On-Line Catalog Features

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- Click the “General Cable” logo on the left side of the menu bar to go to General Cable’s Web site.

- The “Table of Contents” button in the center of the menu bar takes you to a fully interactive page. Click on any product category or listing to take you to the appropriate page. (All other page references throughout the catalog are also fully interactive.)

- The entire catalog’s contents can be searched using the Search button located in the upper right of the menu bar.

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Brand Rex Brand Military Shipboard Cable…

General Cable’s engineered Brand Rex Brand military qualified wire and cable has a long and distinguished record of involvement in high-priority defense programs. Spanning all branches of the Armed Forces, Brand Rex cables continue its forward-looking leadership role by providing the “ultimate in protection” for power, control, signal and communications cabling solutions.

As a key supplier to the military, General Cable has a strong tradition of dedicated leadership in the integration of research, design, engineering and manufacturing of generation after generation of MIL Spec cables.

With quality programs and certifications that include ISO 9001:2008, MIL-STD-790, MIL-I-45208, MIL-STD-45662, ISO 17025 for calibration services, and second party lab testing certification to IEC/ISO 17025 from both UL and CSA, General Cable strives to provide value through innovation and product quality.

From Brand Rex Brand power, control and signal low-smoke, zero-halogen cables designed in accordance with M24643 to fiber optic cables and blown optical fiber systems qualified to M85045 and M49291, General Cable offers the widest selection of copper cabling and fiber optic solutions for military, shipboard and specialty applications.

M24643 Military Specification

The U.S Navy introduced the M24643 specification due to concerns about flammability, smoke and toxicity. This cable design provides low-smoke, flame retardant cables that are approximately equivalent in overall size, weight and electricals to many of the older MIL-C-915 constructions. This family of low smoke, low toxicity cables conforms to rigid toxic and smoke indexes, and are mandated for use on all new constructions or any major retrofit projects.

M24643 POWER & LIGHTING CABLE – WATERTIGHT, NON-FLEXING SERVICE

- M24643/5 Type LSMDU: 600V, Nineteen Conductors, Watertight, Low-Smoke
- M24643/14 Type LSSSGU, LSSSGA: 1000V, Single Conductor, Unarmored or Armored, Watertight, Low-Smoke
- M24643/15 Type LSDSGU: 1000V, Two Conductors, Watertight, Low-Smoke
- M24643/16 Type LSTSGU, LSTSGA: 1000V, Three Conductors, Unarmored or Armored, Watertight, Low-Smoke
- M24643/17 Type LSFSGU: 1000V, Four Conductors, Watertight, Low-Smoke
- M24643/22 Type LS5KVTSGU, LS5KVTSGA: 5000V, Three Conductors, Unarmored & Armored, Watertight, Low-Smoke
M24643 POWER & LIGHTING CABLE – WATERTIGHT, NON-FLEXING SERVICE (CONT’D)

- M24643/66 Type LS2OW: 1000V, Two Conductor, Shielded, Watertight, Low-Smoke
- M24643/67 Type LS3OW: 1000V, Three Conductor, Shielded, Watertight, Low-Smoke
- M24643/68 Type LS4OW: 1000V, Four Conductor, Shielded, Watertight, Low-Smoke

M24643 ELECTRONIC, COMMUNICATION & INSTRUMENTATION CABLE – WATERTIGHT, NON-FLEXING SERVICE

- M24643/23 Type LSTTSU: 300V, One and One Half thru Sixty Pairs, 22 AWG, Watertight, Low-Smoke

M24643 POWER & LIGHTING CABLE – NON-WATERTIGHT, NON-FLEXING SERVICE

- M24643/43 Type LS2SJ, LS3SJ, LS4SJ: 600V, Two, Three and Four Conductors, Overall Shielded, Non-Watertight, Low-Smoke

M24643 ELECTRONIC, COMMUNICATION & INSTRUMENTATION CABLE – NON-WATERTIGHT, NON-FLEXING SERVICE

- M24643/24 Type LSTCKXN, LSTCTXN: One Pair, 16 AWG and 21 AWG, Armored, Non-Watertight, Low-Smoke
- M24643/25 Type LSP1: Three, Seven and Twelve Shielded Pairs, 18 AWG, Armored, Non-Watertight, Low-Smoke
- M24643/26 Type LSDPSN, LSTPSN, LSFPSN, LS7PSN: Two thru Seven Conductor, Armored, Non-Watertight, Low-Smoke

M24643 POWER & LIGHTING CABLE – NON-WATERTIGHT, FLEXING SERVICE

- M24643/3 Type LSSHOF: 600V, One thru Four Conductors, Non-Watertight, Low-Smoke

M24643 ELECTRONIC, COMMUNICATION & INSTRUMENTATION CABLE – NON-WATERTIGHT, FLEXING SERVICE

- M24643/2 TYPE LSDCOP, LSTCOP: 300V, Two and Three Conductors, 18 AWG and 20 AWG, Non-Watertight, Low-Smoke
QUIK-PREP® Military Specification M24643

General Cable’s military engineering expertise was called to action to develop an innovative power cable that would meet the stringent M24643 standards while offering improved preparation and labor cost savings. The result was QUIK-PREP® single and multi-conductor power cables.

Specified as The Preferred Method and approved by NAVSEA for compliance to M24643/14, 15, 16, 17, 22, 66, 67, and 68 QUIK-PREP® power cables feature time-saving ripcords that facilitate stripping and an innovative extruded skin that offers overall cost savings. This design is quicker, easier and safer to prepare and terminate.

M24643 QUIK-PREP® POWER CABLE – WATERTIGHT, NON-FLEXING SERVICE

- QUIK-PREP® M24643/14 1000V, Single Conductor, Watertight, Low-Smoke
- QUIK-PREP® M24643/15 1000V, Two Conductors, Watertight, Low-Smoke
- QUIK-PREP® M24643/16 1000V, Three Conductors, Watertight, Low-Smoke
- QUIK-PREP® M24643/17 1000V, Four Conductors, Watertight, Low-Smoke
- QUIK-PREP® M24643/22 5000V, Three Conductors, Watertight, Low-Smoke
- QUIK-PREP® M24643/66 1000V, Two Conductors, Watertight, Low-Smoke
- QUIK-PREP® M24643/67 1000V, Three Conductors, Watertight, Low-Smoke
- QUIK-PREP® M24643/68 1000V, Four Conductors, Watertight, Low-Smoke

Navy Shipboard Communications Cables

Still in a class by itself, General Cable continues to meet the highest performance standards with a qualified Category 5e Naval Shipboard data communications cable. ShipLAN® Category 5e cable and patch cords combines high-performing electrical characteristics with low-toxicity, low-smoke, zero-halogen, and flame-retardant properties necessary for shipboard environments.

General Cable’s ShipLAN® Category 5e cable and patch cords are constructed with a proprietary thermoset jacket system that provides flexibility for ease of installation and stripability for quicker preparation and termination time.

ShipLAN® — engineered to perform well into the future.

M24643 COPPER COMMUNICATIONS CABLE – THERMOSET, LOW-SMOKE, ZERO-HALOGEN

- M24643/59 – CAT5e Non-Watertight, Shielded, Low-Smoke, Zero-Halogen Thermoset Cable
- M24643/61 – CAT5e Non-Watertight, Shielded, Low-Smoke, Zero-Halogen Thermoset Patch Cable
M85045F Military Specification
Low-Smoke, Zero-Halogen Shipboard Fiber Optic Cables

Fiber optic cables have gained rapid acceptance over the past decade in U.S. Navy shipboard applications because of escalating demand for security, information integrity and increased bandwidth requirements. To further expand the cable solutions for U.S. Naval Vessels, the same jacketing systems that had been successfully utilized for copper cables have been incorporated into fiber optic cables.

