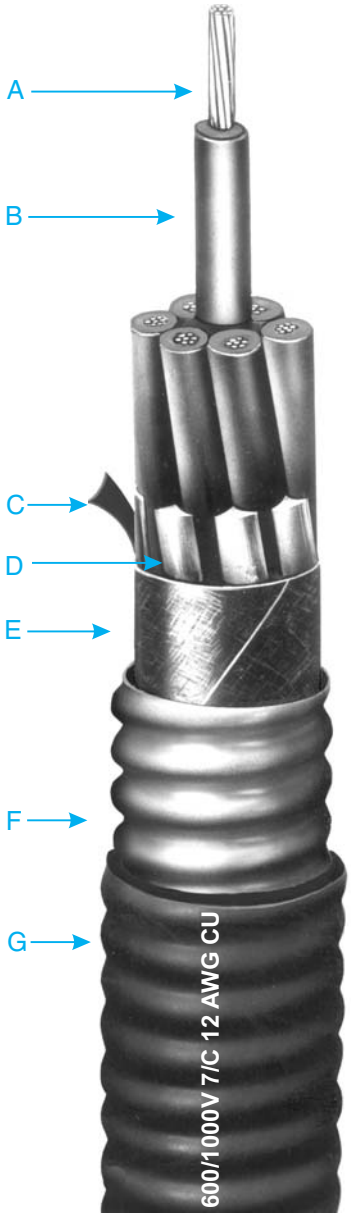
C-L-X® Type MC (XHHW-2)

UL 600/1000V and CSA 600V Control Cable - Aluminum Sheath
Multiple Copper Conductors/90ºC Wet or Dry Rating
600/1000V Marine Shipboard Cable
For Cable Tray Use - Sunlight Resistant - For Direct Burial



A Bare, Stranded Copper Conductors
B X-Olene Insulation-Color Coded for Identification
C Marker Tape
D Non-Hygroscopic Fillers, as necessary
E Binder Tape
F Impervious, Continuous, 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.

Color Coding
Conductors are color coded using base colors and tracers in accordance with the Conductor Identification Table on the back of this Data Sheet.

Assembly and Coverings
The individual conductors are cabled together with non-hygroscopic fillers and a binder tape overall. The C-L-X sheath exceeds the grounding conductor requirements of Table 250.122 of the NEC and UL 1569.
The impervious, continuous, 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 a low temperature black Okoseal® (PVC) jacket.

Applications
C-L-X Type MC cables with the impervious, continuous, corrugated aluminum sheath are recommended as an economical alternate to a wire in conduit system.
They are authorized for use on services, feeders and branch circuits for power, lighting, control and signaling circuits in accordance with Articles 330 and 725 of the NEC.
C-L-X Type MC 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.
C-L-X Type MC cables are also approved for use in Class I & II, Division 2, Class III, Divisions 1 and 2, and Class I, Zone 2 hazardous locations per NEC articles 501, 502, 503 and 505; in Zone 2, Class II Div 2, Class III Div 1 and Class III Div 2 per CEC.

Specifications
Conductors: Bare soft annealed copper, Class B stranding per ASTM B-8.
Insulation: X-Olene per ICEA S-73-532/ NEMA WC57 and UL 44, Listed UL Type XHHW-2. Meets MIL-DTL-1377H, section 4.8.4.1.2 cold bend at -66°C and ASTM D746-04 brittle point at -76°C.
Conductor Identification: Base Colors and tracers.
Assembly: Per UL 1569 with binder tape overall.
Sheath: Close fitting, impervious, continuous, corrugated aluminum C-L-X per UL 1569. In addition, the aluminum CLX sheath exceeds the equipment grounding requirements of NEC Section 250.118 and 250.122, and can be used as the equipment grounding conductor.
Jacket: Black Okoseal (PVC) per UL requirements for Type MC Cables. Meets ASTM D746-04 brittle point at -40°C.

