



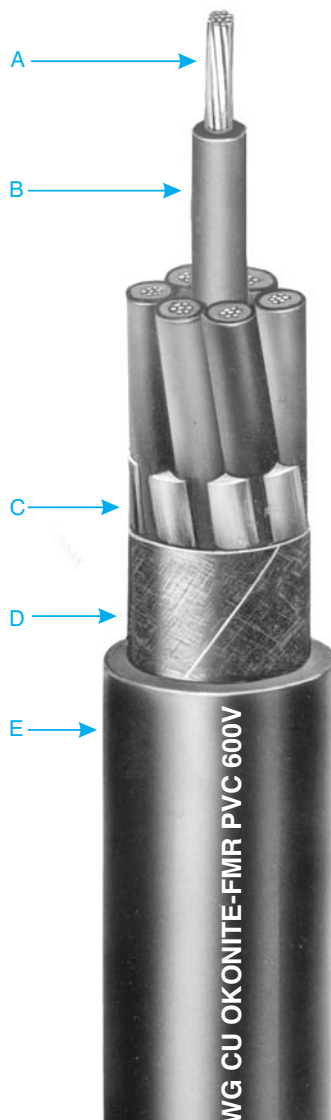
Okonite-FMR® Okoseal®

UL Type TC/TC-ER (XHH/XHHW-2) and cUL CIC-TC-ER
600V Power & Control

Tray Cable or Oko-Marine Cable 600/1000V

Multiple Copper Conductors With or Without
Grounding Conductor/90°C Wet or Dry

For Cable Tray Use - Sunlight Resistant - For Direct Burial



- A Stranded Copper Conductors
- B Okonite-FMR Insulation
- C Fillers, as necessary
- D Binder Tape
- E Okoseal Jacket — Black

Insulation

Okonite-FMR is Okonite's trade name for its heat, moisture, flame and chemical resistant, mechanically rugged ethylene-propylene insulating compound.

The properties of Okonite-FMR insulation substantially enhance the well known features of ethylene-propylene rubber insulations.

Overall Jacket

The Okoseal (PVC) jacket is mechanically rugged and has excellent resistance to most chemicals.

Applications

Okonite-FMR Okoseal Type TC-ER tray cable is permitted for use on power, lighting, control, and signal circuits; indoors or outdoors; in cable trays, raceways, direct burial in the ground, or where supported in outdoor locations by a messenger wire; for Class 1 circuits as permitted in Article 725 of the NEC; and in cable trays in Class I, Division 2 hazardous locations in industrial establishments where the conditions of maintenance and supervision assure that only qualified persons will service the installation. Cables marked TC-ER may also be used between a cable tray and the utilization equipment or device, when installed in accordance with NEC 336.10(7).

As Type Oko-Marine cable, it is suitable for use in marine shipboard and off-shore platform applications in accordance with API and ABS requirements.

Specifications

Conductors: Uncoated soft copper per ASTM B-3. Sizes smaller than #8 are compact stranded per ASTM B-8. Sizes #8 and larger are compact stranded per ASTM B-496.

Insulation: Okonite-FMR meets or exceeds requirements of UL 1581, ICEA S-73-532 (NEMA WC57) and ICEA S-95-658 NEMA WC70 Type II insulation.

Color Coding: Base colors and tracers as shown on reverse of Data Sheet and for sizes #8 AWG and larger black conductors with surface printing of numbers per ICEA S-73-532 NEMA/WC57 Method 4.

Grounding Conductor: Where indicated, bare stranded copper per ASTM B-8, or compact round per ASTM B-496, Class B & NEC Table 250.122.

Assembly: Conductors cabled in accordance with UL 1277 and 1309 using fillers, as necessary, with a cable tape overall.

Overall Jacket: Complies with UL 1277 and 1309. The Okoseal compound meets or exceeds the requirements of UL 1581. UL Listed as Type TC or TC-ER cable with a sunlight resistant low temperature jacket and for direct burial and Type Oko-Marine cable.

Sizes 4 AWG and larger without a grounding conductor are Type TC only (not ER).

