

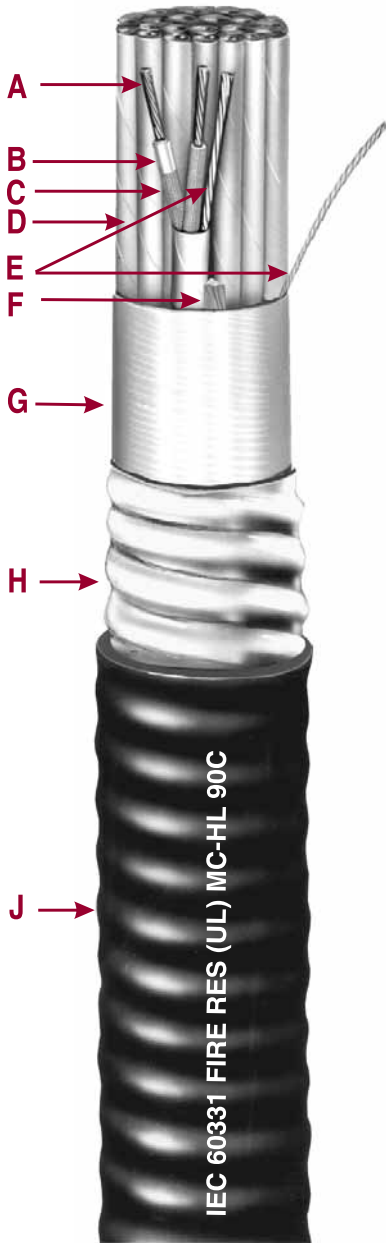


Product Data

Section 5: Sheet 46

Okotherm® CIC SP-OS Fire Resistant Cable^{UL}

600V Instrumentation Cable—Type MC-HL C-L-X, Aluminum Sheath
Shielded Multiple Pair or Triad—Tin or Nickel Coated Copper Conductors
90°C Wet or Dry Rating—For Cable Tray Use, Sunlight Resistant, for Direct Burial



- A** Nickel or Tin Coated Copper Conductors
- B** Okotherm (Silicone) Thermoset Insulation
- C** Fiberglass Braid - Coded per ICEA
- D** Twisted, Shielded Pairs/Triads
- E** Nickel or Tin Coated Copper Drain Wire
- F** Glass Fillers, as needed
- G** Aluminum-Mylar Shield Tape
- H** Impervious, Continuous, Corrugated, Aluminum C-L-X Sheath
- J** Black Okoseal Jacket

Cable Description

Tin or nickel coated copper conductors, Okotherm CIC fire resistant thermoset silicone insulation, with FR tape if required, color or number coded fiber glass braid, color coded conductors, tin or nickel coated drain wire, aluminum-mylar shield tape, aluminum CLX sheath, Okoseal (PVC) jacket.

Conductors: Tin or nickel coated copper

Insulation: Okotherm Thermoset Silicone, with FR tape if required

Braid: Fiber Glass Braid

Color Code: ICEA S-73-532, Method 7

Group Shield: Aluminum-mylar tape overlapped to provide 100% coverage, and a 7-strand tin or nickel coated copper drain wire, two sizes smaller than the conductor. All group shields are completely isolated from each other.

Assembly: Pairs or triads assembled with left hand lay. Fiberglass fillers included where required to provide a round cable.

Cable Shield: Aluminum-mylar tape overlapped to provide 100% coverage and a 7-strand tin or nickel coated copper drain wire, same size as conductors.

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) — ASTM B-33 & B-355

Flame Tests:

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

Applications

Okotherm CIC 600 volt instrumentation 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 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 & 2 hazardous locations per NEC

Articles 501, 502, 503, and 505. They are listed by the American Bureau of Shipping (ABS) as CWCMC-CLXM and by UL as marine shipboard cable.

The isolated individual shields over each pair, when properly grounded, prevent crosstalk or capacitive coupling between adjacent pairs which occurs with ac signals, particularly the pulse type.

The overall shield eliminates most of the static interference from the electric field radiated by power cables and other electrical equipment.

Okotherm CIC 600 volt instrumentation cables should be considered on circuits designed for fire detection and suppression, alarms, communication, circuits requiring redundancy and personnel egress.

Product Features

- UL Listed as Type MC-HL cable and Marine Shipboard Cable, E38916 and E137931.
- UL Listed for cable tray use, direct burial 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.
- Individual pairs or triads are numbered and color coded for simplified hook-up.
- 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.
- Individual units are completely isolated for maximum noise rejection.
- Impervious, continuous metallic sheath excludes moisture, gases and liquids.
- Reduced sealing fitting requirements in Class I, Division 2 or Zone 2 hazardous locations (NEC Section 501.5(E) or 505.15(C)).
- Lower installed system cost than conduit or EMT systems.
- Provides excellent grounding safety.
- Excellent compression and impact resistance.
- Continuous long lengths.
- Minimum installation temperature of -40°C or °F.
- American Bureau of Shipping listed as CWCMC Type MC.
- Conforms to applicable requirements of IEEE 1580.
- Fire Resistant-qualified to 2000°F for 3 hours per IEC 60331.
- Bare, tinned or nickel copper conductors available based on temperature and time requirements.