A low-smoke, zero-halogen (LSZH) thermoset jacketing system was introduced under M85045F (previously M85045E). This approach ensured that fiber optic cables would not only maintain, but improve upon the overall system integrity previously achieved with copper control and signal/data cables. M85045F has made qualified fiber optic cable available to the U.S. Navy by setting the standard for this new generation of cables with performance capabilities never before accomplished. General Cable was, and remains to be an integral military partner in the development, qualification and manufacture of the various fiber optic cables described in M85045F. We take great pride in our participation in this significant technological accomplishment. General Cable’s fiber optic cables meet the most stringent mission-critical demands with militarized LSZH designs that are suitable for data transmission and communication applications aboard any U.S. Navy platform —above or below the sea.
M85045F & M49291C Military Specifications
Blolite® Blown Optical Fiber Technology

General Cable was the first fiber manufacturer to become a Qualified Parts Listed (QPL) supplier of a militarized version of blown optical fiber technology (BOFT) in September of 2001. Today, we continue to remain the only qualified supplier of blown optical fiber fully engineered and tested to all the stringent requirements of M85045F and M49291C.

General Cable’s Blolite® blown optical fiber technology was first installed on the aircraft carrier USS Harry Truman in 1997. Early proof of successful use of this technology and its future-proof capabilities for which it was designed, resulted in the formal development and qualification of the technology for the U.S. Navy. Expanding requirements for the use of optical fiber applications on U.S. Navy vessels has resulted in an increased use of General Cable’s Blolite™ high-performance technology that is the preferred solution which offers the only real future-proof infrastructure solution.

Key developments in military shipboard fiber optic technology have been the digitization of command, control and communication systems over a common infrastructure. This convergence has enabled significant savings in space and weight as well as greatly improved system functionality and damage tolerance. Blown optical fiber technology has furthered these advances by adding opportunities for cost savings, easy upgradeability and design flexibility.

General Cable’s Blolite® blown optical fiber solution has proven to be the SOLUTION for the U.S. Navy fleet.
M85045F CABLE, BLOWN OPTICAL FIBER, LOW-SMOKE, ZERO HALOGEN

- M85045/25 Seven 8mm Tubes, Thermoset or Thermoplastic, Blown Optical Fiber
- M85045/26 One 8mm Tube, Thermoset or Thermoplastic, Blown Optical Fiber

M49291C FIBER, OPTICAL

- M49291/6-05 Multimode, 500µm, Blown Optical Fiber
- M49291/7-02 Singlemode, 500µm, Blown Optical Fiber

BLOWN OPTICAL FIBER ACCESSORIES

- AA-59731-U-8E — 8mm Tube Union
- AA-59731-T-8E — 8mm Tube Tee
- AA-59731-EC-8E — 8mm End Cap
- AA-59728-TP-8 — 8mm Tube Fitting Plug
- Raychem SFTS-1 — Adhesive/Sealant Tape
- AA-59730-TTP-2 — Tapered Tube Plug (2 - 6 fibers)
- AA-59730-TTP-3 — Tapered Tube Plug (8 - 12 fibers)
- Tube Clips (TM-08) SMC
- A-A-59729-TFU — Furcation Assemblies (Note: # of cables, length & color must be specified)
- Tube Cutter
- Cutter Replacement Blades

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Brand Rex Brand Military Shipboard Cables Catalog

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- M24643/5 Type LSMDU: 600V, Nineteen Conductors, Watertight, Low-Smoke
- M24643/14 Type LSSSGU, LSSSGA: 1000V, Single Conductor, Unarmored or Armored, Watertight, Low-Smoke
- M24643/15 Type LSDSGU: 1000V, Two Conductors, Watertight, Low-Smoke
- M24643/16 Type LSTSGU, LSTSGA: 1000V, Three Conductors, Unarmored or Armored, Watertight, Low-Smoke
- M24643/17 Type LSFSGU: 1000V, Four Conductors, Watertight, Low-Smoke
- M24643/22 Type LS5KVTSGU, LS5KVTSGA: 5000V, Three Conductors, Unarmored & Armored, Watertight, Low-Smoke
- M24643/23 Type LSTTSU: 300V, One and One Half thru Sixty Pairs, 22 AWG, Watertight, Low-Smoke
- M24643/24 Type LSTCKXN, LSTCTXN: One Pair, 16 AWG and 21 AWG, Armored, Non-Watertight, Low-Smoke
- M24643/25 Type LSP1: Three, Seven and Twelve Shielded Pairs, 18 AWG, Armored, Non-Watertight, Low-Smoke
- M24643/26 Type LSDPSN, LSTPSN, LSFPSN, LS7PSN: Two thru Seven Conductor, Armored, Non-Watertight, Low-Smoke
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- M24643/68 Type LS4OW: 1000V, Four Conductor, Shielded, Watertight, Low-Smoke
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M24643 SPECIFICATIONS

- QUIK-PREP® M24643/14 1000V, Single Conductor, Watertight, Low-Smoke
- QUIK-PREP® M24643/15 1000V, Two Conductors, Watertight, Low-Smoke
- QUIK-PREP® M24643/16 1000V, Three Conductors, Watertight, Low-Smoke
- QUIK-PREP® M24643/17 1000V, Four Conductors, Watertight, Low-Smoke
- QUIK-PREP® M24643/22 5000V, Three Conductors, Watertight, Low-Smoke
- QUIK-PREP® M24643/66 1000V, Two Conductors, Watertight, Low-Smoke
- QUIK-PREP® M24643/67 1000V, Three Conductors, Watertight, Low-Smoke
- QUIK-PREP® M24643/68 1000V, Four Conductors, Watertight, Low-Smoke

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POWER CABLE FOR COLD IRONING

- Shore2Ship™ THOF-500E

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- MIL-DTL-M24643C ASTM Definitions
- MIL-DTL-M24643C Conductor Identification Methods
- MIL-DTL-M24643C Navy Standard Sizes
- MIL-DTL-M24643C Standard Identification Code

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**NAVSEA COAXIAL, TWINAX & TRIAXIAL CABLE**

- 6262065-1 - Double Optimized Shielded Waterblocked Triaxial RF Cable
- 6322493 - Double Optimized Shielded 75 Ohm Non-Waterblocked Triaxial RF Cable
- 6323052 - Double Optimized Shielded 50 Ohm Non-Waterblocked Flexible Coaxial RF Cable
- 6323054 - Double Optimized Shielded 75 Ohm Non-Waterblocked Coaxial RF Cable
- 6323055 - Optimized Shielded Non-Waterblocked Twinaxial RF Cable
- 6323056 - Double Optimized Shielded 75 Ohm Non-Waterblocked Triaxial RF Cable
- 6323059 - Double Optimized Shielded 75 Ohm Non-Waterblocked Triaxial RF Cable

Section 6: M85045F & M49291C Military Shipboard Fiber Optic Cables and Accessories

