

15315000	<b>DATA SHEET</b>	
Valid from: 2023-11-15	<b>ÖLFLEX® TRAIN 315 C TW-P 300V</b>	

## Application

ÖLFLEX® TRAIN 315 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 315 C TW-P are oil-, fuel-, acid- and alkali resistant acc. to EN 50306-2 and EN 50264-1 (EM104).

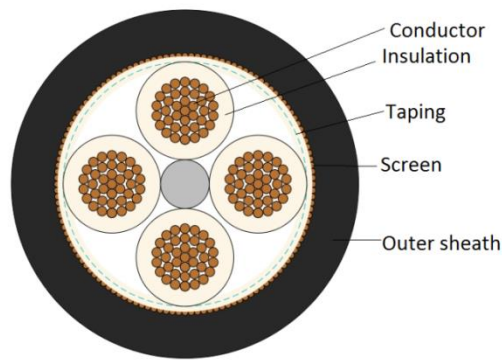
The screen is a protection against electrical interference.

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	based on EN 50306-4, class 3P
Norm references	based on 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: only for Art. No. 15315000 - 15315022 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 EN 50334
Wrapping	plastic foil
Screen	braid of tinned copper wires. 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

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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. (20.000h) 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	acc. to 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	≥ 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 50305 ≤ 6 EN 45545-2: ≤ 6

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**Fire protection acc. to NF only for Art. No. 15315000 - 15315022:**

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)
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-Directive 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]
15315000	2X0.5	19x0.18	40.1	0.9	1.4	4.6 ± 0.5	299	38
15315001	3X0.5	19x0.18	40.1	0.9	1.4	4.8 ± 0.5	319	45
15315002	4X0.5	19x0.18	40.1	0.9	1.4	5.2 ± 0.5	382	54
15315003	6X0.5	19x0.18	40.1	0.9	1.4	6.0 ± 0.5	475	72
15315033	7X0.5	19x0.18	40.1	0.9	1.4	6.1 ± 0.5	362	78
15315004	8X0.5	19x0.18	40.1	0.9	1.4	6.8 ± 0.5	536	94
15315034	13X0.5	19x0.18	40.1	0.9	1.4	8.5 ± 0.5	712	135
15315035	19X0.5	19x0.18	40.1	0.9	1.4	9.3 ± 0.5	821	176
15315036	37X0.5	19x0.18	40.1	0.9	1.4	12.3 ± 0.6	1281	316
15315037	48X0.5	19x0.18	40.1	0.9	1.4	13.9 ± 0.6	1541	393
15315005	2X0.75	37x0.16*	26.7	1.1	1.6	5.0 ± 0.5	337	46
15315006	3X0.75	37x0.16*	26.7	1.1	1.6	5.2 ± 0.5	363	56
15315007	4X0.75	37x0.16*	26.7	1.1	1.6	5.7 ± 0.5	437	69
15315008	6X0.75	37x0.16*	26.7	1.1	1.6	6.6 ± 0.5	499	96
15315038	7X0.75	37x0.16*	26.7	1.1	1.6	6.6 ± 0.5	424	99
15315009	8X0.75	37x0.16*	26.7	1.1	1.6	7.4 ± 0.5	634	123

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15315039	13X0.75	37x0.16*	26.7	1.1	1.6	9.3 ± 0.5	849	179
15315040	19X0.75	37x0.16*	26.7	1.1	1.6	10.5 ± 0.5	1003	248
15315041	37X0.75	37x0.16*	26.7	1.1	1.6	13.7 ± 0.6	1550	429
15315042	48X0.75	37x0.16*	26.7	1.1	1.6	15.7 ± 0.8	1888	539
15315010	2X1	37x0.18*	20.0	1.2	1.75	5.2 ± 0.5	366	54
15315011	3X1	37x0.18*	20.0	1.2	1.75	5.5 -0.4+0.5	396	66
15315012	4X1	37x0.18*	20.0	1.2	1.75	6.0 ± 0.5	455	81
15315013	6X1	37x0.18*	20.0	1.2	1.75	7.1 ± 0.5	579	117
15315043	7X1	37x0.18*	20.0	1.2	1.75	7.1 ± 0.5	469	120
15315014	8X1	37x0.18*	20.0	1.2	1.75	8.5 ± 0.5	838	157
15315044	13X1	37x0.18*	20.0	1.2	1.75	10.0 ± 0.5	814	209
15315045	19X1	37x0.18*	20.0	1.2	1.75	11.3 ± 0.5	922	291
15315046	37X1	37x0.18*	20.0	1.2	1.75	15.0 ± 0.6	1410	533
15315047	48X1	37x0.18*	20.0	1.2	1.75	17.0 ± 0.8	1686	669
15315015	2X1.5	37x0.23*	13.7	1.6	2.2	6.2 ± 0.5	478	74
15315016	3X1.5	37x0.23*	13.7	1.6	2.2	6.5 ± 0.5	470	95
15315017	4X1.5	37x0.23*	13.7	1.6	2.2	7.1 ± 0.5	588	118
15315018	6X1.5	37x0.23*	13.7	1.6	2.2	8.8 ± 0.5	879	172
15315048	7X1.5	37x0.23*	13.7	1.6	2.2	8.8 ± 0.5	737	181
15315019	8X1.5	37x0.23*	13.7	1.6	2.2	9.8 ± 0.6	1139	222
15315049	13X1.5	37x0.23*	13.7	1.6	2.2	12.2 ± 0.5	1202	331
15315050	19X1.5	37x0.23*	13.7	1.6	2.2	13.5 ± 0.6	1506	448
15315051	37X1.5	37x0.23*	13.7	1.6	2.2	18.1 ± 0.8	2218	814
15315052	48X1.5	37x0.23*	13.7	1.6	2.2	20.6 ± 0.8	2958	1023
15315020	2X2.5	37x0.30*	8.21	2.0	2.8	7.8 ± 0.5	719	120
15315021	3X2.5	37x0.30*	8.21	2.0	2.8	8.2 ± 0.5	782	150
15315022	4X2.5	37x0.30*	8.21	2.0	2.8	9.0 ± 0.6	986	191
15315053	6X2.5	37x0.30*	8.21	2.0	2.8	10.9 ± 0.6	1088	272
15315054	8X2.5	37x0.30*	8.21	2.0	2.8	12.7 ± 0.6	1507	366
15315055	13X2.5	37x0.30*	8.21	2.0	2.8	15.0 ± 0.6	1683	530
15315056	19X2.5	37x0.30*	8.21	2.0	2.8	16.7 ± 0.8	1944	713
15315057	37X2.5	37x0.30*	8.21	2.0	2.8	22.5 ± 0.8	3192	1333

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

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