Product Features

Insulated conductors are UL rated XHH/XHHW-2, cUL rated RW75/RW90, VW-1, PR I, and -40°C.

90°C continuous rating in wet or dry locations

130°C emergency overload rating

250°C short circuit rating.

Okonite-FMR Okoseal Type TC-ER and Oko-Marine cables are quality control inspected to meet or exceed applicable industry standards.

Resistant to moisture and most chemical atmospheres.

Thermal stability at elevated temperatures.

Flexible, easy to install and terminate.

High dielectric strength.

Installation Temperature -40°C.

Applicable Standards

- UL listed for cable tray use, direct burial, in ducts, and sunlight resistant.
- Vertical Tray Flame Tests; IEEE 383-1974, FT4/IEEE 1202, UL 1277, Sizes 250 kcmil and larger meet ICEA T-29-520 (210,000 BTU/hr).
- OSHA Acceptable
- UL 1309-Oko-Marine
- UL certified to IEEE 1580 - Marine Shipboard Cable rated 600/1000V.
- ABS Type approved; API-RP-14F, IEEE 45 & 1202, 46 CFR 111.60.
- CSA C22.2 No. 239 Type CIC for sizes 4/0 AWG and smaller.
- CSA C22.2 No. 230 Type TC-ER for sizes 14 through 4/0 AWG.
- 1000V CSA Type CIC available for sizes 4/0 AWG and smaller.