Okotherm CIC SP-OS Fire Resistant

600V Instrumentation Cable — Type MC-HL C-L-X, Aluminum Sheath Shielded Multiple Pair or Triad Conductors — 90°C Wet or Dry Rating For Cable Tray Use - Sunlight Resistant - For Direct Burial
Okotherm Insulation: 45 mils

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Catalog Number	Conductor Size (AWG)	Number of Pairs	Number of Triads	C-L-X O.D. - inches	C-L-X O.D. - mm	Jacket Thickness-mils	Nominal Cable O.D. - inches	Nominal Cable O.D. - mm	Cross-Sectional Area † (sq in)	Approx Net Weight (lbs/1000')	Approx Ship Weight (lbs/1000')
Tin Coated Copper Conductors, IEC Rating: 750°C for 90 minutes											
567-18-3302	2	0.89	22.6	50	1.00	25.4	0.79	271	351		
567-18-3304	4	0.89	22.6	50	1.00	25.4	0.79	348	438		
567-18-3308	8	1.11	28.2	50	1.22	31.0	1.17	564	654		
567-18-3312	12	1.34	34.0	50	1.45	36.8	1.65	769	912		
567-18-3316	16	1.51	38.4	60	1.65	41.9	2.14	997	1140		
567-18-3324	24	1.78	45.2	60	1.91	48.5	2.87	1422	1609		
567-18-3336	36	2.45	62.2	75	2.61	66.3	5.35	2217	2602		
567-18-3704	4	1.06	26.9	50	1.17	29.7	1.08	465	545		
567-18-3708	8	1.37	34.8	50	1.48	37.6	1.72	757	900		
567-18-3712	12	1.64	41.7	60	1.78	45.2	2.49	1076	1240		
567-18-3716	16	1.87	47.5	60	2.00	50.8	3.14	1405	1661		
567-18-3724	24	2.32	58.9	75	2.48	63.0	4.83	2113	2498		
567-18-3402	2	0.93	23.6	50	1.04	26.4	0.85	306	386		
567-18-3404	4	0.93	23.6	50	1.04	26.4	0.85	404	484		
567-18-3408	8	1.24	31.5	50	1.35	34.3	1.43	682	772		
567-18-3412	12	1.47	37.3	50	1.48	40.1	1.96	933	1076		
567-18-3416	16	1.74	44.2	60	1.87	47.5	2.75	1277	1464		
567-18-3424	24	2.06	52.3	60	2.19	55.6	3.77	1815	2107		
567-18-3436	36	2.62	66.5	75	2.79	70.9	6.11	2673	3063		
567-18-3804	4	1.15	29.2	50	1.26	32.0	1.25	548	638		
567-18-3808	8	1.47	37.3	50	1.58	40.1	1.96	903	1046		
567-18-3812	12	1.78	45.2	60	1.91	48.5	2.87	1344	1531		
567-18-3816	16	2.01	51.1	60	2.14	54.4	3.60	1742	2027		
567-18-3824	24	2.49	63.2	75	2.65	67.3	5.52	2542	2927		
Nickel Coated Copper Conductors, IEC Rating: 2000°F for 3 hours											
567-19-3302	2	1.02	25.9	50	1.13	28.7	1.00	329	409		
567-19-3304	4	1.02	25.9	50	1.13	28.7	1.00	447	527		
567-19-3308	8	1.29	32.8	50	1.40	35.6	1.54	756	862		
567-19-3312	12	1.56	39.6	60	1.69	42.9	2.24	1084	1227		
567-19-3316	16	1.78	45.2	60	1.91	48.5	2.87	1425	1612		
567-19-3324	24	2.06	52.3	60	2.19	55.6	3.77	2027	2319		
567-19-3336	36	2.40	61.0	75	2.56	65.0	5.15	2927	3312		
567-19-3704	4	1.24	31.5	50	1.35	34.3	1.43	614	720		
567-19-3708	8	1.56	39.6	60	1.69	42.9	2.24	1061	1204		
567-19-3712	12	1.83	46.5	60	1.96	49.8	3.02	1521	1708		
567-19-3716	16	2.10	53.3	60	2.23	56.6	3.91	1994	2286		
567-19-3724	24	2.53	64.3	75	2.69	68.3	5.68	2903	3374		
567-19-3402	2	1.06	26.9	50	1.17	29.7	1.08	382	462		
567-19-3404	4	1.06	26.9	50	1.17	29.7	1.08	528	608		
567-19-3408	8	1.37	34.8	50	1.48	37.6	1.72	888	1031		
567-19-3412	12	1.69	42.9	60	1.82	46.2	2.60	1284	1471		
567-19-3416	16	1.92	48.8	60	2.05	52.1	3.30	1685	1977		
567-19-3424	24	2.36	59.9	75	2.52	64.0	4.99	2534	2919		
567-19-3436	36	2.89	73.4	75	3.05	77.5	7.31	3659	4298		
567-19-3804	4	1.34	34.0	50	1.45	36.8	1.65	715	858		
567-19-3808	8	1.64	41.7	60	1.78	45.2	2.49	1243	1430		
567-19-3812	12	1.96	49.8	60	2.09	53.1	3.43	1797	2089		
567-19-3816	16	2.23	56.6	60	2.36	59.9	4.37	2354	2689		
567-19-3824	24	2.67	67.8	75	2.83	71.9	6.29	3428	3818		

ELECTRICAL SPECIFICATIONS Per UL Standard 44	
Conductor Resistance, nominal (1 Pr) ..ohms/1000 ft. @25°C	
.....T.Cu.....Ni. Cu	
18 AWG	7.05.....9.39
16 AWG	4.44.....5.89
Insulation Test Voltage (spark test).....	7500 Volts ac
Dielectric Test Voltage.....	3000 V ac for 5 min.
Insulation Resistance Constant @60°F minimum (natural material typical value).....	4000 Megohms-1000 ft.
Loop Resistance, nominal (1 Pr).....	ohms-1000 ft @25°C
.....T.Cu.....Ni. Cu	
18 AWG	14.1.....18.8
16 AWG	8.9.....11.8

† Cross-sectional area for calculation of cable tray fill in accordance with NEC Section 392.9.