**M85045F CABLE, FIBER OPTIC, WATERTIGHT, LOW-SMOKE, ZERO-HALOGEN**

- M85045/13 Eight Fibers, Thermoplastic, Multimode or Singlemode, Watertight, Low-Smoke
- M85045/15 Four Fibers, Thermoplastic, Multimode or Singlemode, Watertight, Low-Smoke
- M85045/16 One Fiber, Thermoplastic, Multimode or Singlemode, Watertight, Low-Smoke
- M85045/17 Eight Fibers, Thermoset, Multimode or Singlemode, Watertight, Low-Smoke
- M85045/18 Four Fibers, Thermoset, Multimode or Singlemode, Watertight, Low-Smoke
- M85045/20 Twenty four, Thirty Three or Thirty Six Fibers, Thermoset, Multimode or Singlemode, Watertight, Low-Smoke
Section 6: M85045F & M49291C Military Shipboard Fiber Optic Cables and Accessories (cont’d)

M85045F CABLE, FIBER OPTIC, WATERTIGHT, LOW-SMOKE, ZERO-HALOGEN

- M85045/21 Eight Fiber, Outboard, Multimode or Singlemode, Watertight, Low-Smoke
- M85045/22 Eighteen Fibers, Thermoplastic, Multimode or Singlemode, Watertight, Low-Smoke
- M85045/23 Eighteen Fibers, Outboard, Multimode or Singlemode, Watertight, Low-Smoke
- M85045/24 Ninety Fibers, Thermoset, Multimode or Singlemode, Watertight, Low-Smoke
- M85045/25 Seven 8mm Tubes, Thermoset or Thermoplastic, Blown Optical Fiber
- M85045/26 One 8mm Tube, Thermoset or Thermoplastic, Blown Optical Fiber

M49291C FIBER, OPTICAL

- M49291/6-05 Multimode, 500µm, Blown Optical Fiber
- M49291/7-02 Singlemode, 500µm, Blown Optical Fiber

BLOWN OPTICAL FIBER ACCESSORIES

- AA-59731-U-8E — 8mm Tube Union
- AA-59731-T-8E — 8mm Tube Tee
- AA-59731-EC-8E — 8mm End Cap
- AA-59728-TFP-8 — 8mm Tube Fitting Plug
- Raychem SFTS-1 — Adhesive/Sealant Tape
- AA-59730-TTP-2 — Tapered Tube Plug (2 - 6 fibers)
- AA-59730-TTP-3 — Tapered Tube Plug (8 - 12 fibers)
- Tube Clips (TM-08) SMC
- A-A-59729-TFU — Furcation Assemblies (Note: # of cables, length & color must be specified)
- Tube Cutter
- Cutter Replacement Blades

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- M24643/16 Type LSTSGU, LSTSGA: 1000V, Three Conductors, Unarmored or Armored, Watertight, Low-Smoke
- M24643/17 Type LSFGSU: 1000V, Four Conductors, Watertight, Low-Smoke
- M24643/22 Type LS5KVTSGU, LS5KVTSGA: 5000V, Three Conductors, Unarmored & Armored, Watertight, Low-Smoke
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- M24643/43 Type LS2SJ, LS3SJ, LS4SJ: 600V, Two, Three and Four Conductors, Overall Shielded, Non-Watertight, Low-Smoke
- M24643/66 Type LS2OW: 1000V, Two Conductor, Shielded, Watertight, Low-Smoke
- M24643/67 Type LS3OW: 1000V, Three Conductor, Shielded, Watertight, Low-Smoke
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- QUIK-PREP® M24643/68 1000V, Four Conductors, Watertight, Low-Smoke
**MIL-DTL-M24643C**  
QPL Approval Listing – Active Products

### CABLES AND CORDS, LOW-SMOKE, ELECTRIC, FOR SHIPBOARD USE

**GENERAL SPECIFICATION FOR SPECIFICATION SHEETS**

| MIL-DTL-24643/2 | Cord, Electrical, 300 Volts, Types LSDCOP and LSTCOP |
| MIL-DTL-24643/3 | Cable, Electrical, 600 Volts, Type LSSHOF |
| MIL-DTL-24643/5 | Cable, Electrical, 600 Volts, Type LSMDU |
| MIL-DTL-24643/14 | Cable, Electrical, 1000 Volts, Type LSSSGU (Including Variation LSSSGA) |
| MIL-DTL-24643/15 | Cable, Electrical, 1000 Volts, Type LSDSGU |
| MIL-DTL-24643/16 | Cable, Electrical, 1000 Volts, Type LSTSGU (Including Variation LSTSGA) |
| MIL-DTL-24643/17 | Cable, Electrical, 1000 Volts, Type LSFSGU |
| MIL-DTL-24643/22 | Cable, Electrical, 5000 Volts, Type LS5KVTSGU (Including Variation LS5KVTSGA) |
| MIL-DTL-24643/23 | Cable, Electrical, 300 Volts, Type LSTTSU |
| MIL-DTL-24643/24 | Cable, Electrical, Types LSTCJX, LSTCKX and LSTCTX |
| MIL-DTL-24643/25 | Cable, Electrical, Type LSPI |
| MIL-DTL-24643/26 | Cable, Electrical, 600 Volts, Types LSDPS, LSFPS, LSTPS and LS7PS |
| MIL-DTL-24643/43 | Cable, Electrical, Types LS2SJ, LS3SJ, LS4SJ |
| MIL-DTL-24643/66 | Cable, Electrical, 1000 Volts, Type LS2OW |
| MIL-DTL-24643/67 | Cable, Electrical, 1000 Volts, Type LS3OW |
| MIL-DTL-24643/68 | Cable, Electrical, 1000 Volts, Type LS4OW |
M24643/2, Type LSDCOP & LSTCOP
300V, Two and Three Conductor, 18 AWG and 20 AWG, Non-Watertight, Low-Smoke

Product Construction:

Conductor:
- 18 & 20 AWG uncoated copper
- Class K stranding per ASTM B174

Insulation:
- Cross-Linked Polyethylene (XLPE)
- Color code: Method 3

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) — White (WHT)

Print:
- Including but not limited to:
  GENERAL CABLE BRAND REX BRAND
  LSDCOP-XX OR LSTCOP-XX_M24643/2-XXXX XL POLYO YEAR OF MFG

Options:
- Braided Aluminum Armor (IAW M24643/2)

Applications:
- Cables are oil resistant portable cord type constructions suitable for non-watertight, flexing service.
- For use in shipboard electronic, communications and instrumentation applications except where unusual circuit parameters require a special cable type.
- For use only in runs within one compartment or within contiguous compartments and shall not be used to penetrate a watertight deck or bulkhead.

Features and Benefits:
- Non-watertight for mission-critical environments.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.

Compliances:
- M24643/2

Quality Programs and Certifications:
- MIL-STD-790
- MIL-I-45208
- MIL-STD-45662
- ISO/IEC 17025

Packaging:
- Per MIL Spec

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</table>
Military Shipboard Cables

M24643/3, Type LSSHOF
600V, One Conductor, Non-Watertight, Low-Smoke

Product Construction:

Conductor:
- Multi AWG/Navy sizes (see chart) uncoated copper
- Class stranding (see chart)

Insulation:
- Ethylene Propylene Rubber (EPR)
- Color code: Method 3

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) – Black (BLK)

Print:
- Including but not limited to: GENERAL CABLE BRAND REX LSSHOF-XX,M24643/3-XXXX XL POLYO YEAR OF MFG

Options:
- Braided Aluminum Armor (IAW M24643/3)
- White Jackets

Applications:
- Multi conductor cables are oil resistant constructions suitable for non-watertight, flexing service.
- For use in shipboard power and lighting applications and shall not be used to penetrate a watertight deck or bulkhead.

