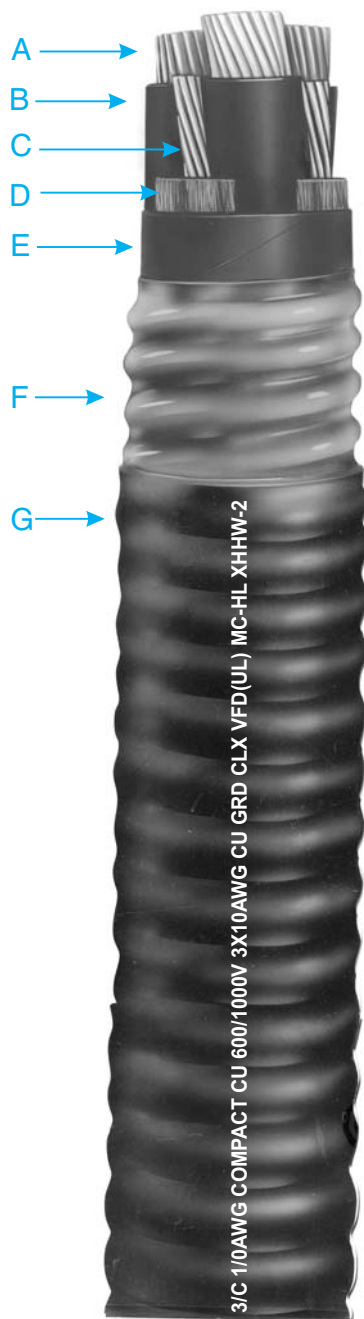


C-L-X[®] Type MC-HL (XHHW-2)



UL 600/1000V and CSA 600V Power MC-HL Cable - Aluminum Sheath
3/C VFD & 4/C Copper Conductors/90°C 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 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. The C-L-X sheath exceeds the grounding conductor requirements of Table 250.122 of the NEC and UL 1569. 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 a low temperature black Okoseal[®] (PVC) jacket.

Applications

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

They are authorized for use on services, feeders and branch circuits for power, lighting, control and signaling circuits in accordance with Article 330 and 725 of the NEC.

C-L-X Type MC-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. C-L-X type MC-HL cables are also approved for Classes I, II and III, Division 1 and 2 and Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505; 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 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 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 UL 1581. Meets or exceeds requirements of NEC Table 250.122.

Sheath: Close fitting, impervious, continuous, welded, corrugated aluminum C-L-X per UL 1569. Exceeds grounding conductor requirements of NEC Table 250.122.

Jacket: Black Okoseal (PVC) per UL1569. Meets ASTM D746 brittle point at -40°C.

Product Features

- UL Listed as Type MC-HL cable per UL 2225 (E38916).
- 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 Vertical Tray Flame Test.
- 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 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.
- Complies with NEC Articles 501, 502 and 503 for hazardous locations.
- American Bureau of Shipping Type approved as CWCMC Type MC-HL.
- Three-phase conductors, along with three symmetrical grounding conductors with the CLX sheath, provide a superior low-resistance return path for VFD and other modern AC drive/motor applications in accordance with ICEA S-138-738.
- 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.

C-L-X® Type MC-HL (XHHW-2)