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600V Power & Control

Tray Cable or Oko-Marine Cable 600/1000V

Multiple Copper Conductors With or Without
Grounding Conductor/90°C Wet or Dry

For Cable Tray Use - Sunlight Resistant - for Direct Burial

Product Data Section 4: Sheet 5



| Catalog Number | Conductor Size AWG/kcmil | Number of Conductors | Insulation Thickness (mils) | Grounding Conductor AWG | Jacket Thickness (mils) | Jacket Thickness (mm) | Approx. O.D. (In.) | Approx. O.D. (mm) | Cross-Sectional Area (sq. In.) † | Approx. Net Weight lbs./1000' | Approx. Ship Weight lbs./1000' | 90°C Wet or Dry NEC Ampacity (1)* | 75°C Wet NEC Ampacity (1)* |
|-----------------------|-----------------------------|----------------------|-----------------------------|-------------------------|-------------------------|-----------------------|--------------------|-------------------|-------------------------------------|----------------------------------|-----------------------------------|--------------------------------------|-------------------------------|
| UL TYPE: TC-ER | | | | | | | | | | | | | |
| ▲202-10-3203 | | 3 | — | 45 | 1.14 | 0.40 | 10.2 | 0.13 | 104 | 127 | 15 | 15 | |
| ▲202-10-3204 | | 4 | — | 45 | 1.14 | 0.44 | 11.2 | 0.16 | 126 | 149 | 15 | 15 | |
| ▲202-10-3205 | 14(7X) | 5 | — | 45 | 1.14 | 0.48 | 12.2 | 0.18 | 151 | 174 | 15 | 15 | |
| ▲202-10-3207 | | 7 | — | 45 | 1.14 | 0.52 | 13.2 | 0.22 | 195 | 218 | 15 | 14 | |
| 202-10-3209 | | 9 | — | 60 | 1.52 | 0.63 | 16.0 | 0.32 | 260 | 292 | 15 | 14 | |
| ▲202-10-3212 | | 12 | — | 60 | 1.52 | 0.71 | 18.0 | 0.40 | 332 | 364 | 12 | 10 | |
| ▲202-10-3219 | | 19 | — | 60 | 1.52 | 0.82 | 20.8 | 0.54 | 480 | 519 | 12 | 10 | |
| ▲202-10-3237 | | 37 | — | 80 | 2.03 | 1.14 | 29.0 | 1.03 | 925 | 1005 | 10 | 8 | |
| ▲202-10-3403 | 12(7X) | 3 | — | 45 | 1.14 | 0.44 | 11.2 | 0.16 | 134 | 157 | 20 | 20 | |
| ▲202-10-3443 | | 3 | 12* | 45 | 1.14 | 0.48 | 12.2 | 0.18 | 162 | 185 | 20 | 20 | |
| ▲202-10-3404 | | 4 | — | 45 | 1.14 | 0.48 | 12.2 | 0.19 | 167 | 190 | 20 | 20 | |
| ▲202-10-3405 | | 5 | — | 45 | 1.14 | 0.52 | 13.2 | 0.22 | 202 | 225 | 20 | 20 | |
| ▲202-10-3407 | | 7 | — | 60 | 1.52 | 0.60 | 15.2 | 0.29 | 281 | 305 | 20 | 17 | |
| ▲202-10-3409 | 10(7X) | 9 | — | 60 | 1.52 | 0.70 | 17.8 | 0.39 | 363 | 395 | 20 | 17 | |
| ▲202-10-3412 | | 12 | — | 60 | 1.52 | 0.78 | 19.8 | 0.49 | 446 | 485 | 15 | 12 | |
| ▲202-10-3419 | | 19 | — | 80 | 2.03 | 0.95 | 24.1 | 0.73 | 697 | 752 | 15 | 12 | |
| 202-10-3437 | | 37 | — | 80 | 2.03 | 1.26 | 32.0 | 1.27 | 1266 | 1266 | 12 | 10 | |
| ▲202-10-3503 | | 3 | — | 45 | 1.14 | 0.49 | 12.4 | 0.20 | 183 | 206 | 30 | 30 | |
| ▲202-10-3543 | 3 | 10* | 45 | 1.14 | 0.53 | 13.5 | 0.23 | 223 | 247 | 30 | 30 | | |
| ▲202-10-3504 | 4 | — | 60 | 1.52 | 0.57 | 14.5 | 0.26 | 243 | 267 | 30 | 28 | | |
| 202-10-4505 | 5 | — | 60 | 1.52 | 0.62 | 15.7 | 0.31 | 294 | 318 | 30 | 28 | | |
| 202-10-3505* | 5 | — | 60 | 1.52 | 0.62 | 15.7 | 0.31 | 294 | 318 | 30 | 28 | | |
| 202-10-3507 | 7 | — | 60 | 1.52 | 0.67 | 17.0 | 0.37 | 384 | 416 | 28 | 24 | | |
| 202-10-3509 | 9 | — | 60 | 1.52 | 0.78 | 19.8 | 0.49 | 494 | 533 | 28 | 24 | | |
| 202-10-3512 | 12 | — | 80 | 2.03 | 0.92 | 23.4 | 0.68 | 669 | 724 | 20 | 17 | | |

Okonite's web site, www.okonite.com contains the most up to date information.

▲ Authorized stock item — Available from our Service Centers.

Equipment Grounding Conductor: Any conductor in these cables may be permanently re-identified during installation as the equipment grounding conductor in accordance with Section 250.119(B) of the NEC.

† **Cross-sectional** area for calculation of cable tray fill in accordance with Section 392.22 of the NEC.

* **Method 4 Color Code**

(1) Ampacities

Ampacities are based on Table 310.16 of the National Electrical Code for conductors rated 90°C, in a multi-conductor cable, at an ambient temperature of 30°C (86°F). The 75°C column is provided for additional information.

The ampacities shown apply to open runs of cable, installation in any approved raceway, direct burial in the earth, or as aerial cable on a messenger. Derating for more than three current carrying conductors within the cable is in accordance with NEC Section 310.15(C)(1).

The ampacities shown also apply to cables installed in cable tray in accordance with NEC Section 392.80.

*Current limited to 15, 20 and 30 amps per Section 240.4(D) of the NEC for #14, #12 and #10 AWG, respectively.

