

|                          |                                 |                                                                                    |
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| 15345000                 | <b>DATA SHEET</b>               |  |
| valid from<br>2025-04-08 | <b>ÖLFLEX® TRAIN 345 C 600V</b> |                                                                                    |

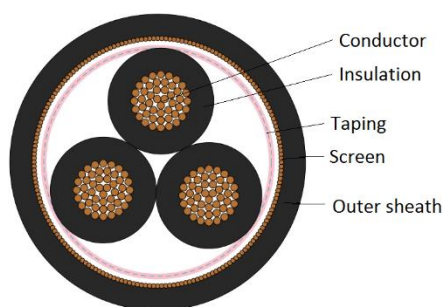
## Application

ÖLFLEX® TRAIN 345 C are halogen-free, highly flame retardant cables 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 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: connecting lamps, heating equipment, switchgear, terminal boxes and power supply

## Design



|                     |                                                                                                                                                                                                                       |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Norm references     | EN 50264-3-2. Code designation MM<br>MM = extra low temperature, extra oil and fuel resistant                                                                                                                         |
| Classification      | EN 45545-2: Hazard Level HL 1, HL2, HL3<br>NF F 16-101: depending on dimension (see table)<br>Internal Category A1, A2, B<br>External Category A1, A2, B<br>Category C for flame propagation<br>Category F0 for smoke |
| Conductor           | fine wire strands of tinned copper acc. to IEC 60228 resp. EN IEC 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<br>black cores with white numbers acc. to DIN EN 50334                                                                                                   |
| Taping              | plastic foil                                                                                                                                                                                                          |
| 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<br>colour: black, similar RAL 9005                                                                           |

## Electrical properties at 20 °C

|                                     |                                                                          |
|-------------------------------------|--------------------------------------------------------------------------|
| Nominal voltage                     | $U_0 / U$ : 0.6 / 1 kV AC                                                |
| Max. permissible operating voltage: | $U_m$ : 1.2 kV AC<br>$V_0$ : 0.9 kV DC                                   |
| Test voltage                        | core / core: 3.5 kV AC; 8.4 kV DC<br>core / screen: 3.5 kV AC; 8.4 kV DC |

|                    |                        |             |
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## Mechanical and thermal properties

|                           |                                                                                                                                                                                                                                                     |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Min. bending radius       | Outer diameter $\leq$ 12.0 mm: 5 x outer diameter<br>for cautions bending (one bend at end of core): 4 x outer diameter<br><br>Outer diameter $>$ 12.0 mm: 6 x outer diameter<br>for cautions bending (one bend at end of core): 5 x outer diameter |
| Temperature range         | -40 °C up to +90 °C max. conductor temp.<br>up to +120 °C max. conductor temp. (20.000h)<br><br>-50 °C acc. to GOST 33326-2015 and<br>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 45545-2:

|                |                                                                                                                                                                                                                                                |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Classification | EN 45545-2: Hazard Level HL1, HL2, HL3                                                                                                                                                                                                         |
| Flammability   | flame retardant acc. IEC 60332-1-2 resp. EN 60332-1-2<br>no flame propagation acc. to:<br>$\geq$ 12 mm: IEC 60332-3-24 resp. EN 60332-3-24<br>$>$ 6 mm und $<$ 12mm: IEC 60332-3-25 resp. EN 60332-3-25<br>$\leq$ 6 mm: EN 50305, clause 9.1.2 |
| Smoke density  | acc. to EN 50264-1, light transmission: min. 70%<br>acc. to IEC 61034-2 resp. EN 61034-2                                                                                                                                                       |
| Halogen-free   | acc. to IEC 60754-1; EN 60754-1; EN 50267-2-1 (chlorine and bromine)<br>acc. to EN 60684-2 (fluorine)                                                                                                                                          |
| Corrosivity    | acc. to EN 50264-1, pH $\geq$ 4.3 and conductivity $\leq$ 10 $\mu$ S/mm<br>acc. to IEC 60754-2 resp. EN 60754-2                                                                                                                                |
| Toxicity       | acc. to EN 50264-1: $\leq$ 3<br>EN 45545-2: $\leq$ 6                                                                                                                                                                                           |

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

|                |                                                                                                                                      |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Classification | NF F 16-101: Internal Category A1, A2, B<br>External Category A1, A2, B<br>Category C for flame propagation<br>Category F0 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                                                                                                                  |

