

15317000	<b>DATA SHEET</b>	
Valid from: 2023-11-15	<b>ÖLFLEX® TRAIN 317 C TW-P 300V</b>	

## Application

ÖLFLEX® TRAIN 317 C TW-P are halogen-free, highly flame retardant cables with reduced insulation wall thickness for use in railway vehicles.

They are designed for fixed and protected installation, further 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 317 C TW-P are oil-, fuel-, acid- and alkali resistant acc. to EN 50306-4.

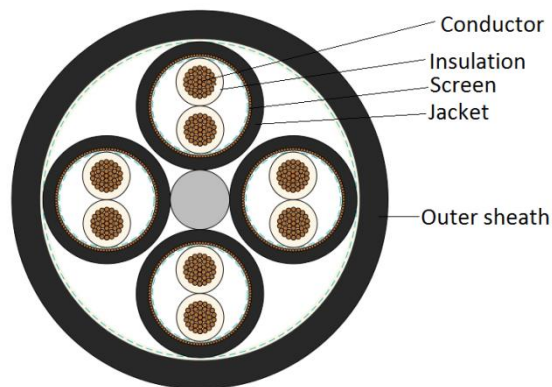
Relevant for the installation are the indications in EN 50355 and EN 50343.

The screen is a protection against electrical interference.

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 5P
Norm references	EN 50306-4. Code designation MM S 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	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
Pairs	braid of tinned copper wires, coverage = 85% (nominal value) jacket: electron beam cross-linked polymer compound S2
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

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### Electrical properties at 20 °C

Nominal voltage	U <sub>0</sub> / U: 300/500 V AC acc. to EN 50306-4 U <sub>m</sub> : 550V AC acc. to EN 50355 U <sub>0</sub> / U: 600/1000 V AC
Test voltage	core/core and core/screen: 3.5 kV AC or 8.4 kV DC

### Mechanical and thermal properties

Min. bending radius	Outer diameter ≤ 12.0 mm for cautions bending (one bend at end of core): 4 x outer diameter fixed installation: 5 x outer diameter occasional flexing: 6 x outer diameter  Outer diameter > 12.0 mm for cautions bending (one bend at end of core): 5 x outer diameter fixed installation: 6 x outer diameter occasional flexing: 7 x outer diameter
Temperature range	90° C max. conductor temp. acc. to EN 50306-4 110° C max. conductor temp. (20.000 h) acc. to EN 50306-4 fixed installation: -45 °C up to +120 °C max. conductor temp. (20.000 h) acc. to Lapp occasional flexing: - 35 °C up to +105 °C max. conductor temp. acc. to Lapp.  -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 acc. to EN 50306-4 / EN 45545-2:

Classification	EN 45545-2: Hazard Level HL1, HL2, HL3
Flammability	Flame retardand acc. to IEC 60332-1-2 resp. EN 60332-1-2 No flame propagation acc. to: ≥ 12 mm: IEC 60332-3-24 resp. EN 60332-3-24 > 6 mm und < 12mm: IEC 60332-3-25 resp. EN 60332-3-25 ≤ 6 mm: 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 50264-1. pH ≥ 4.3 and conductivity ≤ 10µS/mm acc. to IEC 60754-2 resp. EN 60754-2
Toxicity	acc. to EN 50306-1, clause 9.2: ≤ 3 EN 50305, clause 9.2 EN 45545-2: ≤ 6

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**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 F1 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)
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
EU Directives	These cables 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 <sup>2</sup> ]	Conductor [n x mmø]	Max. conductor resistance (20°C) [Ohm/km]	Conductor ø reference value [mm]	Core ø reference value [mm]	Outer ø [mm]	Fire load reference value [kJ/m]	Weight [kg/km]
15317000	2X2X0.5	19x0.18	40.1	0.9	1.4	9.6 ± 0.6	1800	150
15317001	3X2X0.5	19x0.18	40.1	0.9	1.4	10.2 ± 0.6	1947	178
15317002	4X2X0.5	19x0.18	40.1	0.9	1.4	11.3 ± 0.6	2253	217
15317003	7X2X0.5	19x0.18	40.1	0.9	1.4	13.6 ± 0.6	3149	331
15317004	2X2X0.75	37x0.16*	26.7	1.1	1.6	10.4 ± 0.6	2060	179
15317005	3X2X0.75	37x0.16*	26.7	1.1	1.6	11.1 ± 0.6	2301	219
15317006	4X2X0.75	37x0.16*	26.7	1.1	1.6	12.2 ± 0.6	2650	267
15317007	7X2X0.75	37x0.16*	26.7	1.1	1.6	14.8 ± 0.8	3544	399
15317008	2X2X1	37x0.18*	20.0	1.2	1.6	10.9 ± 0.7	2350	208
15317009	3X2X1	37x0.18*	20.0	1.2	1.6	11.5 ± 0.6	2525	250
15317010	4X2X1	37x0.18*	20.0	1.2	1.6	12.7 ± 0.6	2877	304
15317011	7X2X1	37x0.18*	20.0	1.2	1.6	15.4 ± 0.8	3838	458
15317012	2X2X1.5	37x0.23*	13.7	1.6	2.2	12.8 ± 0.6	3120	283
15317013	3X2X1.5	37x0.23*	13.7	1.6	2.2	13.7 ± 0.6	3406	346
15317014	4X2X1.5	37x0.23*	13.7	1.6	2.2	15.1 ± 0.8	4243	443
15317015	7X2X1.5	37x0.23*	13.7	1.6	2.2	18.4 ± 0.8	5156	638

\* These cables may be supplied in 19 strand conductors.

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