Product Data

Section 4: Sheet 5

| Catalog Number | Conductor Size AWG/kcmil | UL TC TYPE | Number of Conductors | Insulation Thickness (mils) | Grounding Conductor AWG** | Jacket Thickness (mils) | Jacket Thickness (mm) | Approx. O.D. (In.) | Approx. O.D. (mm) | Cross-Sectional Area (sq. In.) + | Approx. Net Weight lbs./1000' | Approx. Ship Weight lbs./1000' | 90°C Wet or Dry NEC Ampacity (1) | 75°C Wet NEC Ampacity (1) |
|----------------|--------------------------|------------|----------------------|-----------------------------|---------------------------|-------------------------|-----------------------|--------------------|-------------------|----------------------------------|-------------------------------|--------------------------------|----------------------------------|---------------------------|
| 112-10-3842 | 8(7X) | TC-ER | 3 | — | 60 | 1.52 | 0.64 | 16.3 | 0.32 | 273 | 305 | 55 | 50 | |
| ▲ 112-10-3844 | | | 3 | 10* | 60 | 1.52 | 0.70 | 17.8 | 0.38 | 349 | 388 | 55 | 50 | |
| 112-10-3845 | | | 4 | — | 60 | 1.52 | 0.70 | 17.8 | 0.38 | 352 | 391 | 45 | 40 | |
| 112-10-3847 | | | 4 | 10* | 60 | 1.52 | 0.73 | 18.5 | 0.42 | 412 | 451 | 45 | 40 | |
| 112-10-3852 | 6(7X) | TC-ER | 3 | — | 60 | 1.52 | 0.72 | 18.3 | 0.41 | 382 | 421 | 75 | 65 | |
| ▲ 112-10-3854 | | | 3 | 8* | 60 | 1.52 | 0.76 | 19.3 | 0.45 | 437 | 469 | 75 | 65 | |
| 112-10-3855 | | | 4 | — | 60 | 1.52 | 0.79 | 20.1 | 0.49 | 493 | 532 | 60 | 52 | |
| 112-10-3857 | | | 4 | 8* | 60 | 1.52 | 0.83 | 21.1 | 0.54 | 582 | 637 | 60 | 52 | |
| 112-10-3862 | 4(7X) | TC | 3 | — | 60 | 1.52 | 0.81 | 20.6 | 0.52 | 549 | 588 | 95 | 85 | |
| ▲ 112-10-3864 | | TC-ER | 3 | 8* | 80 | 2.03 | 0.84 | 21.3 | 0.55 | 696 | 751 | 95 | 85 | |
| 112-10-3865 | | TC | 4 | — | 80 | 2.03 | 0.94 | 23.9 | 0.69 | 750 | 805 | 76 | 68 | |
| 112-10-3867 | | TC-ER | 4 | 8* | 80 | 2.03 | 1.00 | 25.4 | 0.79 | 891 | 955 | 76 | 68 | |
| 112-10-3872 | 2(7X) | TC | 3 | — | 80 | 2.03 | 0.99 | 25.1 | 0.77 | 888 | 952 | 130 | 115 | |
| ▲ 112-10-3874 | | TC-ER | 3 | 6 | 80 | 2.03 | 0.99 | 25.1 | 0.77 | 941 | 1005 | 130 | 115 | |
| 112-10-3875 | | TC | 4 | — | 80 | 2.03 | 1.09 | 27.7 | 0.93 | 1133 | 1200 | 104 | 92 | |
| 112-10-3877 | | TC-ER | 4 | 6 | 80 | 2.03 | 1.12 | 28.4 | 0.99 | 1242 | 1322 | 104 | 92 | |
| 112-10-3882 | 1(19X) | TC | 3 | — | 80 | 2.03 | 1.10 | 27.9 | 0.95 | 1103 | 1170 | 150 | 130 | |
| 112-10-3884 | | TC-ER | 3 | 6 | 80 | 2.03 | 1.10 | 27.9 | 0.95 | 1180 | 1247 | 150 | 130 | |
| 112-10-3885 | | TC | 4 | — | 80 | 2.03 | 1.21 | 30.7 | 1.15 | 1434 | 1534 | 120 | 104 | |
| 112-10-3887 | | TC-ER | 4 | 6 | 80 | 2.03 | 1.21 | 30.7 | 1.15 | 1505 | 1605 | 120 | 104 | |
| 112-10-3892 | 1/0(19X) | TC | 3 | — | 80 | 2.03 | 1.18 | 30.0 | 1.09 | 1330 | 1410 | 170 | 150 | |
| ▲ 112-10-3894 | | TC-ER | 3 | 6 | 80 | 2.03 | 1.18 | 30.0 | 1.09 | 1410 | 1490 | 170 | 150 | |