## Material properties

|                  |                                                    |
|------------------|----------------------------------------------------|
| Ozone resistance | acc. to EN 50264-3-2, method B<br>acc. to EN 50305 |
|------------------|----------------------------------------------------|

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| valid from<br>2025-04-08 | <b>ÖLFLEX® TRAIN 345 C 600V</b> |                                                                                    |

|                            |                                                                                              |
|----------------------------|----------------------------------------------------------------------------------------------|
| 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 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 [mm²] | 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  | 582                              | 68             | -           |
| 15345041 | 4X0.5                                 | 0.21          | 40.1                                | 0.95                             | 2.15                        | 7.4 -0.3/+0.5  | 781                              | 96             | -           |
| 15345042 | 7X0.5                                 | 0.21          | 40.1                                | 0.95                             | 2.15                        | 8.7 -0.3/+0.5  | 1012                             | 125            | -           |
| 15345043 | 9X0.5                                 | 0.21          | 40.1                                | 0.95                             | 2.15                        | 11.0 -0.4/+0.6 | 2054                             | 221            | -           |
| 15345044 | 12X0.5                                | 0.21          | 40.1                                | 0.95                             | 2.15                        | 11.5 -0.4/+0.6 | 1975                             | 239            | -           |
| 15345045 | 19X0.5                                | 0.21          | 40.1                                | 0.95                             | 2.15                        | 13.8 -0.4/+0.6 | 2961                             | 341            | -           |
| 15345046 | 24X0.5                                | 0.21          | 40.1                                | 0.95                             | 2.15                        | 15.9 -0.5/+0.7 | 3674                             | 445            | -           |
| 15345047 | 32X0.5                                | 0.21          | 40.1                                | 0.95                             | 2.15                        | 17.8 -0.5/+0.7 | 4802                             | 564            | -           |
| 15345048 | 37X0.5                                | 0.21          | 40.1                                | 0.95                             | 2.15                        | 18.7 -0.5/+0.7 | 5321                             | 621            | -           |
| 15345049 | 40X0.5                                | 0.21          | 40.1                                | 0.95                             | 2.15                        | 19.7 -0.5/+0.7 | 5936                             | 688            | -           |
| 15345050 | 2X0.75                                | 0.21          | 26.7                                | 1.15                             | 2.35                        | 6.9 -0.3/+0.5  | 639                              | 77             | -           |
| 15345051 | 4X0.75                                | 0.21          | 26.7                                | 1.15                             | 2.35                        | 7.8 -0.3/+0.5  | 833                              | 109            | -           |
| 15345052 | 7X0.75                                | 0.21          | 26.7                                | 1.15                             | 2.35                        | 9.3 -0.3/+0.5  | 1110                             | 153            | -           |
| 15345053 | 9X0.75                                | 0.21          | 26.7                                | 1.15                             | 2.35                        | 11.8 -0.4/+0.6 | 2295                             | 266            | -           |
| 15345054 | 12X0.75                               | 0.21          | 26.7                                | 1.15                             | 2.35                        | 12.4 -0.4/+0.6 | 2203                             | 282            | -           |
| 15345055 | 19X0.75                               | 0.21          | 26.7                                | 1.15                             | 2.35                        | 15.0 -0.4/+0.6 | 3381                             | 435            | -           |
| 15345056 | 24X0.75                               | 0.21          | 26.7                                | 1.15                             | 2.35                        | 17.5 -0.5/+0.7 | 4357                             | 557            | -           |
| 15345057 | 32X0.75                               | 0.21          | 26.7                                | 1.15                             | 2.35                        | 19.1 -0.5/+0.7 | 5299                             | 684            | -           |
| 15345058 | 37X0.75                               | 0.21          | 26.7                                | 1.15                             | 2.35                        | 20.1 -0.6/+0.8 | 5862                             | 756            | -           |
| 15345059 | 40X0.75                               | 0.21          | 26.7                                | 1.15                             | 2.35                        | 21.2 -0.6/+0.8 | 6610                             | 836            | -           |
| 15345060 | 2X1                                   | 0.21          | 20.0                                | 1.3                              | 2.5                         | 7.2 -0.3/+0.5  | 682                              | 87             | -           |
| 15345061 | 4X1                                   | 0.21          | 20.0                                | 1.3                              | 2.5                         | 8.2 -0.3/+0.5  | 904                              | 123            | -           |
| 15345062 | 7X1                                   | 0.21          | 20.0                                | 1.3                              | 2.5                         | 9.7 -0.3/+0.5  | 1160                             | 177            | -           |
| 15345063 | 9X1                                   | 0.21          | 20.0                                | 1.3                              | 2.5                         | 12.4 -0.4/+0.6 | 2477                             | 300            | -           |
| 15345064 | 12X1                                  | 0.21          | 20.0                                | 1.3                              | 2.5                         | 13.4 -0.4/+0.6 | 2555                             | 341            | -           |
| 15345065 | 19X1                                  | 0.21          | 20.0                                | 1.3                              | 2.5                         | 15.7 -0.5/+0.7 | 3567                             | 505            | -           |
| 15345066 | 24X1                                  | 0.21          | 20.0                                | 1.3                              | 2.5                         | 18.4 -0.5/+0.7 | 4692                             | 639            | -           |
| 15345067 | 32X1                                  | 0.21          | 20.0                                | 1.3                              | 2.5                         | 20.1 -0.6/+0.8 | 5720                             | 790            | -           |
| 15345068 | 37X1                                  | 0.21          | 20.0                                | 1.3                              | 2.5                         | 21.1 -0.6/+0.8 | 6208                             | 870            | -           |
| 15345069 | 40X1                                  | 0.21          | 20.0                                | 1.3                              | 2.5                         | 23.0 -0.6/+0.8 | 7762                             | 1047           | -           |

