

C-L-X® CSA Type RA90 HL

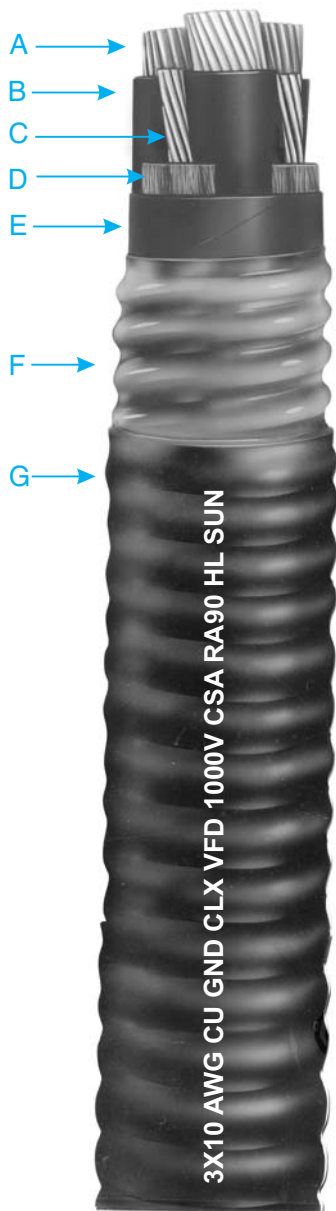
CSA Type RA90 HL and cUL Type ACIC-TC* Power and Control Cables

1000V Power Cable-Aluminum Sheath

3/C VFD and 4/C Copper Conductors/90°C Wet or Dry Rating

For Cable Tray Use - Sunlight Resistant - For Direct Burial

*cUL ACIC-TC-ER sizes 1-4/0 AWG



- A Bare, Stranded Copper Conductors
- B X-Olene Insulation-Color Coded for Identification
- C Bare, Stranded Copper Grounding Conductor(s)
- D Non-Hygroscopic Fillers, as necessary
- E Binder Tape
- F Impervious, Continuous, Welded Corrugated, Aluminum C-L-X Sheath
- G Black Okoseal Jacket

Insulation

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

Assembly and Coverings

The individual conductors are cabled together with non-hygroscopic fillers and a binder tape overall. A bare stranded copper grounding conductor(s), located in the outer interstices, is provided for grounding. The impervious, continuous, welded, corrugated aluminum C-L-X sheath provides complete protection against moisture, liquids and gases and has excellent mechanical strength. For direct burial in the ground, embedment in concrete, or for areas subjected to corrosive atmospheres, the C-L-X sheath is protected with an arctic grade black Okoseal® (PVC) jacket.

Applications

C-L-X Type RA90 HL cables with an impervious, continuous, corrugated aluminum sheath are recommended as an economical alternate to a wire in conduit system.

C-L-X Type RA90 HL cables may be installed indoors or outdoors, in wet or dry locations, as open runs of cable secured to supports spaced not more than six feet apart, in cable tray, as aerial cable on a messenger, in any approved raceway, direct burial, or encased in concrete. They are permitted as a method of separation between unique voltage systems per Rule 16-212 of the CEC. C-L-X Type RA90 HL cables are also approved for use in Zone 1, Zone 2, Class II Div 2, Class III Div 1 and Class III Div 2 per CEC.

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 per ICEA S-95-658/ NEMA WC70 and CSA C22.2 No. 38, Listed CSA Type RW90. Meets MIL-DTL-1377H, section 4.8.4.1.2 cold bend at -66°C and ASTM D746 brittle point at -76°C.

Conductor Identification: Control Sizes, #9 AWG and smaller, color coded insulation. Power Sizes, #8 AWG and larger, black with printed words of number and color.

Grounding Conductor(s): One or three bare soft copper per ASTM B-3. Stranded in accordance with ASTM B-496.

Sheath: Close fitting, impervious, continuous, welded, corrugated aluminum C-L-X per CSA C22.2 No. 123.

Jacket: Black Okoseal (PVC) per CSA C22.2 No. 123. Meets ASTM D746 brittle point at -40°C.