Features and Benefits:
- Non-watertight for mission-critical environments.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.

Compliances:
- M24643/3

Quality Programs and Certifications:
- MIL-STD-790
- MIL-I-45208
- MIL-STD-45662
- ISO/IEC 17025

Packaging:
- Per MIL Spec

M24643/3 600V, One Conductor, Non-Watertight, Low-Smoke

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M24643/5, Type LSMDU
600V, Nineteen Conductor, Watertight, Low-Smoke

Product Construction:

Conductor:
- Multi AWG (see chart) uncoated copper
- Class B, C, D stranding per ASTM B174

Insulation:
- Cross-Linked Polyethylene (XLPE)
- Color code: Method 1

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) – Black (BLK)

Print:
- Including but not limited to:
  GENERAL CABLE BRAND
  REX BRAND
  LSMDU-XX M24643/5-XXXX XLPOLYO
  YEAR OF MFG

Options:
- Braided Aluminum Armor (IAW M24643/5)
- White Jacket

Applications:
- Cables are multi conductor constructions suitable for watertight, non-flexing service.
- For use as shipboard degaussing type cables when magnetic fields are of concern.

Features and Benefits:
- Watertight for mission-critical environments.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.

Compliances:
- M24643/5

Quality Programs and Certifications:
- MIL-STD-790
- MIL-I-45208
- MIL-STD-45662
- ISO/IEC 17025

Packaging:
- Per MIL Spec

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M24643/14, Type LSSSGU & LSSSGA
1000V, Single Conductor, Unarmored or Armored, Watertight, Low-Smoke

Product Construction:

Conductor:
- Multi AWG (see chart) uncoated copper
- Class B, C, D stranding per ASTM B8

Insulation:
- Silicone rubber glass tape

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) – Black (BLK) or White (WHT)

LSSSGA:
- Same construction as LSSSGU with overall braided aluminum armor

Print:
- Including but not limited to:
  GENERAL CABLE BRAND
  M24643/14-XXXX XL POLYO YEAR OF MFG

Applications:
- Cables are single conductor constructions, armored or unarmored, suitable for watertight non-flexing service.
- For use in shipboard power, lighting or weapon control system interconnection except where unusual circuit parameters require special type of cable.
- Used for degaussing applications.

Features and Benefits:
- Watertight for mission-critical environments.
- Meet the 1 hour fire electrical circuit integrity requirements.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.

Compliances:
- M24643/14

Quality Programs and Certifications:
- MIL-STD-790
- MIL-I-45208
- MIL-STD-45662
- ISO/IEC 17025

Packaging:
- Per MIL Spec

M24643/14 1000V, Single Conductor, Unarmored or Armored, Watertight, Low-Smoke

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* Ampacity calculated at 60 Hz AC (rms) or DC per MIL-HDBK-299
M24643/15, Type LSDSGU
1000V, Two Conductor, Watertight, Low-Smoke

Product Construction:

Conductor:
- Multi AWG (see chart) uncoated copper
- Class B, C, D stranding per ASTM B8
- Navy Standard - 400

Insulation:
- Sizes 3, 4, 9, 14, 23: Silicone, glass braid and braid covering – Method 1
- Sizes 50-400: Silicone rubber glass tape – Method 5

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) – Black (BLK) or White (WHT)

Options:
- Braided Aluminum Armor (IAW M24643/15)

Applications:
- Cables are two conductor constructions suitable for watertight, non-flexing service.
- For use in shipboard power, lighting or weapon control system interconnection except where unusual circuit parameters require special type of cable.
- Used for degaussing applications.

Features and Benefits:
- Watertight for mission-critical environments.
- Meet the 1 hour fire electrical circuit integrity requirements.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.

M24643/15 1000V, Two Conductor, Watertight, Low-Smoke

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*Ampacity calculated at 60 Hz AC (rms) or DC per MIL-HDBK-299
M24643/16, Type LSTSGU & LSTSGA
1000V, Three Conductor, Unarmored or Armored, Watertight, Low-Smoke

Product Construction:

Conductor:
- Multiple AWG (see chart) uncoated copper
- Class B, C D stranding per ASTM B8
- Navy Standard

Insulation:
- Sizes 3, 4, 9, 14, 23 and 30: Silicone, glass braid and braid covering – Method 1
- Sizes 40 thru 400: Silicone rubber glass tape – Method 5

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) – Black (BLK) or White (WHT)

LSTSGA:
- Same construction with overall braided aluminum armor

Print:
- Including but not limited to: GENERAL CABLE BRAND REX BRAND LSTSGU-XXX OR LSTSGA-XXX M24643/16-XXXX XL POLYO YEAR OF MFG

Applications:
- Cables are three conductor constructions, armored or unarmored, suitable for watertight, non-flexing service.
- For use in shipboard power, lighting or weapon control system interconnection except where unusual circuit parameters require special type of cable.
- Used for degaussing applications.

Features and Benefits:
- Watertight for mission-critical environments.
- Meet the 1 hour fire electrical circuit integrity requirements.
- Thermostet system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.

Compliances:
- M24643/16

Quality Programs and Certifications:
- MIL-STD-790
- MIL-I-45208
- MIL-STD-45662
- ISO/IEC 17025

Packaging:
- Per Mil Spec
# Military Shipboard Cables

## M24643/16, Type LSTSGU & LSTSGA

1000V, Three Conductor, Unarmored or Armored, Watertight, Low-Smoke

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*Ampacity calculated at 60 Hz AC (rms) or DC per MIL-HDBK-299*
M24643/17, Type LSFSGU
1000V, Four Conductor, Watertight, Low-Smoke

Product Construction:

Conductor:
- Multi AWG (see chart) uncoated copper
- Class B, C, D stranding per ASTM B8

Insulation:
- Sizes 3, 4, 9, 14 and 23: Silicone, glass braid, and braid covering – Method 1
- Sizes 50, 75, 100, 150 and 200: Silicone rubber glass tape – Method 5

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) – Black (BLK) or White (WHT)

Print:
- Including but not limited to: GENERAL CABLE BRAND REX BRAND LSFSGU-XXX M24643/17-XXXX XL POLYO YEAR OF MFG

Options:
- Braided Aluminum Armor (IAW M24643/17)

Applications:
- Cables are four conductor constructions suitable for watertight, non-flexing service.
- For use in shipboard power, lighting or weapon control system interconnection except where unusual circuit parameters require special type of cable.
- Used for degaussing applications.

Features and Benefits:
- Watertight for mission-critical environments.
- Meet the 1 hour fire electrical circuit integrity requirements.
- Thermostat system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.