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|----------|--------|------|-------|-----|------|-----------------------|-------|------|---|
| 15345000 | 2X1.5  | 0.26 | 13.7  | 1.6 | 3.0  | <b>8.2</b> -0.3/+0.5  | 1097  | 125  | X |
| 15345001 | 3X1.5  | 0.26 | 13.7  | 1.6 | 3.0  | <b>8.7</b> -0.2/+0.5  | 1228  | 149  | X |
| 15345025 | 3G1.5  |      |       |     |      |                       |       |      |   |
| 15345002 | 4X1.5  | 0.26 | 13.7  | 1.6 | 3.0  | <b>9.4</b> -0.3/+0.5  | 1443  | 180  | X |
| 15345026 | 4G1.5  |      |       |     |      |                       |       |      |   |
| 15345070 | 7X1.5  | 0.26 | 13.7  | 1.6 | 3.0  | <b>11.6</b> -0.4/+0.6 | 1632  | 261  | - |
| 15345071 | 9X1.5  | 0.26 | 13.7  | 1.6 | 3.0  | <b>14.7</b> -0.4/+0.6 | 2994  | 390  | - |
| 15345072 | 12X1.5 | 0.26 | 13.7  | 1.6 | 3.0  | <b>15.7</b> -0.5/+0.7 | 2819  | 448  | - |
| 15345073 | 19X1.5 | 0.26 | 13.7  | 1.6 | 3.0  | <b>18.6</b> -0.5/+0.7 | 4220  | 649  | - |
| 15345074 | 24X1.5 | 0.26 | 13.7  | 1.6 | 3.0  | <b>21.3</b> -0.6/+0.8 | 5100  | 801  | - |
| 15345075 | 32X1.5 | 0.26 | 13.7  | 1.6 | 3.0  | <b>24.0</b> -0.6/+0.8 | 6833  | 1066 | - |
| 15345076 | 37X1.5 | 0.26 | 13.7  | 1.6 | 3.0  | <b>25.2</b> -0.8/+1.0 | 7609  | 1202 | - |
| 15345003 | 2X2.5  | 0.26 | 8.21  | 2.0 | 3.4  | <b>9.0</b> -0.3/+0.6  | 1291  | 160  | X |
| 15345004 | 3X2.5  | 0.26 | 8.21  | 2.0 | 3.4  | <b>9.5</b> -0.3/+0.6  | 1435  | 196  | X |
| 15345027 | 3G2.5  |      |       |     |      |                       |       |      |   |
| 15345005 | 4X2.5  | 0.26 | 8.21  | 2.0 | 3.4  | <b>10.8</b> -0.4/+0.7 | 1814  | 259  | X |
| 15345028 | 4G2.5  |      |       |     |      |                       |       |      |   |
| 15345077 | 7X2.5  | 0.26 | 8.21  | 2.0 | 3.4  | <b>13.2</b> -0.4/+0.6 | 2043  | 362  | - |
| 15345078 | 9X2.5  | 0.26 | 8.21  | 2.0 | 3.4  | <b>16.5</b> -0.5/+0.7 | 3527  | 538  | - |
| 15345079 | 12X2.5 | 0.26 | 8.21  | 2.0 | 3.4  | <b>17.7</b> -0.5/+0.7 | 3415  | 615  | - |