Product Features

- Passes the IEEE 383-1974 and IEEE 1202/FT4 vertical tray flame tests.
- Passes the 210,000 BTU ICEA T-29-520 Vertical Tray Flame Test.
- Complete pre-packaged, factory-tested wiring system; color coded.
- C-L-X cables are quality control inspected to meet and exceed applicable CSA standards.
- 90°C continuous operating temperature in all types of installations.
- 130°C emergency rating.
- 250°C short circuit rating.
- Good EMI shielding characteristics.
- Impervious, continuous metallic sheath excludes moisture, gasses and liquids.
- Lower installed system cost than conduit or EMT systems.
- Provides excellent grounding safety.
- Excellent compression and impact resistance.
- Continuous long lengths.
- Installation temperature of -40°C.
- Three symmetrical grounding conductors with the CLX sheath provide a superior low resistance return path for VFD and other modern ac drive/motor applications.
- CSA C22.2 No. 123 Type RA90.
- CSA C22.2 No. 174 Type HL.
- CSA listed as FT4 and LTGG (-40°C).
- CSA Type RA90 HL complies with CEC Zone 1, Zone 2, Class II Div 2, Class III Div 1 and Class III Div 2 Hazardous Locations.
- CSA C22.2 No. 239 Type ACIC for sizes 4/0 AWG and smaller.
- CSA C22.2 No. 230 Type TC-ER for sizes 1-4/0 AWG.
- CSA C22.2 No. 230 Type TC for sizes smaller than 1 AWG.

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Catalog Number	Conductor Size AWG	Number of Conductors	Insulation Thickness - mils	Grounding Conductor(s) AWG	Core O.D. - Inches	Core O.D. - mm	C-L-X O.D. - Inches	C-L-X O.D. - mm	Jacket Thickness - mils	Jacket Thickness - mm	Approx. O.D. - Inches	Approx. O.D. - mm	Cross-Sectional Area (sq. in.)†	Approx. Net Weight lbs./1000'	Approx. Ship Weight lbs./1000'	90°C Wet or Dry CEC Ampacity	75°C Wet CEC Ampacity
546-31-3550 546-31-3551	14(7X) (2.08mm ²)	3 4	45	3#18 3#18	0.367 9.3 0.411 10.4	0.579 14.7 0.622 15.8	50 1.27 50 1.27	50 1.27 50 1.27	0.689 17.5 0.732 18.6	0.37 0.42	210 249 240 320	15 15 15 15					
546-31-3552 546-31-3553	12(7X) (3.31mm ²)	3 4	45	3#16 3#16	0.406 10.3 0.454 11.5	0.622 15.8 0.665 16.9	50 1.27 50 1.27	50 1.27 50 1.27	0.732 18.6 0.775 19.7	0.42 0.47	255 335 291 371	20 20 20 20					
546-31-3554 546-31-3555	10(7X) (5.26mm ²)	3 4	45	3#14 3#14	0.458 11.6 0.512 13.0	0.665 16.9 0.752 19.1	50 1.27 50 1.27	50 1.27 50 1.27	0.775 19.7 0.862 21.9	0.47 0.58	315 395 386 466	30 30 30 28					
571-31-3390 571-31-3264	8(7X) (8.36mm ²)	3 4	45	3#14 10	0.50 12.7 0.58 14.7	0.71 18.0 0.80 20.3	50 1.27 50 1.27	50 1.27 50 1.27	0.81 20.6 0.90 22.9	0.52 0.64	385 420 465 495	55 50 44 40					
571-31-3604 571-31-3605	6(7X) (13.3mm ²)	3 4	60	3#12 8	0.646 16.4 0.746 18.9	0.886 22.5 1.020 25.9	50 1.27 50 1.27	50 1.27 50 1.27	0.996 25.3 1.130 28.7	0.78 1.00	569 649 702 782	75 65 60 52					
571-31-3607 571-31-3609	4(7X) (21.2mm ²)	3 4	60	3#12 8	0.756 19.2 0.836 21.2	0.972 24.7 1.063 27.0	50 1.27 50 1.27	50 1.27 50 1.27	1.082 27.5 1.173 29.8	0.92 1.08	755 835 917 997	95 85 76 68					
571-31-3610 571-31-3611	2(7X) (33.6mm ²)	3 4	60	3#10 6	0.875 22.2 0.998 25.3	1.106 28.1 1.236 31.4	50 1.27 50 1.27	50 1.27 50 1.27	1.216 30.9 1.346 34.2	1.16 1.42	1067 1173 1336 1442	130 115 104 92					
571-31-3612 571-31-3613	1(19X) (42.4mm ²)	3 4	80	3#10 6	1.041 26.4 1.159 29.4	1.288 32.7 1.421 36.1	50 1.27 50 1.27	50 1.27 50 1.27	1.398 35.5 1.531 38.9	1.53 1.84	1318 1424 1631 1774	145 130 116 104					
571-31-3614 571-31-3615	1/0(19X) (53.5mm ²)	3 4	80	3#10 6	1.119 28.4 1.243 31.6	1.374 34.9 1.514 38.5	50 1.27 50 1.27	50 1.27 50 1.27	1.484 37.7 1.646 41.8	1.73 2.13	1566 1709 1997 2140	170 150 136 120					
571-31-3616 571-31-3617	2/0(19X) (67.4mm ²)	3 4	80	3#10 6	1.200 30.5 1.348 34.2	1.465 37.2 1.644 41.8	50 1.27 60 1.52	50 1.27 60 1.52	1.575 40.0 1.776 45.1	1.95 2.48	1851 1994 2379 2566	195 175 156 140					
571-31-3618 571-31-3619	4/0(19X) (107mm ²)	3 4	80	3#8 4	1.434 36.4 1.591 40.4	1.739 44.2 1.915 48.6	60 1.52 60 1.52	60 1.52 60 1.52	1.871 47.5 2.047 52.0	2.75 3.29	2830 3017 3577 3869	260 230 208 184					
571-31-3620 571-31-3621	250(37X) (127mm ²)	3 4	90	3#8 4	1.558 39.6 1.758 44.7	1.868 47.4 2.101 53.4	60 1.52 60 1.52	60 1.52 60 1.52	2.000 50.8 2.233 56.7	— —	3298 3554 4236 4528	290 255 232 185					
571-31-3622 571-31-3623	350(37X) (177mm ²)	3 4	90	3#7 3	1.759 44.7 1.969 50.0	21.01 53.4 2.318 58.9	60 1.52 75 1.90	60 1.52 75 1.90	2.233 56.7 2.480 63.0	— —	4396 4796 5716 6286	350 310 280 248					
571-31-3624 571-31-3625	500(37X) (253mm ²)	3 4	90	3#6 2	2.012 51.1 2.252 57.2	2.361 60.0 2.623 66.6	75 1.90 75 1.90	75 1.90 75 1.90	2.523 64.1 2.785 70.7	— —	6061 6631 7787 8497	430 380 344 304					
571-31-3626 571-31-3627	750(61X) (380mm ²)	3 4	90	3#5 1	2.386 60.6 2.656 67.5	2.796 71.0 3.111 79.0	75 1.90 85 2.16	75 1.90 85 2.16	2.958 75.1 3.295 83.7	— —	8762 9524 11471 12549	535 475 428 380					
571-31-3628 571-31-3629	1000(61X) (507mm ²)	3 4	90	1/0 1/0	2.703 68.7 3.070 78.0	3.156 80.2 3.625 92.1	85 2.16 85 2.16	85 2.16 85 2.16	3.340 84.8 3.809 96.7	— —	11502 12580 15157 17555	615 545 492 436					

