



C-L-X® CSA Type RA90 HL

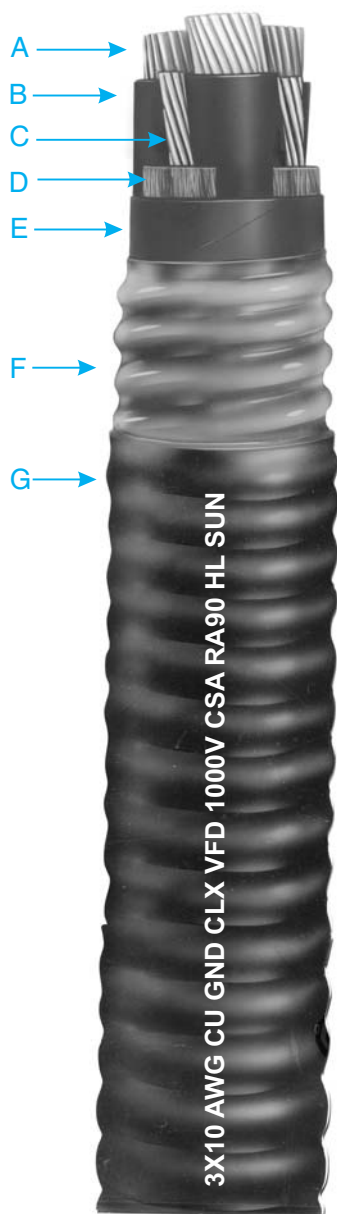
CSA Type RA90 HL and cUL Type ACIC-TC* Power and Control Cables

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-phase conductors, along with three symmetrical grounding conductors and 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 Div1 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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Product Data Section 4: Sheet 29



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	14(7X)	3		3#18	0.367	9.3	0.579	14.7	50	1.27	0.689	17.5	0.37	210	249	15	15
546-31-3551	(2.08mm²)	4	45	3#18	0.411	10.4	0.622	15.8	50	1.27	0.732	18.6	0.42	240	320	15	15
546-31-3552	12(7X)	3		3#16	0.406	10.3	0.622	15.8	50	1.27	0.732	18.6	0.42	255	335	20	20
546-31-3553	(3.31mm²)	4	45	3#16	0.454	11.5	0.665	16.9	50	1.27	0.775	19.7	0.47	291	371	20	20
546-31-3554	10(7X)	3		3#14	0.458	11.6	0.665	16.9	50	1.27	0.775	19.7	0.47	315	395	30	30
546-31-3555	(5.26mm²)	4	45	3#14	0.512	13.0	0.752	19.1	50	1.27	0.862	21.9	0.58	386	466	30	28
571-31-3390	8(7X)	3		3#14	0.50	12.7	0.71	18.0	50	1.27	0.81	20.6	0.52	385	420	55	50
571-31-3264	(8.36mm²)	4	45	10	0.58	14.7	0.80	20.3	50	1.27	0.90	22.9	0.64	465	495	44	40
571-31-3604	6(7X)	3		3#12	0.646	16.4	0.886	22.5	50	1.27	0.996	25.3	0.78	569	649	75	65
571-31-3605	(13.3mm²)	4	60	8	0.746	18.9	1.020	25.9	50	1.27	1.130	28.7	1.00	702	782	60	52
571-31-3607	4(7X)	3		3#12	0.756	19.2	0.972	24.7	50	1.27	1.082	27.5	0.92	755	835	95	85
571-31-3609	(21.2mm²)	4	60	8	0.836	21.2	1.063	27.0	50	1.27	1.173	29.8	1.08	917	997	76	68
571-31-3610	2(7X)	3		3#10	0.875	22.2	1.106	28.1	50	1.27	1.216	30.9	1.16	1067	1173	130	115
571-31-3611	(33.6mm²)	4	60	6	0.998	25.3	1.236	31.4	50	1.27	1.346	34.2	1.42	1336	1442	104	92
571-31-3612	1(19X)	3		3#10	1.041	26.4	1.288	32.7	50	1.27	1.398	35.5	1.53	1318	1424	145	130
571-31-3613	(42.4mm²)	4	80	6	1.159	29.4	1.421	36.1	50	1.27	1.531	38.9	1.84	1631	1774	116	104
571-31-3614	1/0(19X)	3		3#10	1.119	28.4	1.374	34.9	50	1.27	1.484	37.7	1.73	1566	1709	170	150
571-31-3615	(53.5mm²)	4	80	6	1.243	31.6	1.514	38.5	50	1.27	1.646	41.8	2.13	1997	2140	136	120
571-31-3616	2/0(19X)	3		3#10	1.200	30.5	1.465	37.2	50	1.27	1.575	40.0	1.95	1851	1994	195	175
571-31-3617	(67.4mm²)	4	80	6	1.348	34.2	1.644	41.8	60	1.52	1.776	45.1	2.48	2379	2566	156	140
571-31-3618	4/0(19X)	3		3#8	1.434	36.4	1.739	44.2	60	1.52	1.871	47.5	2.75	2830	3017	260	230
571-31-3619	(107mm²)	4	80	4	1.591	40.4	1.915	48.6	60	1.52	2.047	52.0	3.29	3577	3869	208	184
571-31-3620	250(37X)	3		3#8	1.558	39.6	1.868	47.4	60	1.52	2.000	50.8	—	3298	3554	290	255
571-31-3621	(127mm²)	4	90	4	1.758	44.7	2.101	53.4	60	1.52	2.233	56.7	—	4236	4528	232	185
571-31-3622	350(37X)	3		3#7	1.759	44.7	2.101	53.4	60	1.52	2.233	56.7	—	4396	4796	350	310
571-31-3623	(177mm²)	4	90	3	1.969	50.0	2.318	58.9	75	1.90	2.480	63.0	—	5716	6286	280	248
571-31-3624	500(37X)	3		3#6	2.012	51.1	2.361	60.0	75	1.90	2.523	64.1	—	6061	6631	430	380
571-31-3625	(253mm²)	4	90	2	2.252	57.2	2.623	66.6	75	1.90	2.785	70.7	—	7787	8497	344	304
571-31-3626	750(61X)	3		3#5	2.386	60.6	2.796	71.0	75	1.90	2.958	75.1	—	8762	9524	535	475
571-31-3627	(380mm²)	4	90	1	2.656	67.5	3.111	79.0	85	2.16	3.295	83.7	—	11471	12549	428	380
571-31-3628	1000(61X)	3		1/0	2.703	68.7	3.156	80.2	85	2.16	3.340	84.8	—	11502	12580	615	545
571-31-3629	(507mm²)	4	90	1/0	3.070	78.0	3.625	92.1	85	2.16	3.809	96.7	—	15157	17555	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 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