : 600/1000 V AC
Test voltage	core / core: 3.5 kV AC or 8.4 kV DC

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Mechanical and thermal properties

Min. bending radius	Outer diameter \leq 12.0 mm: 4 x outer diameter for cautions bending (one bend at end of core): 3 x outer diameter Outer diameter $>$ 12.0 mm: 5 x outer diameter for cautions bending (one bend at end of core): 4 x outer diameter
Temperature range	-40 °C up to +90 °C max. conductor temp. up to +120 °C max. conductor temp. (20.000h) -50°C acc. to GOST 33326-2015 and GOST 20.57.406-81 (method 203-1 and 205-1)
Short circuit temperature	max. +160°C (5s)

Fire protection according to EN 50306-4 / EN 45545-2:

Classification	EN 45545-2: Hazard Level HL1, HL2, HL3
Flammability	flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2 no flame propagation \geq 12 mm: acc. to IEC 60332-3-24 resp. EN 60332-3-24 $>$ 6 mm and $<$ 12 mm: acc. to IEC 60332-3-25 resp. EN 60332-3-25 \leq 6 mm: acc. to EN 50305, clause 9.1.2
Smoke density	acc. to EN 50306-1, light transmission: min. 70% acc. to IEC 61034-2 resp. EN 61034-2
Halogen-free	acc. to IEC 60754-1 resp. EN 60754-1 (chlorine and bromine) acc. to EN 60684-2 (fluorine)
Corrosivity	acc. to EN 50306-1, pH \geq 4.3 and conductivity \leq 10 μ S/mm acc. to IEC 60754-2 resp. EN 60754-2
Toxicity	acc. to EN 50306-1: \leq 3 EN 50305 EN 45545-2: \leq 6

Fire protection acc. to NF:

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	No flame propagation 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 50306-2 and EN 50306-4, method A or B
Mineral oil resistance	acc. to EN 50306-2 and EN 50264-1 (EM104)

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Fuel resistance acc. to EN 50306-2 and EN 50264-1 (EM104)

Acid and alkali resistance acc. to EN 50306-2 and EN 50264-1 (EM104)

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

Tests acc. to EN 50306-2 and EN 50306-4

General requirements These cables are conform to the EU-Directives 2014/35/EC (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 ²]	Conductor [n x mm \varnothing]	Max. conductor resistance (20°C) [Ohm/km]	Conductor \varnothing reference value [mm]	Core \varnothing reference value [mm]	Outer \varnothing [mm]	Fire load reference value [kJ/m]	Weight [kg/km]
15320000	4X0.5	19x0.18	40.1	0.9	1.4	6.0 ± 0.5	676	61
15320001	7X0.5	19x0.18	40.1	0.9	1.4	6.8 ± 0.5	819	84
15320002	13X0.5	19x0.18	40.1	0.9	1.4	8.8 ± 0.5	1291	142
15320003	19X0.5	19x0.18	40.1	0.9	1.4	9.6 ± 0.6	1452	181
15320004	37X0.5	19x0.18	40.1	0.9	1.4	12.9 ± 0.6	2511	333
15320005	4X0.75	37x0.16*	26.7	1.1	1.6	6.5 ± 0.5	771	76
15320006	7X0.75	37x0.16*	26.7	1.1	1.6	7.4 ± 0.5	938	108
15320007	13X0.75	37x0.16*	26.7	1.1	1.6	9.7 ± 0.6	1496	186
15320008	19X0.75	37x0.16*	26.7	1.1	1.6	10.6 ± 0.6	1677	240
15320009	37X0.75	37x0.16*	26.7	1.1	1.6	13.8 ± 0.6	2602	427
15320010	48X0.75	37x0.16*	26.7	1.1	1.6	15.6 ± 0.8	2971	529
15320011	4X1	37x0.18*	20.0	1.2	1.7	6.8 ± 0.5	838	90
15320012	7X1	37x0.18*	20.0	1.2	1.7	7.8 ± 0.5	1021	130
15320013	13X1	37x0.18*	20.0	1.2	1.7	10.3 ± 0.6	1641	226
15320014	19X1	37x0.18*	20.0	1.2	1.7	11.3 ± 0.6	1836	296
15320015	37X1	37x0.18*	20.0	1.2	1.7	14.8 ± 0.6	2857	532
15320016	4X1.5	37x0.23*	13.7	1.6	2.2	7.9 ± 0.5	1088	125
15320017	7X1.5	37x0.23*	13.7	1.6	2.2	9.3 ± 0.5	1433	189
15320018	13X1.5	37x0.23*	13.7	1.6	2.2	12.3 ± 0.6	2239	325
15320019	19X1.5	37x0.23*	13.7	1.6	2.2	13.6 ± 0.6	2587	433
15320020	37X1.5	37x0.23*	13.7	1.6	2.2	18.0 ± 0.8	4044	782
15320021	2X2.5	37x0.30*	8.21	2.1	2.8	8.2 ± 0.5	1270	189
15320022	3X2.5	37x0.30*	8.21	2.1	2.8	8.6 ± 0.5	1294	126
15320023	4X2.5	37x0.30*	8.21	2.1	2.8	9.4 ± 0.6	1500	152

* These cables may be supplied in 19 strand conductors.

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