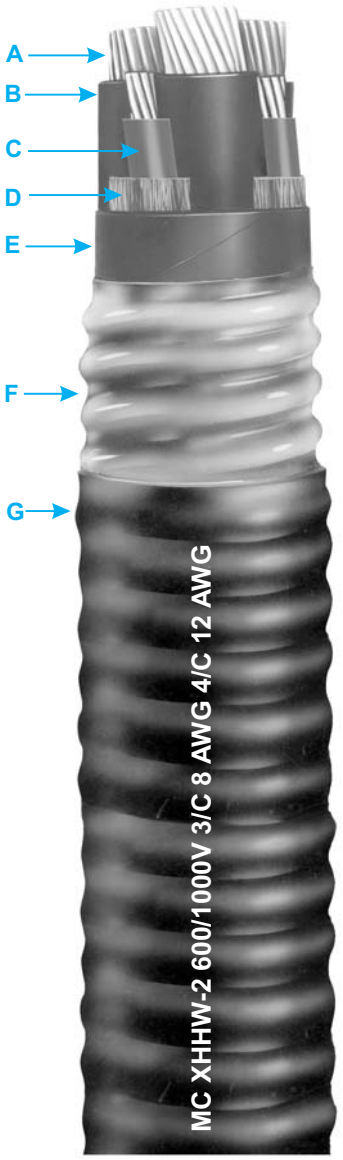
C-L-X® Type MC (XHHW-2)

UL 600/1000V and CSA 600V Composite Power Control MC 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 Power Conductors
B X-Olene Insulation-Color Coded for Identification
C Stranded Control Conductors
D Non-Hygroscopic Fillers, as necessary
E Binder Tape
F Impervious, Continuous, Welded Corrugated, Aluminum 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, bare copper equipment grounding conductor, where indicated, 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, 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 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 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 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: Uncoated soft copper per ASTM B-3. Sizes smaller than #8 are compressed 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 WC-70, 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 bond at -66°C and ASTM D746-04 brittle point at -76°C.
Power Conductor Identification: #8 AWG and larger use ICEA Method 3, Table E2, printed numbers and colors (1-Black, 2-Red, 3-Blue, 4-Orange).
Sizes smaller than #8 AWG use ICEA Method 1, Table E2, colored insulation (Black, Red, Blue, Orange).
Control Conductor Identification: All sizes use ICEA Method 1, Table E2, colored insulation (Black, Red, Blue, Orange).
When the control conductors are within one AWG size of the power conductors, the control conductors have an additional tracer to facilitate identification.
Grounding Conductor: Where indicated, 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. 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 1569. Meets ASTM D746 brittle point at -40°C.

Product Features

- UL Listed as Type MC cable per E38916.
- UL 1309 (CWCMC) listed & UL classified in accord with IEEE 1580 as Marine Shipboard Cable rated 600/1000 volts.
- UL Listed for cable tray use, direct burial and sunlight resistant.
- Passes the IEEE 383-1974 and IEEE 1202 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 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.
- 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 and Class III Div 2 Hazardous Locations.

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X-Olene Insulation: #14 Through #10 AWG, 30 mils (0.76mm); #8 Through #2 AWG, 45 mils (1.14mm)

Okoseal Jacket: 50 mils (1.27mm)