Compliances:
- M24643/17

Quality Programs and Certifications:
- MIL-STD-790
- MIL-I-45208
- MIL-STD-45662
- ISO/IEC 17025

Packaging:
- Per MIL Spec

M24643/17 1000V, Four Conductor, Watertight, Low-Smoke

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* Ampacity calculated at 60 Hz AC (rms) or DC per MIL-HDBK-299
Military Shipboard Cables

M24643/22, Type LS5KVTSGU & LS5KVTSGA
5000V, Three Conductor, Unarmored or Armored, Watertight, Low-Smoke

Product Construction:

Conductor:
- Multi AWG (see chart) uncoated copper
- Class B, C & D stranding per ASTM B8
- Navy Standard - 400

Insulation:
- Silicone rubber glass tape
- Color Code: Method 5

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) – Black (BLK)

Armor:
LS5KVTSGA
- Same construction as LS5KVTSGU with overall braided aluminum armor

Print:
- Including but not limited to: GENERAL CABLE BRAND REX BRAND LS5KVTSGU-XXX OR LS5KVTSGA-XXX M24643/22-XXXX XL POLYO YEAR OF MFG

Options:
- White Jacket

Applications:
- Cables are three conductor constructions, armored or unarmored, suitable for watertight, non-flexing service.
- For use in shipboard power, lighting, or weapon control system interconnection.

Features and Benefits:
- Watertight for mission-critical environments.
- Meet the 1 hour fire electrical circuit integrity requirements.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.

Compliances:
- M24643/22

Quality Programs and Certifications:
- MIL-STD-790
- MIL-I-45208
- MIL-STD-45662
- ISO/IEC 17025

Packaging:
- Per MIL Spec

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M24643/22 5000V, Three Conductor, Unarmored or Armored, Watertight, Low-Smoke

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*Ampacity calculated at 60 Hz AC (rms) or DC per MIL-HDBK-299
Military Shipboard Cables

M24643/23, Type LSTTSU
300V, One and One Half thru Forty Pair, 22 AWG, Watertight, Low-Smoke

Product Construction:

Conductor:
- 22 AWG uncoated copper
- Class K stranding per ASTM B174

Insulation:
- Extruded silicone rubber / Polyamide
- Color code: Method 6

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) – Black (BLK) or White (WHT)

Print:
- Including but not limited to: GENERAL CABLE BRAND REX BRAND LSTTSU-XX M24643/23-XXXX XL POLYO YEAR OF MFG

Options:
- Braided Aluminum Armor (IAW M24643/23)

Applications:
- Cables are multi-pair constructions suitable for watertight, non-flexing service.
- For use in shipboard interconnect audio, telephone, call bell, announcing, and alarm systems.
- May also be used for other interior communications and weapon control systems provided the ampere rating of the cable and voltage drop for the system are not exceeded.

Features and Benefits:
- Watertight for mission-critical environments.
- Meet the 1-hour fire electrical circuit integrity requirements.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.

Compliances:
- M24643/23

Quality Programs and Certifications:
- MIL-STD-790
- MIL-I-45208
- MIL-STD-45662
- ISO/IEC 17025

Packaging:
- Per MIL Spec

M24643/23 300V, One and One Half thru Forty Pair, 22(7/30) AWG, Watertight, Low-Smoke

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* LSTTSU-1½ is comprised of three conductors cabled together to form a triad.
Military Shipboard Cables

M24643/24, Type LSTCKXN & LSTCTXN
One Pair, 16 AWG and 21 AWG, Armored, Non-Watertight, Low-Smoke

Product Construction:

Conductor:
- 16 AWG & 21 AWG thermocouple in accordance with ANSI MC96.1
- LSTCKXN - One each of chromel and alumel
- LSTCKXN- One each of copper and constantan

Insulation:
- Extruded silicone rubber/ glass braid / braid covering
- Color Code: Method 4

Jacket:
- Silicone Rubber – Orange

Armor:
- Braided Aluminum

Features and Benefits:
- Non-watertight for mission-critical environments.
- Meet the 1 hour fire electrical circuit integrity requirements.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.

Applications:
- Cables are one pair armored thermocouple suitable for non-watertight, non-flexing service.
- For use in shipboard Type K and T thermocouple and pyrometer applications.

Compliances:
- M24643/24

Quality Programs and Certifications:
- MIL-STD-790
- MIL-I-45208
- MIL-STD-45662
- ISO/IEC 17025

Packaging:
- Per MIL Spec

M24643/24, One Pair, 16(7/.0201) AWG and 21(7/.0113) AWG, Armored, Non-Watertight, Low-Smoke

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Military Shipboard Cables

M24643/25, Type LSPI
Three, Seven and Twelve Shielded Pair, 18 AWG, Armored, Non-Watertight, Low-Smoke

Product Construction:

Conductor:
- 18 AWG nickel-coated copper
- Class B stranding per ASTM B8

Insulation:
- Extruded silicone rubber / glass braid / braid covering
- Color code: Method 4

Shield:
- Braided uncoated copper

Jacket:
- Silicone rubber – Orange

Armor:
- Braided aluminum

Print:
- Including but not limited to:
  GENERAL CABLE BRAND REX
  BRAND LSPI-XX M24643/25-XXXX
  XL POLYO YEAR OF MFG

Applications:
- Cables are shielded and armored multi-pair constructions suitable for high temperature non-watertight, non-flexing service.
- For use in shipboard electronic and instrumentation system interconnectors such as position indication applications.

Features and Benefits:
- Non-watertight for mission-critical environments.
- Meets the 1-hour fire electrical circuit integrity requirements.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.

Compliances:
- M24643/25

Quality Programs and Certifications:
- MIL-STD-790
- MIL-I-45208
- MIL-STD-45662
- ISO/IEC 17025

Packaging:
- Per MIL Spec

M24643/25, Three, Seven and Twelve Shielded Pair, 18(7/.0152) AWG, Armored, Non-Watertight, Low-Smoke

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# M24643/26, Type LSDPSN, LSTPSN, LSFPSN, LS7PSN
# 600V, Two thru Seven Conductor, Armored, Non-Watertight, Low-Smoke

## Product Construction:
- **Conductor:**
  - Multi AWG (see chart) Nickel-coated copper
  - Class B and C stranding per ASTM B8
- **Insulation:**
  - Extruded silicone rubber / glass braid / braid covering
  - Color code: Method 4
- **Jacket:**
  - Silicone Rubber – Orange
- **Armor:**
  - Braided aluminum

## Applications:
- Cables are multi conductor armored constructions suitable for high temperature, non-watertight, non-flexing service.
- For use in shipboard interconnect of lighting and power systems.

## Features and Benefits:
- Non-watertight for mission-critical environments.
- Meets the 1 hour fire electrical circuit integrity requirements.
- Thermost system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.

## Compliances:
- M24643/26

## Quality Programs and Certifications:
- MIL-STD-790
- MIL-I-45208
- MIL-STD-45662
- ISO/IEC 17025

## Packaging:
- Per MIL Spec

---

### M24643/26 600V, Two thru Seven Conductor, Armored, Non-Watertight, Low-Smoke

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*Ampacity calculated at 60 Hz AC (rms) or DC per MIL-HDBK-299*
Military Shipboard Cables

M24643/43, Type LS2SJ, LS3SJ, LS4SJ
600V, Two, Three and Four Conductors, Overall Shield, Non-Watertight, Low-Smoke

Product Construction:

Conductor:
- 14 AWG and smaller - Tin-coated copper per ASTM B286; 12 AWG and larger – bare copper
- Class B stranding per ASTM B8

Insulation:
- Cross-Linked Polyethylene (XLPE)
- Color code: Method 3

Shield:
- Braided tin-coated copper

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) — White (WHT)

Print:
- Including but not limited to: GENERAL CABLE BRAND REX BRAND LS2SJ-XX OR LS3SJ-XX OR LS4SJ-XX M24643/43-XXXX XL POLYO YEAR OF MFG

Options:
- Braided Aluminum Armor (IAW M24643/43)

Applications:
- Cables are multi-conductor, shielded constructions, suitable for non-watertight, non-flexing service.
- For use in shipboard combat systems, interior communications, lighting, and power circuits, where shielding of 400 Hz is required.

