



### C-L-X® Okoseal-N® SP-OS



#### Type MC-HL Armored Class 1 Instrumentation Cable

Multiple Shielded Pairs or Triads - Individual and Overall Shield

600 Volts 90°C Rating MC-HL — 600/1000V Marine Cable

For Cable Tray Use-Sunlight Resistant-For Direct Burial



- A Bare Stranded Copper Conductor
- B Okoseal Insulation/Nylon Jacket
- C Tinned Stranded Copper Group Drain Wire
- D Aluminum/Polyester Tape
- E Twisted, Shielded Pairs/Triads
- F Tinned Stranded Copper Drain Wire
- G Aluminum/Polyester Tape
- H Rip Cord
- J Inner Black Okoseal Jacket
- K Impervious, Continuous, Corrugated Aluminum C-L-X Sheath
- L Outer Black Okoseal Jacket

#### Specifications

**Conductors:** Bare soft annealed copper, Class B, 7-strand concentric per ASTM B-8.

**Insulation:** Flame-retardant Okoseal (PVC) per UL 83, 15 mils nominal thickness, 90°C temperature rating.

**Insulation Jacket:** Nylon per UL 83, 4 mils nominal thickness.

**Conductor Identification:** Pigmented black and white in pairs, black, white and red in triads.

**Group Shield:** Aluminum polyester tape overlapped to provide 100% coverage, and a 7-strand tinned 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. Non-wicking fillers included where required to provide a round cable.

**Cable Shield:** Aluminum/polyester tape overlapped to provide 100% coverage, and a 7-strand tinned copper drain wire, same size as conductor.

**Inner Jacket:** Black, flame-retardant Okoseal per UL Standard 1569. A rip cord is laid longitudinally under the jacket to facilitate removal.

**C-L-X Sheath:** A close-fitting, impervious, continuously welded and corrugated, aluminum sheath meeting UL 1569 provides complete protection against moisture, liquids, and gases, has excellent mechanical strength, and provides equipment grounding through the sheath.

**Outer Jacket:** Black, flame-retardant Okoseal per UL Standard 1569.

**Classifications:** UL Listed as Type MC-HL Articles 501, 502, and 503 of the National Electrical Code.

#### Applications

Okonite C-L-X type SP-OS (shielded pairs or triads - overall shield) instrumentation cables are designed for use on Class 1 Remote-Control Signaling circuits or where a 600V cable is desired, as instrumentation, process control, or computer cable transmitting signals at levels above 100 milli-volts in circuits where maximum noise protection is required. Protection from interference among groups as well as external sources is provided by individual group shields as well as an overall cable shield. For use indoors or outdoors; wet or dry locations; in cable trays' in raceways; supported by a messenger wire; for direct burial; in Classes I, II, and III, Divisions 1 and 2 and Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505. For use as non-power limited fire

protective signaling cable (NPLF) per NEC Code 760.

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.

The C-L-X sheath provides physical protection against mechanical damage as required in NEC Section 725-8 as well as complete protection against moisture or gases entering the cable.

For dc service in wet locations, X-Olene insulation is recommended.

#### Product Features

- 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 Vertical Tray Flame Test utilizing the corner configuration and the ICEA T-29-520 Vertical Tray Flame Test.
- C-L-X enclosure permits installation in cable tray containing light and power cables without a barrier separator.
- Individual pairs or triads are numbered and color coded for simplified hook-up.
- Individual units are completely isolated for maximum noise rejection.
- Impervious, continuous sheath excludes moisture, gases and liquids.
- C-L-X sheath exceeds equipment grounding conductor requirements of NEC Article 250.
- Excellent compression and impact resistance.
- Lower installed system cost than conduit or EMT systems.
- OSHA Acceptable.
- Complies with NEC Articles 501, 502 & 503 for hazardous locations.
- UL 1309 (CWCMC) listed & UL classified in accord with IEEE 1580 as Marine Shipboard Cable rated 600/1000 volts.
- American Bureau of Shipping Type approved as CWCMC Type MC-HL.
- Recognized by US Coast Guard as Type MC and CWCMC.
- Suitable for low temperature installation to -40°C.
- Meets API Standards 14 F and 14FZ.