Product Features
- UL Listed as Type MC cable and Marine Shipboard Cable, E38916 (UL 1569) and E137931 (UL 1309).
- UL Listed for cable tray use, direct burial and sunlight resistant.
- UL 1309 (CWCMC) listed & UL classified in accord with IEEE 1580 as Marine Shipboard Cable rated 600/1000 volts.
- Passes the IEEE 383-1974 and IEEE 1202/FT4 vertical tray flame tests.
- Passes the 210,000 BTU/hr 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 or exceed applicable UL 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, gases 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 or °F.
- UL and American Bureau of Shipping Type approved as CWCMC Type MC.
- CSA C22.2 No. 123 listed as RA90, FT4 and LTGG (-40°C).
- CSA Type RA90 complies with CEC Zone 2, Class II Div 2, Class III Div 1, Class III Div 2 Hazardous Locations.

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Catalog Number	Conduct Size AWG	Number of Conductors	Insulation Thickness - mils	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'	90ºC Wet or Dry (1) NEC Ampacity	75ºC Wet NEC Ampacity*
▲ 546-31-3002	14(7X) (2.08mm²)	2	30 (0.76mm)	0.28	7.1	0.49	12.3	50	1.27	0.60	15.1	0.28	142	174	15	15
▲ 546-31-3003		3		0.30	7.6	0.49	12.4			0.60	15.2	0.32	153	185	15	15
▲ 546-31-3004		4		0.33	8.4	0.53	13.5			0.64	16.3	0.36	181	214	15	15
▲546-31-3005		5		0.37	9.4	0.58	14.7			0.69	17.5	0.41	210	242	15	15
▲546-31-3007		7		0.41	10.4	0.62	15.7			0.73	18.5	0.46	254	309	15	14
▲546-31-3009		9		0.50	12.7	0.71	18.0			0.82	20.8	0.57	308	363	15	14
▲546-31-3012		12		0.57	14.4	0.80	20.3			0.91	23.1	0.71	381	448	12	10
▲546-31-3019		19		0.69	17.5	0.93	23.6			1.04	26.4	0.84	537	604	12	10
▲546-31-3037		37		0.96	24.4	1.24	31.5			1.35	34.3	1.43	946	1036	10	8
546-31-3082	12(7X) (3.31mm²)	2	30 (0.76mm)	0.31	7.8	0.53	13.5	50	1.27	0.64	16.3	0.32	164	196	20	20
▲546-31-3083		3		0.34	8.6	0.53	13.5			0.64	16.3	0.32	189	221	20	20
▲546-31-3084		4		0.38	9.6	0.58	14.7			0.69	17.5	0.38	226	258	20	20
▲546-31-3085		5		0.42	10.6	0.62	15.7			0.73	18.5	0.42	262	317	20	20
▲546-31-3087		7		0.47	11.9	0.67	17.0			0.78	19.8	0.48	324	379	20	17
▲546-31-3089		9		0.56	14.2	0.80	20.3			0.91	23.1	0.65	405	472	20	17
▲546-31-3092		12		0.65	16.5	0.89	22.6			0.99	25.4	0.79	503	570	15	12
▲546-31-3099		19		0.78	19.8	1.02	25.9			1.13	28.7	1.00	721	801	15	12
▲546-31-3117		37		1.08	27.4	1.37	34.8			1.48	37.6	1.72	1301	1444	12	10
▲546-31-3162	10(7X) (5.26mm²)	2	30 (0.76mm)	0.36	9.1	0.58	14.7	50	1.27	0.69	17.5	0.38	202	234	30	30
▲546-31-3163		3		0.39	9.9	0.58	14.7			0.69	17.5	0.38	238	270	30	30
▲546-31-3164		4		0.44	11.1	0.67	17.0			0.78	19.8	0.48	297	352	30	28
546-31-3165		5		0.48	12.2	0.71	18.0			0.82	20.8	0.53	348	403	30	28
▲546-31-3167		7		0.54	13.7	0.75	19.1			0.86	21.8	0.58	436	491	28	24
546-31-3169		9		0.65	16.5	0.89	22.6			1.00	25.4	0.79	544	611	28	24
546-31-3172		12		0.74	18.8	0.97	24.6			1.08	27.4	0.85	684	751	20	17

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

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

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

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

Jackets - Optional jacket types available - consult local sales office.

(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). The 75ºC 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.

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Conductor Color Coding Sequence

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

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

THE OKONITE COMPANY
Ramsey, New Jersey 07446