Features and Benefits:
- Non-watertight for mission-critical environments.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.
- Conforms to the surface transfer impedance and EMP response time requirements.

Compliances:
- M24643/43

Quality Programs and Certifications:
- MIL-STD-790
- MIL-I-45208
- MIL-STD-45662
- ISO/IEC 17025

Packaging:
- Per MIL Spec

Catalog Number | Product Description Type/Size | Military Part No. M24643/43 | Conductor Size AWG and Stranding | # of Cond. | Overall Diameter Min. Inches | Max. Inches | Max Amps Per Cond. 40°C | 50°C |
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### M24643/43, Type LS2SJ, LS3SJ, LS4SJ
600V, Two, Three and Four Conductors, Overall Shield, Non-Watertight, Low-Smoke

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Ampacity calculated at 60 Hz AC (rms) or DC per MIL-HDBK-299
Military Shipboard Cables

M24643/66, Type LS2OW
1000V, Two Conductor, Shielded, Watertight, Low-Smoke

Product Construction:

Conductor:
- Multi AWG (see chart) uncoated copper
- Class B, C, D stranding per ASTM B8

Insulation:
- Sizes 3, 4, 9, 14, 23: Silicone, glass braid and braid covering – Method 1
- Sizes 50-200: Silicone rubber glass tape – Method 5

Shield:
- Aluminum/Polyester/Aluminum tape plus optimized tin copper braid

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) – Black (BLK) or White (WHT)

Print:
- Including but not limited to: GENERAL CABLE BRAND REX BRAND LS2OW-XXX M24643/66-XXXX XL POLYO YEAR OF MFG

Options:
- Red Jacket available on size 9 and larger

Applications:
- Cables are two conductor shielded constructions suitable for watertight, non-flexing service.
- For use in shipboard power, lighting or weapon control system interconnection except where unusual circuit parameters require special type of cable.

Features and Benefits:
- Watertight for mission-critical environments.
- Meet the 1 hour fire electrical circuit integrity requirements.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.
- Conforms to the surface transfer impedance and EMP response time requirements

Compliances:
- M24643/66

Quality Programs and Certifications:
- MIL-STD-790
- MIL-I-45208
- MIL-STD-45662
- ISO/IEC 17025

Packaging:
- Per MIL Spec

M24643/66 1000V, Two Conductor, Shielded, Watertight, Low-Smoke

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*Ampacity calculated at 60 Hz AC (rms) or DC based on MIL-HDBK-299*
M24643/67, Type LS3OW
1000V, Three Conductor, Shielded, Watertight, Low-Smoke

Product Construction:

Conductor:
- Multiple AWG (see chart) uncoated copper
- Class B, C, D stranding per ASTM B8
- Navy Standard

Insulation:
- Sizes 3, 4, 9, 14, and 23: Silicone, glass braid and braid covering – Method 1
- Sizes 50 thru 400: Silicone rubber glass tape – Method 5

Shield:
- Aluminum/Polyester/Aluminum tape plus optimized tin copper braid

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) – Black (BLK) or White (WHT)

Print:
- Including but not limited to: GENERAL CABLE BRAND REX BRAND LS3OW-XXX M24643/67-XXXX XL POLYO YEAR OF MFG

Options:
- Red jacket available on size 9 and larger

Applications:
- Cables are three conductor shielded constructions, suitable for watertight, non-flexing service.
- For use in shipboard power, lighting or weapon control system interconnection except where unusual circuit parameters require special type of cable.

Features and Benefits:
- Watertight for mission-critical environments.
- Meet the 1 hour fire electrical circuit integrity requirements.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.
- Conforms to the surface transfer impedance and EMP response time requirements.

Compliances:
- M24643/67

Quality Programs and Certifications:
- MIL-STD-790
- MIL-I-45208
- MIL-STD-45662
- ISO/IEC 17025

Packaging:
- Per MIL Spec

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M24643/67 1000V, Three Conductor, Shielded, Watertight, Low-Smoke

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<tr>
<th>Catalog Number</th>
<th>Product Description Type/Size</th>
<th>Military Part No. M24643/67</th>
<th>Conductor Size</th>
<th>AWG/ Navy Std and Stranding</th>
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<th>Min. Cable Dia.</th>
<th>Max. Cable Dia.</th>
<th>Min. AVG. Jacket Thickness</th>
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Brand Rex

Phone: (888) 593-3355
Fax: (859) 572-8463
www.generalcable.com
# Military Shipboard Cables

## M24643/67, Type LS3OW

1000V, Three Conductor, Shielded, Watertight, Low-Smoke

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### M24643/67 1000V, Three Conductor, Shielded, Watertight, Low-Smoke

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Product Description Type/Size</th>
<th>Military Part No. M24643/67</th>
<th>AWG/ Navy Std and Stranding</th>
<th>Min. AVG Insulation Wall</th>
<th>Min. Cable Dia.</th>
<th>Max. Cable Dia.</th>
<th>Min. AVG. Jacket Thickness</th>
<th>Amps Per Cond. Max.*</th>
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*Ampacity calculated at 60 Hz AC (rms) or DC based on MIL-HDBK-299*
### M24643/68, Type LS4OW

**1000V, Four Conductor, Shielded, Watertight, Low-Smoke**

**Product Construction:**

- **Conductor:**
  - Multi AWG (see chart) uncoated copper
  - Class B, C, D stranding per ASTM B8

- **Insulation:**
  - Sizes 3, 4, 9, 14 and 23: Silicone, glass braid, and braid covering – Method 1
  - Sizes 50, 75, 100, 150 and 200: Silicone rubber glass tape – Method 5

- **Shield:**
  - Aluminum/Polyester/Aluminum tape plus optimized tin copper braid

- **Jacket:**
  - Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) – Black (BLK) or White (WHT)

- **Print:**
  - Including but not limited to:
    - GENERAL CABLE BRAND REX BRAND
    - LS4OW-XXX M24643/68-XXXX XL POLYO
    - YEAR OF MFG

**Options:**

- Red jacket available on size 9 and larger

**Applications:**

- Cables are four conductor constructions suitable for watertight, non-flexing service.
- For use in shipboard power, lighting or weapon control system interconnection except where unusual circuit parameters require special type of cable.
- Used for degaussing applications.

**Features and Benefits:**

- Watertight for mission-critical environments.
- Meet the 1 hour fire electrical circuit integrity requirements.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.
- Conforms to the surface transfer impedance and EMP response time requirements.

