THE OKONITE COMPANY

Product Data
Section 4: Sheet 8

X-Olene®-Okoseal®

UL Type TC/TC-ER (XHH/XHHW-2) and cUL CIC-TC-ER*

600/1000 Volt Power and Control Tray Cable

Multiple Copper Conductors, 90°C Wet or Dry

With or Without Grounding Conductor

For Cable Tray Use - Sunlight Resistant - For Direct Burial

***Sizes 1/0-4/0 AWG**

A Uncoated Copper Conductors
B X-Olene Insulation
C Fillers, as required
D Black Okoseal Jacket

Insulation

X-Olene® is Okonite's trade name for its cross-linked polyethylene, with high dielectric strength insulation.

Jacket

The Okoseal (PVC) jacket supplied with this cable is mechanically rugged and has excellent resistance to acids and most chemicals and is rated for low temperature installations.

Applications

Okonite X-Olene Okoseal 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).

Specifications

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

Insulation: X-Olene insulation per UL 1581, listed as XHHW-2.

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 and colors per ICEA S-73-532 NEMA/WC57 Method 3.

Assembly: Conductors cabled in accordance with UL 1277 using fillers and tape, as needed.

Grounding Conductor: Where indicated, bare or insulated stranded copper in accordance with NEC Table 250.122.

Overall Jacket: Complies with UL 1277. The Okoseal compound meets or exceeds the requirements of UL 1581.

Cable passes the Vertical Tray Flame Test requirements of UL 1277 for Type TC Power and Control Tray Cable.

UL Listed as Type TC or TC-ER cable with a sunlight resistant jacket and for direct burial.

Product Features

Insulated conductors are UL Listed Type XHH / XHHW-2.

90°C continuous rating in wet or dry locations.

130°C emergency overload rating.

250°C short circuit rating.

X-Olene Okoseal Type TC or TC-ER cables are quality control inspected to meet or exceed applicable industry standards.

Resistant to moisture and most chemical atmospheres.

Thermal stability at elevated temperatures.

Easy to install and terminate.

Mechanically rugged.

High dielectric strength.

Small diameter, lightweight.

Minimum installation temperature of -40°C for sizes 2 AWG and larger.

Applicable Standards

- UL listed for cable tray use, direct burial, in ducts, and sunlight resistant.
- Vertical Tray Flame Tests: IEEE 383-1974, Sizes 1/0 AWG and larger meet FT4/IEEE 1202.
- Design option available on sizes 14-1 AWG to meet FT4/IEEE 1202.
- CSA C22.2 No. 239 Type CIC for sizes 2 - 4/0 AWG.
- CSA C22.2 No. 230 Type TC-ER for sizes 1/0 - 4/0 AWG.

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***Sizes 1/0-4/0 AWG**

Catalog Number	Conductor Size AWG/kcmil	UL TYPE	Number of Conductors	Insulation Thickness - mils	Jacket Thickness - mils	Jacket Thickness - mm	Approx. O.D. - Inches	Approx. O.D. - mm	Approx. 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)*
▲202-31-3502	14(7X) (2.08mm²)	TC	2	30 (0.76mm)	45	1.14	0.37	9.4	0.11	70	85	15	15
▲202-31-3503		TC-ER	3		45	1.14	0.41	10.4	0.13	105	120	15	15
▲202-31-3504		TC-ER	4		45	1.14	0.43	10.9	0.15	120	135	15	15
▲202-31-3505		TC-ER	5		45	1.14	0.47	11.9	0.17	132	148	15	15
▲202-31-3507		TC-ER	7		45	1.14	0.50	12.7	0.20	182	205	15	14
▲202-31-3509		TC-ER	9		60	1.52	0.62	15.7	0.30	254	278	15	14
▲202-31-3512		TC-ER	12		60	1.52	0.69	17.6	0.38	306	338	12	10
202-31-3519		TC-ER	19		60	1.52	0.80	20.3	0.50	446	485	12	10
202-31-3537		TC-ER	37		80	2.03	1.11	28.2	0.97	856	936	10	8
▲202-31-3602	12(7X) (3.31mm²)	TC	2	30 (0.76mm)	45	1.14	0.40	10.2	0.13	92	107	20	20
▲202-31-3603		TC-ER	3		45	1.14	0.44	11.2	0.15	139	152	20	20
▲202-31-3604		TC-ER	4		45	1.14	0.47	11.9	0.17	171	187	20	20
▲202-31-3605		TC-ER	5		45	1.14	0.52	13.1	0.21	179	195	20	20
▲202-31-3607		TC-ER	7		60	1.52	0.59	15.0	0.27	269	293	20	17
▲202-31-3609		TC-ER	9		60	1.52	0.68	17.3	0.36	344	376	20	17
▲202-31-3612		TC-ER	12		60	1.52	0.77	19.6	0.47	425	464	15	12
202-31-3619		TC-ER	19		80	2.03	0.95	24.1	0.71	640	704	15	12
202-31-3637		TC-ER	37		80	2.03	1.24	31.5	1.21	1200	1290	12	10
▲202-31-3702	10(7X) (5.26mm²)	TC	2	30 (0.76mm)	45	1.14	0.45	11.4	0.16	122	138	30	30
▲202-31-3703		TC-ER	3		45	1.14	0.48	12.2	0.18	183	199	30	30
▲202-31-3704		TC-ER	4		60	1.52	0.56	14.2	0.25	242	258	30	28
▲202-31-3705		TC-ER	5		60	1.52	0.61	15.5	0.29	294	318	30	28
▲202-31-3707		TC-ER	7		60	1.52	0.66	16.8	0.34	378	410	28	24
202-31-3709		TC-ER	9		60	1.52	0.77	19.6	0.47	485	524	28	24
202-31-3712		TC-ER	12		80	2.03	0.91	23.1	0.65	643	698	20	17