| 112-10-3895 | | TC | 4 | — | 80 | 2.03 | 1.30 | 33.0 | 1.33 | 1741 | 1841 | 136 | 120 | |
| 112-10-3897 | | TC-ER | 4 | 6 | 80 | 2.03 | 1.23 | 31.2 | 1.19 | 1812 | 1912 | 136 | 120 | |
| 112-10-3902 | 2/0(19X) | TC | 3 | — | 80 | 2.03 | 1.27 | 32.3 | 1.27 | 1632 | 1732 | 195 | 175 | |
| ▲ 112-10-3904 | | TC-ER | 3 | 6 | 80 | 2.03 | 1.27 | 32.3 | 1.27 | 1711 | 1811 | 195 | 175 | |
| 112-10-3905 | | TC | 4 | — | 80 | 2.03 | 1.40 | 35.6 | 1.54 | 2114 | 2230 | 156 | 140 | |
| 112-10-3907 | | TC-ER | 4 | 6 | 80 | 2.03 | 1.40 | 35.6 | 1.54 | 2186 | 2302 | 156 | 140 | |
| 112-10-3922 | 4/0(19X) | TC | 3 | — | 80 | 2.03 | 1.48 | 39.4 | — | 2462 | 2605 | 260 | 230 | |
| ▲ 112-10-3924 | | TC-ER | 3 | 4 | 80 | 2.03 | 1.48 | 39.4 | — | 2576 | 2719 | 260 | 230 | |
| 112-10-3925 | | TC | 4 | — | 80 | 2.03 | 1.64 | 50.0 | — | 3206 | 3383 | 208 | 184 | |
| 112-10-3927 | | TC-ER | 4 | 4 | 80 | 2.03 | 1.64 | 50.0 | — | 3320 | 3497 | 208 | 184 | |
| 112-10-3928 | 250(37X) | TC | 3 | — | 80 | 2.03 | 1.62 | 44.7 | — | 2904 | 3047 | 290 | 255 | |
| 112-10-3929 | | TC-ER | 3 | 4 | 80 | 2.03 | 1.62 | 44.7 | — | 3029 | 3206 | 290 | 255 | |
| 112-10-3930 | | TC | 4 | — | 110 | 2.79 | 1.86 | 49.3 | — | 3893 | 4159 | 232 | 185 | |
| 112-10-3931 | | TC-ER | 4 | 4 | 110 | 2.79 | 1.86 | 49.3 | — | 4000 | 4265 | 232 | 185 | |
| 112-10-3932 | 350(37X) | TC | 3 | — | 110 | 2.79 | 1.89 | 50.3 | — | 3995 | 4261 | 350 | 310 | |
| ▲ 112-10-3933 | | TC-ER | 3 | 3 | 110 | 2.79 | 1.89 | 50.3 | — | 4164 | 4430 | 350 | 310 | |
| 112-10-3934 | | TC | 4 | — | 110 | 2.79 | 2.08 | 55.6 | — | 5243 | 5590 | 280 | 248 | |
| 112-10-3935 | | TC-ER | 4 | 3 | 110 | 2.79 | 2.08 | 55.6 | — | 5394 | 5741 | 280 | 248 | |
| 112-10-3936 | 500(37X) | TC | 3 | — | 110 | 2.79 | 2.14 | 57.4 | — | 5549 | 5939 | 430 | 380 | |
| ▲ 112-10-3937 | | TC-ER | 3 | 2 | 110 | 2.79 | 2.14 | 57.4 | — | 5743 | 6133 | 430 | 380 | |
| 112-10-3938 | | TC | 4 | — | 110 | 2.79 | 2.37 | 63.5 | — | 7237 | 7796 | 344 | 304 | |
| 112-10-3939 | | TC-ER | 4 | 2 | 110 | 2.79 | 2.37 | 63.5 | — | 7425 | 7984 | 344 | 304 | |
| 112-10-3940 | 750(61X) | TC | 3 | — | 110 | 2.79 | 2.58 | 68.6 | — | 8277 | 8904 | 535 | 475 | |
| 112-10-3941 | | TC-ER | 3 | 1 | 110 | 2.79 | 2.58 | 68.6 | — | 8515 | 9142 | 535 | 475 | |
| 112-10-3942 | | TC | 4 | — | 140 | 3.56 | 2.92 | 76.5 | — | 10942 | 11704 | 428 | 380 | |
| 112-10-3943 | | TC-ER | 4 | 1 | 140 | 3.56 | 2.92 | 76.5 | — | 11157 | 11919 | 428 | 380 | |
| 112-10-3944 | 1000(61X) | TC | 3 | — | 140 | 3.56 | 2.96 | 77.2 | — | 10953 | 11715 | 615 | 545 | |
| 112-10-3945 | | TC-ER | 3 | 1/0 | 140 | 3.56 | 2.96 | 77.2 | — | 11237 | 12000 | 615 | 545 | |
| 112-10-3946 | | TC | 4 | — | 140 | 3.56 | 3.28 | 85.6 | — | 14337 | 15270 | 492 | 436 | |
| 112-10-3947 | | TC-ER | 4 | 1/0 | 140 | 3.56 | 3.28 | 85.6 | — | 14632 | 15565 | 492 | 436 | |