# C-L-X Okoseal-N SP-OS

## Type MC-HL Armored Instrumentation Cable



# Product Data

## Section 5: Sheet 42

Multiple Shielded Pairs or Triads - Individual and Overall Shield  
600V 90°C Rating MC-HL — 600/1000V Marine Cable

**For Cable Tray Use - Sunlight Resistant - For Direct Burial**

Conductors: #16 AWG; Okoseal Insulation: 15 mils; Nylon Jacket: 4 mils

### #16 AWG — Multi Pair & Triad (SP-OS) Type MC-HL

Catalog Number	Number of Pairs	Number of Triads	Inner Jacket Thickness - mils	Nominal Core O.D. - Inches	C-L-X O.D. - Inches	Outer Jacket mils	Nominal Cable O.D. - Inches	Cross-Sectional Area* Sq. In.	Net Weight Lbs./1000'	Ship Weight Lbs./1000'
▲ 561-60-3402	2	40	0.45	0.67	50	0.76	0.45	234	314	
▲ 561-60-3404	4	50	0.56	0.80	50	0.91	0.65	335	415	
561-60-3406	6	50	0.66	0.89	50	1.00	0.79	421	501	
▲ 561-60-3408	8	50	0.70	0.93	50	1.04	0.85	492	572	
561-60-3410	10	50	0.79	1.06	50	1.17	1.08	601	681	
▲ 561-60-3412	12	50	0.85	1.11	50	1.22	1.17	674	780	
561-60-3416	16	50	0.98	1.29	50	1.40	1.54	842	948	
561-60-3420	20	50	1.06	1.34	50	1.45	1.65	977	1120	
▲ 561-60-3424	24	50	1.12	1.42	50	1.53	1.84	1118	1261	
▲ 561-60-3436	36	50	1.37	1.69	60	1.82	2.60	1586	1773	
561-60-3450	50	50	1.57	1.92	60	2.05	3.30	2124	2416	
▲ 561-65-3404	4	50	0.61	0.84	50	0.95	0.71	395	475	
▲ 561-65-3408	8	50	0.82	1.06	50	1.17	1.08	637	717	
▲ 561-65-3412	12	50	0.98	1.29	50	1.40	1.54	863	969	
561-65-3416	16	50	1.10	1.37	50	1.48	1.72	1058	1201	
561-65-3424	24	50	1.33	1.64	60	1.78	2.49	1485	1672	
561-65-3436	36	50	1.58	1.96	60	2.09	3.43	2141	2426	

#### ELECTRICAL SPECIFICATIONS

Conductor Resistance, nominal .....ohms/1000 ft. @20°C  
16 AWG .....4.1  
Insulation Test Voltage (spark test) .....6000 Volts ac  
Dielectric Test Voltage .....2000 Volts ac for 60 sec.  
Insulation Resistance Constant @60°F minimum  
(natural material typical value) ..2000 Megohms-1000 ft.  
Loop Resistance, nominal (2 conductor).....ohms-1000 ft @20°C  
16 AWG .....8.2  
Mutual Capacitance (PF/ft.)\*  
#16 .....60  
\*Typical Value

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

\***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.

**Copper or bronze C-L-X** available on special order.

To order C-L-X Type SP-OS without the outer Okoseal jacket (not "HL" listed), change the sixth digit of the catalog number from 3 to 1, for example to order 1 pr. 20 AWG with a bare aluminum C-L-X, the catalog number would be 564-10-1212.

**Length Tolerance:** Cut lengths of 1000 ft. or longer are subject to a tolerance of + \ -10%; less than 1000 ft. + \ -15%