Catalog Number	Conductor Size AWG/kcmil	Number of Conductors	Insulation Thickness mils	Green Insulated Grounding Conductor AWG	Jacket Thickness - mils	Jacket Thickness - mm	Approx. O.D. - Inches	Approx. O.D. - mm	Approx. 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													
202-31-3813	14(7X)	3	30	1#14	45	1.14	.43	10.9	0.15	120	135	15	15
▲202-31-3823	12(7X)	3	30	1#12	45	1.14	.47	11.9	0.17	171	187	20	20
▲202-31-3833	10(7X)	3	30	1#10	45	1.14	.53	13.5	0.23	238	262	30	30

Catalog Number	Conductor Size AWG/kcmil	Number of Conductors	Insulation Thickness mils	Bare Grounding Conductor AWG	Jacket Thickness - mils	Jacket Thickness - mm	Approx. O.D. - Inches	Approx. O.D. - mm	Approx. 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													
▲202-31-3653	12(7X)	3	30	1#12	45	1.14	.47	11.9	0.17	141	157	20	20
▲202-31-3753	10(7X)	3	30	1#10	60	1.52	.56	14.2	0.25	214	230	30	30

▲ **Authorized Stock Item.** Available from our Service Centers.

Equipment Grounding Conductor: Any conductor in TC rated 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 NEC Section 392.22.

(1) Ampacities

Ampacities are based on Table 310.16 of the National Electrical Code for XHHW-2 conductors rated 90ºC, in a multi-conductor cable, at an ambient temperature of 30ºC (86ºF). 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