Note: Sizes 4 AWG & larger without a grounding conductor are type TC only (not ER rated).

*Ground size marked with asterisk are green insulated. **Grounds may be split.

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600V Power & Control
Tray Cable or Oko-Marine Cable 600/1000V
 Multiple Copper Conductors With or Without
 Grounding Conductor/ 90°C Wet or Dry
For Cable Tray Use - Sunlight Resistant - For Direct Burial

Product Data
Section 4: Sheet 5



Conductor Color Coding Sequence
Sizes 14, 12 & 10 AWG

| Conductor Number | Base Color | Tracer Color |
|------------------|------------|--------------|
| 1 | Black | |
| 2 | Red | |
| 3 | Blue | |
| 4 | Orange | |
| 5 | Yellow | |
| 6 | Brown | |
| 7 | Red | Black |
| 8 | Blue | Black |
| 9 | Orange | Black |
| 10 | Yellow | Black |
| 11 | Brown | Black |
| 12 | Black | Red |
| 13 | Blue | Red |
| 14 | Orange | Red |
| 15 | Yellow | Red |
| 16 | Brown | Red |
| 17 | Black | Blue |
| 18 | Red | Blue |
| 19 | Orange | Blue |
| 20 | Yellow | Blue |
| 21 | Brown | Blue |
| 22 | Black | Orange |
| 23 | Red | Orange |
| 24 | Blue | Orange |
| 25 | Yellow | Orange |
| 26 | Brown | Orange |
| 27 | Black | Yellow |
| 28 | Red | Yellow |
| 29 | Blue | Yellow |
| 30 | Orange | Yellow |
| 31 | Brown | Yellow |
| 32 | Black | Brown |
| 33 | Red | Brown |
| 34 | Blue | Brown |
| 35 | Orange | Brown |
| 36 | Yellow | Brown |
| 37 | Black | |

Color Coding per ICEA Method 1, E-2 (except 202-10-3505 - Method 4)
 Sizes 8 AWG and larger:
 Surface Printing of Numbers per ICEA Method 4

Special Order: Any or all of the following conductors may be added when specifically requested by the customer to meet their specific application requirements. These conductor codings comply with UL and NEC requirements.

| <u>Purpose</u> | <u>Base Color</u> | <u>Tracer Color</u> |
|---------------------|---|---|
| Equipment Grounding | Uninsulated Green Green | 1 or more continuous yellow stripes |
| Grounded | White White White White White White White | Black continuous stripe Red continuous stripe Blue continuous stripe Orange continuous stripe Brown continuous stripe Numeric Printing |