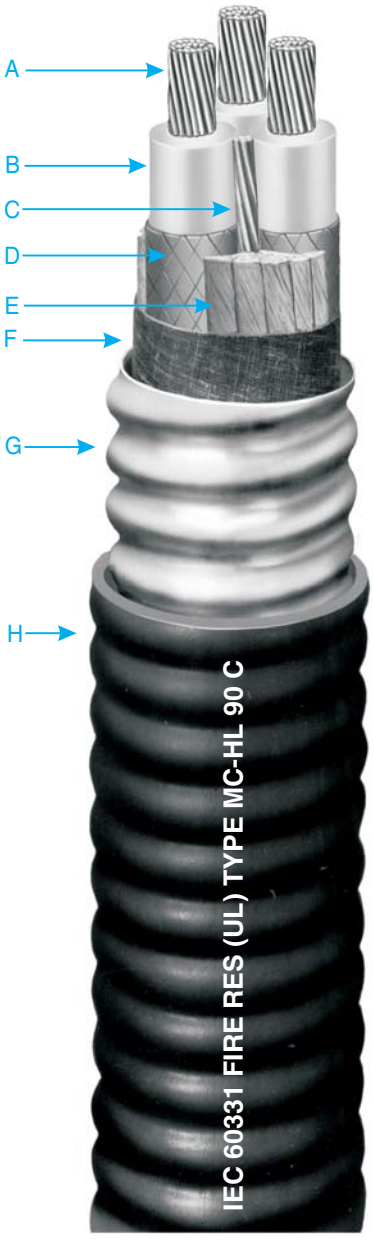
Okotherm® CIC Fire Resistant Cable

600V Control Cable—Type MC-HL C-L-X, Aluminum Sheath
Multiple Nickel Coated Copper Conductors, 90°C Wet or Dry Rating
600/1000V Marine Shipboard Cable
For Cable Tray Use - Sunlight Resistant - For Direct Burial



A Nickel Coated Copper Conductors
B Okotherm (Silicone) Thermoset Insulation
C Nickel Coated Ground Conductor
D Fiberglass Braid - Coded per ICEA
E Glass Fillers
F Cable Tape
G Impervious, Continuous, Corrugated, Aluminum C-L-X Sheath
H Black Okoseal Jacket

Cable Description

Nickel coated copper conductors, Okotherm CIC fire resistant thermoset silicone insulation, with FR tape if required, color or number coded fiber glass braid, cabled conductors, nickel coated ground conductor (same size as control conductor), cable tape, aluminum CLX sheath, Okoseal (PVC) jacket.

Conductors: Nickel Coated Copper
Insulation: Okotherm Thermoset Silicone, with FR tape if required
Color Code: ICEA S-73-532, Method 3 or 4
Ground: Nickel coated copper, same size as insulated conductors
Braid: Fiber Glass Braid
Armor-CLX: Continuously Welded and Corrugated Aluminum
Outer Jacket: Black PVC

Applicable Industry Standards:

— UL 1569, 1309, 2225 — ICEA S-73-532 (NEMA WC 57) — ICEA S-95-658 (NEMA WC 70) — ASTM B-355

Flame Tests:

IEC 60331, ICEA T-29-520, IEEE 1202

Applications

Okotherm CIC 600 volt control cables are used in systems where, in the event of a fire, circuit integrity is required in order to maintain a process or to safely shut down the process. Fire resistance is determined by compliance to the IEC 60331 circuit integrity fire test. Okotherm CIC cables maintain circuit integrity based on qualification to the IEC standard 60331 for all temperatures and times up to and including 2000°F for three hours. When exposed to a fire, the Okotherm CIC insulation becomes an electrically insulating ceramic-like ash that is capable of maintaining the operating voltage.

Okotherm CIC CLX Type MC-HL cables with the impervious, continuous aluminum corrugated sheath are recommended as an alternative to a wire conduit system. These cables may be installed indoors or outdoors, in wet or dry locations, as open runs of cable secured to supports not more than six feet apart, in cable tray, as an aerial cable on a messenger, in any approved raceway, direct burial, or encased in concrete. They are also approved for use in Class I & II, Division 1 and 2, Class III, Division 1 and 2 and Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503, and 505.