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Section 4: Sheet 8

Catalog Number	Conductor Size AWG/kcmil	UL TYPE	Number of Conductors	Insulation Thickness - mils	Grounding Conductor AWG	Jacket Thickness - mils	Jacket Thickness - mm	Approx. O.D. - Inches	Approx. O.D. - mm	Approx. Cross-Sectional Area (sq. in.)†	Approx. Net Weight lbs./1000'	Approx. Ship Weight lbs./1000'	90ºC Wet or Dry NEC Ampacity (1)	75ºC Wet (1) NEC Ampacity
112-31-3734		TC-ER	3		—	60	1.52	0.64	16.3	0.32	259	298	55	50
▲112-31-3735	8(7X)	TC-ER	3		10	60	1.52	0.66	16.7	0.34	313	352	55	50
112-31-3736	(8.36mm²)	TC-ER	4	45	—	60	1.52	0.70	17.8	0.39	331	370	44	40
112-31-3737		TC-ER	4		10	60	1.52	0.72	18.3	0.41	385	424	44	40
112-31-3746		TC-ER	3		—	60	1.52	0.71	18.0	0.40	365	404	75	65
▲112-31-3747	6(7X)	TC-ER	3		8	60	1.52	0.74	18.8	0.43	440	479	75	65
112-31-3748	(13.3mm²)	TC-ER	4	45	—	60	1.52	0.78	19.8	0.48	471	510	60	52
112-31-3749		TC-ER	4		8	60	1.52	0.82	20.8	0.53	552	616	60	52
112-31-3758		TC	3		—	60	1.52	0.81	20.6	0.52	527	566	95	85
▲112-31-3759	4(7X)	TC-ER	3		8	60	1.52	0.81	20.6	0.52	662	715	95	85
112-31-3760	(21.2mm²)	TC	4	45	—	80	2.03	0.93	23.6	0.68	720	784	76	68
112-31-3761		TC-ER	4		8	80	2.03	0.96	24.4	0.72	808	872	76	68
112-31-3764		TC	3		—	80	2.03	0.97	24.6	0.74	816	880	130	115
▲112-31-3765	2(7X)	TC-ER	3		6	80	2.03	0.97	24.6	0.74	1018	1098	130	115
112-31-3766	(33.6mm²)	TC	4	45	—	80	2.03	1.07	27.2	0.90	1060	1140	104	92
112-31-3767		TC-ER	4		6	80	2.03	1.11	28.2	0.97	1196	1276	104	92
112-31-3770		TC	3		—	80	2.03	1.09	27.7	0.93	1051	1118	145	130
112-31-3771	1(19X)	TC-ER	3		6	80	2.03	1.09	27.7	0.93	1127	1194	145	130
112-31-3772	(42.4mm²)	TC	4	55	—	80	2.03	1.20	30.5	1.13	1355	1435	116	104
112-31-3773		TC-ER	4		6	80	2.03	1.20	30.5	1.13	1431	1511	116	104
112-31-3776		TC	3		—	80	2.03	1.17	29.7	1.08	1274	1354	170	150
▲112-31-3777	1/0(19X)	TC-ER	3		6	80	2.03	1.17	20.7	1.08	1350	1430	170	150
112-31-3778	(53.5mm²)	TC	4	55	—	80	2.03	1.29	32.8	1.31	1652	1752	136	120
112-31-3779		TC-ER	4		6	80	2.03	1.29	32.8	1.31	1729	1829	136	120
112-31-3780		TC	3		—	80	2.03	1.26	32.0	1.25	1561	1661	195	175
▲112-31-3781	2/0(19X)	TC-ER	3		6	80	2.03	1.26	32.0	1.25	1639	1739	195	175
112-31-3782	(67.4mm²)	TC	4	55	—	80	2.03	1.39	35.3	1.52	2033	2149	156	140
112-31-3783		TC-ER	4		6	80	2.03	1.39	35.3	1.52	2109	2225	156	140
112-31-3784		TC	3		—	80	2.03	1.47	37.3	—	2361	2504	260	230
▲112-31-3785	4/0(19X)	TC-ER	3		4	80	2.03	1.47	37.3	—	2488	2631	260	230
112-31-3786	(107mm²)	TC	4	55	—	80	2.03	1.63	41.4	—	3101	3278	208	184
112-31-3787		TC-ER	4		4	80	2.03	1.63	41.4	—	3222	3399	208	184
112-31-3788		TC	3		—	80	2.03	1.62	41.2	—	2796	2939	290	255
112-31-3789	250(37X)	TC-ER	3		4	80	2.03	1.62	41.2	—	2917	3060	290	255
112-31-3790	(127mm²)	TC	4	65	—	110	2.79	1.85	47.0	—	3778	4044	232	204
112-31-3791		TC-ER	4		4	110	2.79	1.85	47.0	—	3899	4165	232	204
112-31-3792		TC	3		—	110	2.79	1.88	47.8	—	3889	4155	350	310
▲112-31-3793	350(37X)	TC-ER	3		3	110	2.79	1.88	47.8	—	4044	4310	350	310
112-31-3794	(177mm²)	TC-	4	65	—	110	2.79	2.08	52.8	—	5091	5438	280	248
112-31-3795		TC-ER	4		3	110	2.79	2.08	52.8	—	5245	5592	280	248
112-31-3796		TC	3		—	110	2.79	2.13	54.1	—	5386	5733	430	380
▲112-31-3797	500(37X)	TC-ER	3		2	110	2.79	2.13	54.1	—	5581	5928	430	380
112-31-3798	(253mm²)	TC	4	65	—	110	2.79	2.36	59.9	—	7082	7641	344	304
112-31-3799		TC-ER	4		2	110	2.79	2.36	59.9	—	7276	7835	344	304
112-31-3800		TC	3		—	110	2.79	2.56	65.0	—	7961	8520	535	475
▲112-31-3801	750(61X)	TC-ER	3		1	110	2.79	2.56	65.0	—	8206	8833	535	475
112-31-3802	(380mm²)	TC	4	80	—	140	3.56	2.90	73.7	—	10632	11394	428	380
112-31-3803		TC-ER	4		1	140	3.56	2.90	73.7	—	10879	11641	428	380
112-31-3804		TC	3		—	140	3.56	2.93	74.4	—	10584	11346	615	545
112-31-3805	1000(61X)	TC-ER	3		1/0	140	3.56	2.93	74.4	—	10894	11656	615	545
112-31-3806	(507mm²)	TC	4	80	—	140	3.56	3.25	82.6	—	13925	14858	492	436
112-31-3807		TC-ER	4		1/0	140	3.56	3.25	82.6	—	14235	15168	492	436

NOTE: Sizes 4 AWG & larger without a grounding conductor are Type TC only (Not ER rated).

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Multiple Copper Conductors, 90°C Wet or Dry

With or Without Grounding Conductor

For Cable Tray Use - Sunlight Resistant - For Direct Burial

***Sizes 1/0-4/0 AWG**

Conductor Color Coding Sequence

Ungrounded 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
Sizes 14,12 & 10 AWG:
per ICEA Method 1, E-2 color sequence

Sizes 8 AWG and larger:
Surface Printing of Numbers and color designation per ICEA Method 3, E-2 color sequence

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.

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

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