UL 600/1000V and CSA 600V Power MC-HL Cable - Aluminum Sheath

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

600/1000V Marine Shipboard Cable

For Cable Tray Use - Sunlight Resistant - For Direct Burial



Product Data Section 4: Sheet 1

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 NEC Ampacity*	75°C Wet NEC Ampacity*
▲ 546-31-3403 ▲ 546-31-3404	14(7X) (2.08mm²)	3 4	30 30	3#18 3#18	0.33 8.4 0.37 9.3	0.53 13.5 0.58 14.7	50 1.27 50 1.27	50 1.27 50 1.27	0.64 16.3 0.69 17.5	0.32 0.37	160 222	190 261	15 15	15 15			
▲ 546-31-3453 ▲ 546-31-3454	12(7X) (3.31mm²)	3 4	30 30	3#16 3#16	0.37 9.3 0.45 11.4	0.58 14.7 0.67 16.9	50 1.27 50 1.27	50 1.27 50 1.27	0.69 17.5 0.78 19.7	0.37 0.47	239 286	278 320	20 20	20 20			
▲ 546-31-3503 ▲ 546-31-3504	10(7X) (5.26mm²)	3 4	30 30	3#14 3#14	0.41 10.4 0.45 11.4	0.62 15.8 0.67 16.9	50 1.27 50 1.27	50 1.27 50 1.27	0.73 18.6 0.78 19.7	0.42 0.47	300 348	380 428	30 30	30 28			
▲ 571-31-3190 ▲ 571-31-3263	8(7X) (8.36mm²)	3 4	45 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	385 465	420 495	55 44	50 40			
▲ 571-31-3191 ▲ 571-31-3270	6(7X) (13.3mm²)	3 4	45 45	3#12 8	0.58 14.7 0.66 16.8	0.80 20.3 0.89 22.5	50 1.27 50 1.27	50 1.27 50 1.27	0.90 22.9 0.99 25.1	0.64 0.77	525 630	595 685	75 60	65 52			
▲ 571-31-3200 ▲ 571-31-3272	4(7X) (21.2mm²)	3 4	45 45	3#12 8	0.68 17.3 0.77 19.6	0.89 22.5 0.97 24.7	50 1.27 50 1.27	50 1.27 50 1.27	0.99 25.1 1.08 27.5	0.77 0.92	704 845	820 930	95 76	85 68			
▲ 571-31-3204 ▲ 571-31-3276	2(7X) (33.6mm²)	3 4	45 45	3#10 6	0.80 20.3 0.92 23.4	1.02 25.9 1.15 29.2	50 1.27 50 1.27	50 1.27 50 1.27	1.13 28.7 1.26 32.0	1.00 1.25	995 1245	1050 1370	130 104	115 92			
571-31-3208 571-31-3280	1(19X) (42.4mm²)	3 4	55 55	3#10 6	0.92 23.4 1.04 26.4	1.15 29.2 1.29 32.8	50 1.27 50 1.27	50 1.27 50 1.27	1.26 32.0 1.40 35.6	1.25 1.54	1100 1500	1181 1620	145 116	130 104			
▲ 571-31-3213 571-31-3285	1/0(19X) (53.5mm²)	3 4	55 55	3#10 6	1.00 25.5 1.12 28.4	1.24 31.4 1.37 34.9	50 1.27 50 1.27	50 1.27 50 1.27	1.34 34.0 1.48 37.6	1.41 1.72	1470 1830	1560 1975	170 136	150 120			
▲ 571-31-3216 ▲ 571-31-3289	2/0(19X) (67.4mm²)	3 4	55 55	3#10 6	1.09 27.7 1.23 31.2	1.34 34.0 1.51 38.5	50 1.27 60 1.52	50 1.27 60 1.52	1.44 36.6 1.64 41.7	1.63 2.11	1770 2310	2020 2545	195 156	175 140			
▲ 571-31-3218 571-31-3291	3/0(19X) (85.1mm²)	3 4	55 55	3#8 6	1.19 30.2 1.35 34.3	1.47 37.3 1.64 41.7	50 1.27 60 1.52	50 1.27 60 1.52	1.58 40.1 1.78 45.2	1.96 2.49	2180 2752	2404 2939	225 180	200 160			
▲ 571-31-3224 ▲ 571-31-3296	4/0(19X) (107mm²)	3 4	55 55	3#8 4	1.33 33.8 1.49 37.8	1.60 40.6 1.78 45.2	60 1.52 60 1.52	60 1.52 60 1.52	1.73 44.0 1.91 48.6	— —	2675 3430	2880 3710	260 208	230 184			
▲ 571-31-3228 571-31-3300	250(37X) (127mm²)	3 4	65 65	3#8 4	1.48 37.6 1.64 41.6	1.74 44.2 1.96 49.7	60 1.52 60 1.52	60 1.52 60 1.52	1.87 47.5 2.09 53.0	— —	3140 4070	3420 4330	290 232	255 204			
▲ 571-31-3236 ▲ 571-31-3308	350(37X) (177mm²)	3 4	65 65	3#7 3	1.66 42.2 1.89 48.0	1.96 49.7 2.19 55.6	60 1.52 75 1.90	60 1.52 75 1.90	2.09 53.0 2.35 59.8	— —	4210 5440	4300 6000	350 280	310 248			
▲ 571-31-3244 ▲ 571-31-3316	500(37X) (253mm²)	3 4	65 65	3#6 2	1.94 59.3 2.14 54.4	2.28 57.9 2.49 63.2	75 1.90 75 1.90	75 1.90 75 1.90	2.44 62.0 2.65 67.4	— —	5930 7570	6420 8120	430 344	380 304			
▲ 571-31-3248 571-31-3320	750(61X) (380mm²)	3 4	80 80	3#5 1	2.37 60.2 2.61 66.2	2.75 69.8 3.03 76.9	75 1.90 85 2.16	75 1.90 85 2.16	2.92 74.1 3.21 81.6	— —	8700 11250	9400 12190	535 428	475 380			
571-31-3252 571-31-3324	1000(61X) (507mm²)	3 4	80 80	1/0 1/0	2.67 67.7 3.07 78.0	3.11 79.0 3.63 92.1	85 2.16 85 2.16	85 2.16 85 2.16	3.30 83.8 3.81 96.8	— —	11410 15110	12430 17510	615 492	545 436			

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

C-L-X® Type MC-HL (XHHW-2)

UL 600/1000V and CSA 600V Power MC-HL Cable - Aluminum Sheath

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

600/1000V Marine Shipboard Cable

For Cable Tray Use - Sunlight Resistant - For Direct Burial



Product Data Section 4: Sheet 1

600/1000V 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	Insulating 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 NEC Ampacity (1)*	75°C Wet NEC Ampacity*
▲ 546-31-3984	3X10	30	4X12	30	10	0.75	19.0	0.86	21.9	0.58	425	460	30	30
▲ 571-31-3657	3X8	45	4X12	30	10	0.89	22.6	0.99	25.1	0.77	530	585	55	50
▲ 571-31-3667	3X6	45	4X12	30	8	0.93	23.6	1.03	26.2	0.83	655	720	75	65
▲ 571-31-3677	3X4	45	4X12	30	8	0.97	24.7	1.08	27.5	0.92	810	895	95	85

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.

Jackets

Optional jacket types available - consult local sales office.

†**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 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 cables is in accordance with NEC Section 310.15(C)(1).

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

*Current limited to 15, 20 and 30 amps per Section 240.4(D)(3) of the NEC for #14, #12 and #10 AWG, respectively.

C-L-X[®] Type MC-HL (XHHW-2)
UL 600/1000V and CSA 600V Power MC-HL Cable - Aluminum Sheath
3/C VFD & 4/C Copper Conductors/90°C Wet or Dry Rating
600/1000V Marine Shipboard Cable
For Cable Tray Use - Sunlight Resistant - For Direct Burial



Product Data
Section 4: Sheet 1

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

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.