Catalog Number	Power Conductors Number X Size	Control Conductors Number X Size	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'	90ºC Wet or Dry NEC Ampacity (1)*	75ºC Wet NEC Ampacity*
546-31-3983	3X12	3X14	—	0.71	18.0	0.82	20.8	0.53	304	374	20	20
546-31-3927	3X12	4X14	—	0.71	18.0	0.82	20.8	0.53	320	390	20	20
546-31-3950	4X12	3X14	—	0.71	19.1	0.82	20.8	0.53	328	309	20	20
546-31-3925	4X12	4X14	—	0.75	19.1	0.86	21.8	0.58	281	351	20	20
546-31-3758	3X10	3X14	—	0.75	19.1	0.86	21.8	0.58	358	428	30	20
546-31-3992	3X10	4X14	—	0.80	20.3	0.91	23.1	0.65	388	453	30	30
546-31-3990	3X10	3X12	—	0.75	19.1	0.86	21.8	0.58	296	366	30	30
▲ 546-31-3984	3X10	4X12	10	0.75	19.1	0.86	21.8	0.58	430	465	30	30
546-31-3956	4X10	3X14	—	0.80	20.3	091	23.1	0.65	408	473	30	28
546-31-3987	4X10	4X14	—	0.80	20.3	0.91	23.1	0.65	424	489	30	28
546-31-3988	4X10	3X12	—	0.80	20.3	0.91	23.1	0.65	432	497	30	28
546-31-3958	4X10	4X12	—	0.80	20.3	0.91	23.1	0.65	455	520	30	28
571-31-3192	3X8	3X14	—	0.80	20.3	0.91	23.1	0.65	420	500	55	50
571-31-3661	3X8	4X14	—	0.84	21.3	0.95	24.1	0.71	450	530	55	50
571-31-3664	3X8	3X12	—	0.80	20.3	0.91	23.1	0.65	450	530	55	50
571-31-3665	3X8	4X12	—	0.84	21.3	0.95	24.1	0.71	490	570	55	50
▲ 571-31-3657	3X8	4X12	10	0.89	22.6	0.99	25.1	0.77	530	585	55	50
571-31-3682	4X8	3X14	—	0.84	21.3	0.95	24.1	0.71	500	580	44	40
571-31-3960	4X8	4X14	—	0.89	22.6	1.00	25.4	0.79	525	605	44	40
571-31-3683	4X8	3X12	—	0.89	22.6	1.00	25.4	0.79	530	615	44	40
571-31-3680	4X8	4X12	—	0.93	23.6	1.04	26.4	0.85	570	650	44	40
571-31-3686	3X6	3X14	—	0.84	21.3	0.95	24.1	0.71	520	600	75	65
571-31-3666	3X6	4X14	—	0.84	21.3	0.95	24.1	0.71	540	620	75	65
571-31-3673	3X6	3X12	—	0.84	21.3	0.95	24.1	0.71	550	630	75	65
571-31-3668	3X6	4X12	—	0.93	23.6	1.03	26.2	0.83	600	680	75	65
▲ 571-31-3667	3X6	4X12	8	0.93	23.6	1.03	26.2	0.83	655	720	75	65
571-31-3968	4X6	3X14	—	0.93	23.6	1.04	26.4	0.85	650	730	60	52
571-31-3684	4X6	4X14	—	0.93	23.6	1.04	26.4	0.85	660	740	60	52
571-31-3685	4X6	3X12	—	0.97	24.6	1.08	27.4	0.92	680	760	60	52
571-31-3965	4X6	4X12	—	0.97	24.6	1.08	27.4	0.92	710	790	60	52
571-31-3655	3X4	3X14	—	0.93	23.6	1.04	26.4	0.85	700	780	95	85
571-31-3970	3X4	4X14	—	0.93	23.6	1.04	26.4	0.85	720	800	95	85
571-31-3671	3X4	3X12	—	0.93	23.6	1.04	26.4	0.85	720	800	95	85
571-31-3974	3X4	4X12	—	0.97	24.6	1.08	27.4	0.92	760	840	95	85
▲ 571-31-3677	3X4	4X12	8	0.97	24.7	1.08	27.5	0.92	810	895	95	85
571-31-3688	4X4	3X14	—	1.06	26.9	1.17	29.7	1.08	890	970	76	68
571-31-3669	4X4	4X14	—	1.06	26.9	1.17	29.7	1.08	920	1000	76	68
571-31-3670	4X4	3X12	—	1.06	26.9	1.17	29.7	1.08	920	1000	76	68
571-31-3672	4X4	4X12	—	1.06	26.9	1.17	29.7	1.08	950	1030	76	68
571-31-3203	3X2	3X14	—	1.06	26.9	1.17	29.7	1.08	985	1065	130	115
571-31-3674	3X2	4X14	—	1.06	26.9	1.17	29.7	1.08	1000	1080	130	115
571-31-3675	3X2	3X12	—	1.06	26.9	1.17	29.7	1.08	1010	1090	130	115
571-31-3505	3X2	4X12	—	1.06	26.9	1.17	29.7	1.08	1040	1115	130	115
571-31-3506	4X2	3X14	—	1.15	29.2	1.26	32.0	1.25	1230	1320	104	92
571-31-3507	4X2	4X14	—	1.15	29.2	1.26	32.0	1.25	1250	1340	104	92
571-31-3508	4X2	3X12	—	1.15	29.2	1.26	32.0	1.25	1260	1350	104	92
571-31-3509	4X2	4X12	—	1.15	29.2	1.26	32.0	1.25	1280	1370	104	92

▲ **Authorized Stock Item.** Available from our Customer Service Centers. These stock items are listed as MC-HL Copper or Bronze C-L-X is available on special order.

Jackets

Optional jacket types - 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 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 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

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

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