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

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Product Data Section 4: Sheet 29



600V Composite Power and Control Cable - Aluminum Sheath Okoseal Jacket: 50 mils (1.27mm)

Catalog Number	Power Conductors Number X Size	Insulation Thickness - mils	Control Conductors Number X Size	Insulation Thickness - mils	Grounding Conductor (AWG)	C-L-X O.D. - Inches	C-L-X O.D. - mm	Cable O.D. - Inches	Cable O.D. - mm	Cross-Sectional Area (sq. in.)†	Approx. Net Weight lbs./1000'	Approx. Ship Weight lbs./1000'	90°C Wet or Dry CEC Ampacity (1)	75°C Wet CEC Ampacity
546-31-3600	3X10	45	4X12	30	10	0.89	22.5	1.00	25.3	0.78	464	544	30	30
571-31-3657	3X8	45	4X12	30	10	0.89	22.6	1.00	25.1	0.77	530	585	55	50
571-31-3601	3X6	60	4X12	30	8	1.02	25.9	1.13	28.7	1.00	675	755	75	65
571-31-3602	3X4	60	4X12	30	8	1.06	27.0	1.17	29.8	1.08	848	928	95	85

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

Copper or Bronze C-L-X is available on special order.

Jackets

Optional jacket types available - consult local sales office.

† **Cross-sectional** area for calculation of cable raceway fill in accordance with CEC Section 12-1606.

(1) Ampacities

Ampacities are based on Table 2 of the Canadian 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. Derating for more than three current carrying conductors within the cable is in accordance with CEC Section 4-4004.

The ampacities shown also apply to cables installed in cable tray in accordance with CEC Section 12-2202.

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Conductor Color Coding Sequence

Conductor Number	Base Color
1	Black
2	Red
3	Blue
4	Orange

Special Order: Any or all of the following conductors may be added when specifically requested by the customer to meet their specific application requirements.

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

Sizes 14, 12 & 10 AWG:

Color Coding per ICEA Method 1, E-2 color sequence

Sizes 8 AWG and larger:

Surface Printing of Numbers and color descriptions per ICEA Method 3, E-2 color sequence