### M24643/68 1000V, Four Conductor, Shielded, Watertight, Low-Smoke

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<th>Catalog Number</th>
<th>Product Description Type/Size</th>
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* Ampacity calculated at 60 Hz AC (rms) or DC based on MIL-HDBK-299
Military Shipboard Cables

QUIK-PREP® M24643/14, Type LSSSGU
1000V, Single Conductor, Watertight, Low-Smoke

Product Construction:

Conductor:
- 3 AWG, 1 AWG, 1/0 AWG, 4/0 AWG & 300 MCM bare copper per ASTM B3
- Class C stranding per ASTM B8 – 3 AWG & 1 AWG
- Class D stranding per ASTM B8 – 1/0 AWG, 4/0 AWG & 300 MCM
- 400 (127 strand) Navy Standard Conductor

Insulation:
- Silicone Rubber Glass Tape
- Color code: Method 1

Extruded Covering:
- Extruded covering over silicone rubber glass tape – 10 mils nominal
- NAVSEA Qualified

Rip Cord:
- Two (2) Watertight Aramid Yarns - 180° apart
- NAVSEA Qualified

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO)
- Color code: Black (00) or White (09)
- i.e. Catalog Number XXXXX.00 or .09

Print:
- Including but not limited to:
  GENERAL CABLE BRAND REX BRAND
  LSSSGU-XXX OR LSSSGA-XXX M24643/14-XXX XL POLYO YEAR OF MFG

Options:
- Other conductor sizes available

Applications:
- For use in shipboard power systems.
- For use in degaussing applications.
- Suitable for watertight, non-flexing service.

Features & Benefits:
- Watertight for mission-critical environments.
- Meets the 1 hour fire electrical circuit integrity requirements per M24643.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.
- Quik-Prep® Extruded Covering: eliminates the need for costly secondary operations that involve materials such as synthetic tubing, insulating varnishes and phase markers (Ref. DOD-STD-2003-1); significantly reduces overall total installed costs; enhances the integrity of the cable insulation system for more reliable performance as a result of fewer preparation requirements.
- Quik-Prep™ Rip Cord: effectively separates the jacket from the watertight cable core for easier stripability and quicker cable preparation time; no longitudinal scoring is needed preventing potential damage to the underlying conductor insulation system eliminating repair time, potential scrap and increasing operator safety.

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Ordering information: Example: 364470.09 = LSSSGU-50 Q-P WHT

Compliances:
- M24643/14

Quality Programs and Certifications:
- ANSI/NCSL Z540-1
- MIL-I-45208A
- MIL-STD-790
- NHB 5300.4 (1C)
- ISO 9001:2000

Packaging:
- Per MIL Spec

Phone: (888) 593-3355
Fax: (859) 572-8463
www.generalcable.com
Quik-Pep® M24643/15, Type LSDSGU
1000V, Two-Condutors, Watertight, Low-Smoke

Product Construction:

Conductor:
- 3 AWG, 1 AWG, 1/0 AWG, 4/0 AWG, & 300 MCM bare copper per ASTM B3.
- Class C stranding per ASTM B8 – 3 AWG & 1 AWG
- Class D stranding per ASTM B8 – 1/0 AWG, 4/0 AWG & 300 MCM
- 400 (127 strand) Navy Standard Conductor

Insulation:
- Silicone Rubber Glass Tape
- Color code: Method 1

Extruded Covering:
- Extruded covering over silicone rubber glass tape – 10 mils nominal
- NAVSEA Qualified

Rip Cord:
- Two (2) Watertight Aramid Yarns - 180° apart
- NAVSEA Qualified

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO)
- Color code: Black (00) or White (09)
  i.e. Catalog Number XXXXX.00 or .09

Print:
- Including but not limited to:
  GENERAL CABLE BRAND REX BRAND
  LSDSGU-XXX M24643/15-XXXX XL POLYO
  YEAR OF MFG

Options:
- Navy Standard Conductors – 60 & 125
- Other conductor sizes available

Applications:
- For use in shipboard power systems.
- For use in degaussing applications.
- Suitable for watertight, non-flexing service.

Features & Benefits:
- Watertight for mission-critical environments.
- Meets the 1 hour fire electrical circuit integrity requirements per M24643.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.
- Quik-Pep® Extruded Covering: eliminates the need for costly secondary operations that involve materials such as synthetic tubing, insulating varnishes and phase markers (Ref. DOD-STD-2003-1); significantly reduces overall total installed costs; enhances the integrity of the cable insulation system for more reliable performance as a result of fewer preparation requirements.
- Quik-Pep® Rip Cord: effectively separates the jacket from the watertight cable core for easier stripability and quicker cable preparation time; no longitudinal scoring is needed preventing potential damage to the underlying conductor insulation system eliminating repair time, potential scrap and increasing operator safety.

Quik-Pep® M24643/15 1000V, Two-Condutor, Watertight, Low-Smoke

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Ordering information: Example: 313980.09 = LSDSGU-50 Q-P WHT

Quality Programs and Certifications:
- ANSI/NCSL Z540-1
- MIL-1-45208A
- MIL-STD-790
- NHB 5300.4 (1C)
- ISO 9001:2000

Packaging:
- Per MIL Spec
Military Shipboard Cables

QUIK-PREP® M24643/16, TYPE LSTSGU
1000V, Three-Conductor, Watertight, Low-Smoke

Product Construction:
Conductor:
- 3 AWG, 2 AWG, 1 AWG, 1/0 AWG, 3/0 AWG, 4/0 AWG, 300 MCM & 350 MCM bare copper per ASTM B3
- Class C stranding per ASTM B8 – 3 AWG & 1 AWG
- Class D stranding per ASTM B8 – 2 AWG, 1/0 AWG, 3/0 AWG, 4/0 AWG, 300 MCM & 350 MCM
- 125, 250 & 400 (61 & 127 stranding) Navy Standard Conductor

Insulation:
- Silicone Rubber Glass Tape
- Color code: Method 1

Extruded Covering:
- Extruded covering over silicone rubber glass tape – 10 mils nominal
- NAVSEA Qualified

Rip Cord:
- Two (2) Watertight Aramid Yarns - 180° apart
- NAVSEA Qualified

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO)
- Color code: Black (00) or White (09)
  i.e. Catalog Number XXXXXX.00 or .09

Print:
- Including but not limited to: GENERAL CABLE BRAND REX BRAND LSTSGU-XXX OR LSTSGA-XXX M24643/16-XXXX XL POLYO YEAR OF MFG

Options:
- Other conductor sizes available

Applications:
- For use in shipboard power systems.
- For use in degaussing applications.
- Suitable for watertight, non-flexing service.

Features & Benefits:
- Watertight for mission-critical environments.
- Meets the 1 hour fire electrical circuit integrity requirements per M24643.
- Thermotet system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.
- Quik-Prep® Extruded Covering: eliminates the need for costly secondary operations including materials such as synthetic tubing, insulating varnishes and phase markers (DOD-STD-2003-1); significantly reduces overall labor termination costs; enhances the integrity of the cable insulation system for more reliable performance as a result of fewer preparation requirements.
- Quik-Prep® Rip Cord: effectively separates the jacket from the water tight cable core for easier stripability and quicker cable preparation time; no longitudinal scoring is needed preventing potential damage to the underlying conductor insulation system eliminating repair time, potential scrap and increasing operator safety.

Catalog:

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Ordering information: Example: 299580.09 = LSTSGU-50 Q-P WHT
Military Shipboard Cables

QUIK-PREP® M24643/17, TYPE LSFSGU
1000V, Four-Conductor, Watertight, Low-Smoke

Product Construction:

Conductor:
- 3 AWG, 1 AWG, 1/0 AWG, 3/0 AWG & 4/0 AWG bare copper per ASTM B3
- Class C stranding per ASTM B8 – 3 AWG & 1 AWG
- Class D stranding per ASTM B8 – 1/0 AWG, 3/0 AWG & 4/0 AWG

Insulation:
- Silicone Rubber Glass Tape
- Color code: Method 1

Extruded Covering:
- Extruded covering over silicone rubber glass tape – 10 mils nominal
- NAVSEA Qualified

Rip Cord:
- Two (2) Watertight Aramid Yarns - 180° apart
- NAVSEA Qualified

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO)
- Color code: Black (00) or White (09)
  i.e. Catalog Number XXXXXX.00 or .09

Print:
- Including but not limited to:
  GENERAL CABLE BRAND REX BRAND
  LSFSGU-XXX M24643/17-XXXX XL POLYO
  YEAR OF MFG

Options:
- Navy Standard Conductor – 60
- Other conductor sizes available

Applications:
- For use in shipboard power systems.
- For use in degaussing applications.
- Suitable for watertight, non-flexing service.