Okotherm CIC CLX Type MC-HL control cables are authorized for use on services, feeders and branch circuits for power, lighting, control and signaling circuits in accordance with NEC articles 330 and 725.

Product Features

- UL Listed as Type MC-HL E38916 and Marine Shipboard Cable E137931.
- UL Listed for cable tray use, direct burial (2/C 14 AWG and larger) and sunlight resistant.
- Passes the IEEE 383-1974 and IEEE 1202-1991 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.
- 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.
- Excellent compression and impact resistance.
- Continuous long lengths.
- Minimum installation temperature of -40°C or °F.
- American Bureau of Shipping (ABS) listed as CWCMC Type MC-HL.
- Optional LSZH jacket available.
- Fire Resistant - Qualified to meet IEC 60331, -11 & -21, including temperature and time up to 2000°F for 3 hours, respectively.
- Fire Resistant - Qualified to meet the Hydrocarbon Pool Circuit Integrity Fire Test, utilizing the UL 1709 time-temperature curve, with minimum requirements of 65,000 BTU/h-ft^2 heat flux, 2000°F flame temperature, 30 minute test duration, and 15A load.

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Catalog Number	Conductor Size AWG	Number of Conductors	Insulation Thickness - mils	Core O.D. - Inches	C-L-X O.D. - Inches	Jacket Thickness - mils	Approx. O.D. - Inches	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*
NICKEL COPPER, IEC Rating: 2000°F for 3 hours												
546-15-3402	14 (7X)	2	45	0.43	0.62	50	0.73	0.42	243	340	15	15
546-15-3403	14 (7X)	3		0.46	0.67	50	0.78	0.48	276	383	15	15
546-15-3404	14 (7X)	4		0.52	0.71	50	0.82	0.58	331	447	15	15
546-15-3405	14 (7X)	5		0.58	0.75	50	0.86	0.65	352	500	15	15
546-15-3407	14 (7X)	7	45	0.64	0.84	50	0.95	0.79	460	595	15	14
546-15-3409	14 (7X)	9		0.83	1.02	50	1.13	1.17	656	876	15	14
546-15-3412	14 (7X)	12		0.94	1.15	50	1.26	1.33	807	1046	12	10
546-15-3419	14 (7X)	19		1.13	1.34	50	1.48	1.83	1109	1457	12	10
546-15-3437	14 (7X)	37		1.55	1.74	60	1.87	3.03	1880	2721	10	8
546-15-3502	12 (7X)	2	45	0.47	0.67	50	0.78	0.48	320	385	20	20
546-15-3503	12 (7X)	3		0.50	0.71	50	0.82	0.53	367	439	20	20
546-15-3504	12 (7X)	4		0.56	0.75	50	0.83	0.65	431	517	20	20
546-15-3505	12 (7X)	5		0.70	0.84	50	0.95	0.85	531	674	20	20
546-15-3507	12 (7X)	7	45	0.77	0.97	50	1.08	1.00	690	797	20	17
546-15-3509	12 (7X)	9		0.91	1.11	50	1.22	1.25	886	1028	20	17
546-15-3512	12 (7X)	12		1.02	1.24	50	1.35	1.54	1101	1250	15	12
546-15-3519	12 (7X)	19		1.23	1.47	60	1.58	2.14	1559	1787	15	12
546-15-3537	12 (7X)	37		1.69	1.96	60	2.09	3.77	2892	3341	12	10
546-15-3602	10 (7X)	2	45	0.51	0.71	50	0.82	0.58	396	456	30	30
546-15-3603	10 (7X)	3		0.55	0.75	50	0.86	0.65	448	527	30	30
546-15-3604	10 (7X)	4		0.69	0.84	50	0.95	0.85	559	700	30	28
546-15-3605	10 (7X)	5		0.76	0.93	50	1.04	1.00	674	815	30	28
546-15-3607	10 (7X)	7	45	0.84	1.06	50	1.17	1.17	879	1001	28	24
546-15-3609	10 (7X)	9		0.99	1.24	50	1.35	1.54	1136	1265	28	24
546-15-3612	10 (7X)	12		1.12	1.37	50	1.48	1.84	1417	1585	28	17

NOTE: All cables include one nickel coated ground conductor that is the same size as the control conductors.

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

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

(1) Ampacities

Ampacities are based on 310.16 of the National 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.

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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