| 15345080 | 19X2.5 | 0.26 | 8.21  | 2.0 | 3.4  | <b>20.6</b> -0.6/+0.8 | 4718  | 874  | - |
| 15345081 | 24X2.5 | 0.26 | 8.21  | 2.0 | 3.4  | <b>24.3</b> -0.6/+0.8 | 6440  | 1160 | - |
| 15345006 | 2X4    | 0.31 | 5.09  | 2.7 | 4.1  | <b>10.8</b> -0.4/+0.7 | 1788  | 237  | X |
| 15345007 | 3X4    | 0.31 | 5.09  | 2.7 | 4.1  | <b>11.4</b> -0.4/+0.7 | 1983  | 290  | X |
| 15345008 | 4X4    | 0.31 | 5.09  | 2.7 | 4.1  | <b>12.4</b> -0.4/+0.7 | 2320  | 354  | X |
| 15345009 | 2X6    | 0.31 | 3.39  | 3.2 | 4.6  | <b>11.8</b> -0.4/+0.7 | 1978  | 294  | X |
| 15345010 | 3X6    | 0.31 | 3.39  | 3.2 | 4.6  | <b>12.5</b> -0.4/+0.7 | 2179  | 368  | X |
| 15345011 | 4X6    | 0.31 | 3.39  | 3.2 | 4.6  | <b>14.0</b> -0.4/+0.7 | 2798  | 470  | X |
| 15345012 | 2X10   | 0.41 | 1.95  | 4.2 | 5.6  | <b>14.2</b> -0.4/+1.4 | 2741  | 428  | X |
| 15345013 | 3X10   | 0.41 | 1.95  | 4.2 | 5.6  | <b>15.2</b> -0.5/+1.5 | 3128  | 572  | X |
| 15345014 | 4X10   | 0.41 | 1.95  | 4.2 | 5.6  | <b>16.6</b> -0.5/+1.5 | 3648  | 711  | X |
| 15345015 | 2X16   | 0.41 | 1.24  | 5.2 | 6.6  | <b>16.4</b> -0.4/+1.5 | 3647  | 637  | X |
| 15345016 | 3X16   | 0.41 | 1.24  | 5.2 | 6.6  | <b>17.8</b> -0.4/+1.6 | 4241  | 836  | X |
| 15345017 | 4X16   | 0.41 | 1.24  | 5.2 | 6.6  | <b>19.4</b> -0.1/+1.8 | 4844  | 1040 | X |
| 15345018 | 2X25   | 0.41 | 0.795 | 6.5 | 8.3  | <b>20.2</b> -0.4/+1.6 | 5364  | 940  | X |
| 15345019 | 3X25   | 0.41 | 0.795 | 6.5 | 8.3  | <b>21.4</b> -0.1/+1.8 | 5790  | 1219 | X |
| 15345020 | 4X25   | 0.41 | 0.795 | 6.5 | 8.3  | <b>24.1</b> -0.1/+2.1 | 7352  | 1601 | X |
| 15345021 | 2X35   | 0.41 | 0.565 | 7.7 | 9.5  | <b>23.2</b> -0.4/+2.2 | 7034  | 1287 | X |
| 15345022 | 3X35   | 0.41 | 0.565 | 7.7 | 9.5  | <b>24.6</b> -0.1/+2.4 | 7522  | 1668 | X |
| 15345023 | 2X50   | 0.41 | 0.393 | 9.7 | 11.7 | <b>27.6</b> -0.8/+2.4 | 9038  | 1733 | X |
| 15345024 | 3X50   | 0.41 | 0.393 | 9.7 | 11.7 | <b>29.8</b> -1.0/+2.6 | 10131 | 2336 | X |

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