Features & Benefits:
- Watertight for mission-critical environments.
- Meets the 1 hour fire electrical circuit integrity requirements per M24643.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.
- QUIK-PREP® Extruded Covering: eliminates the need for costly secondary operations including materials such as synthetic tubing, insulating varnishes and phase markers (DOD-STD-2003-1); significantly reduces overall total installed costs; enhances the integrity of the cable insulation system for more reliable performance as a result of fewer preparation requirements.
- QUIK-PREP® Rip Cord: effectively separates the jacket from the water tight cable core for easier stripability and quicker cable preparation time; no longitudinal scoring is needed preventing potential damage to the underlying conductor insulation system eliminating repair time, potential scrap and increasing operator safety.

Compliances:
- M24643/17
- Quality Programs and Certifications:
  - ANSI/NCSL Z540-1
  - MIL-I-45208A
  - MIL-STD-790
  - NHB 5300.4 (1C)
  - ISO 9001:2000

Packaging:
- Per MIL Spec

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Ordering information: Example: 313990.09 = LSFSGU-50 Q-P WHT
QUIK-PREP® M24643/22, TYPE LS5KVTSGU
5000V, Three-Conductor, Watertight, Low-Smoke

Product Construction:

Conductor:
- 1/0 AWG, 3/0 AWG, 250 MCM & 350 MCM bare copper per ASTM B3
- Class C stranding per ASTM B8 – 250 MCM
- Class D stranding per ASTM B8 – 1/0 AWG, 3/0 AWG & 350 MCM
- 400 (127 strand) Navy Standard Conductor

Insulation:
- silicone rubber glass tape
- color code: method 1

Extruded Covering:
- Extruded covering over silicone rubber glass tape – 10 mils nominal
- NAVSEA Qualified

Rip Cord:
- Two (2) Watertight Aramid Yarns - 180° apart
- NAVSEA Qualified

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO)
- color code: black (00) or white (09)
  i.e. Catalog Number XXXXX.00 or .09

Options:
- Other conductor sizes available

Applications:
- For use in shipboard power systems.
- For use in degaussing applications.
- Suitable for watertight non-flexing service.

Features & Benefits:
- Watertight for mission-critical environments.
- Meets the 1 hour fire electrical circuit integrity requirements per M24643.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.
- QuiK-PREP® Extruded Covering: eliminates the need for costly secondary operations including materials such as synthetic tubing, insulating varnishes and phase markers (DOD-STD-2003-1); significantly reduces overall total installed costs; enhances the integrity of the cable insulation system for more reliable performance as a result of fewer preparation requirements.
- QuiK-PREP® Rip Cord: effectively separates the jacket from the water tight cable core for easier stripability and quicker cable preparation time; no longitudinal scoring is needed preventing potential damage to the underlying conductor insulation system eliminating repair time, potential scrap and increasing operator safety.

Quality Programs and Certifications:
- ANSI/NCSL Z540
- MIL-1-5208A
- MIL-STD-790
- NHB 5300.4 (1C)
- ISO 9001:2000

Packaging:
- Per MIL Spec

Compliances:
- M24643/22
- ISO 9001:2000
- NHB 5300.4 (1C)
- MIL-STD-790
- MIL-1-5208A
- ANSI/NCSL Z540
- NAVSEA Qualified
- M24643/22

Brand Rex
Phone: (888) 593-3355
Fax: (859) 572-8463
Website: www.generalcable.com
QUIK-PREP® M24643/66, Type LS2OW
1000V, Two-Conductor, Shielded, Watertight, Low-Smoke

Product Construction:

Conductor:
- Multi AWG (see chart) uncoated copper
- Class C, D stranding per ASTM B8

Insulation:
- Sizes 50-200: Silicone rubber glass tape – Method 5
- NAVSEA Qualified
- Linked Polyolefin (LSZH XL POLYO) – Black (00) or White (09)

Extruded Covering:
- Extruded covering over silicone rubber glass tape – 10 mils nominal
- NAVSEA Qualified
- Exposed to the underlying conductor insulation system eliminating repair time, potential scrap and increasing operator safety.

Shield:
- Aluminum/Polyester/Aluminum tape plus optimized tin copper braid
- Low-Smoke, Zero-Halogen system
- Conforms to the surface transfer impedance and EMP response time requirements
- Meet the 1 hour fire electrical circuit integrity requirements.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.
- Conforms to the surface transfer impedance and EMP response time requirements
- Quik-Prep® Extruded Covering: eliminates the need for costly secondary operations that involve materials such as synthetic tubing, insulating varnishes and phase markers (Ref. DOD-STD-2003-1); significantly reduces overall total installed costs; enhances the integrity of the cable insulation system for more reliable performance as a result of fewer preparation requirements.

Options:
- Red Jacket available

Applications:
- Cables are two conductor shielded constructions suitable for watertight, non-flexing service.
- For use in shipboard power systems

Features and Benefits:

Applications:
- Watertight for mission-critical environments.
- Meet the 1 hour fire electrical circuit integrity requirements.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.
- Conforms to the surface transfer impedance and EMP response time requirements
- Quik-Prep® Extruded Covering: eliminates the need for costly secondary operations that involve materials such as synthetic tubing, insulating varnishes and phase markers (Ref. DOD-STD-2003-1); significantly reduces overall total installed costs; enhances the integrity of the cable insulation system for more reliable performance as a result of fewer preparation requirements.

Compliances:
- M24643/66
- Per MIL Spec

Quality Programs and Certifications:
- ANSI/NCSL Z540-1
- MIL-I-45208A
- MIL-STD-790
- NBH 5300.4 (1C)
- ISO 9001:2008

Packaging:
- Per MIL Spec

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Ordering information: Example: 397750.00 = LS2OW-50 Q-P BLK; 397750.09 = LS2OW-50 Q-P WHT
*Ampacity calculated at 60 Hz AC (rms) or DC based on MIL-HDBK-299
Military Shipboard Cables

QUIK-PREP® M24643/67, Type LS3OW
1000V, Three-Conductor, Shielded, Watertight, Low-Smoke

Product Construction:

Conductor:
- Multiple AWG (see chart) uncoated copper
- Class C, D stranding per ASTM B8
- Navy Standard

Insulation:
- Sizes 50 thru 400: Silicone rubber glass tape – Method 5

Extruded Covering:
- Extruded covering over silicone rubber glass tape – 10 mils nominal
- NAVSEA Qualified

Shield:
- Aluminum/Polyester/Aluminum tape plus optimized tin copper braid

Rip Cord:
- Two (2) Watertight Aramid Yarns - 180° apart
- NAVSEA Qualified

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) – Color-code: Black (00) or White (09)

Print:
- Including but not limited to: GENERAL CABLE BRAND REX BRAND LS3OW-XXX M24643/67-XXXX XL POLYO YEAR OF MFG

Options:
- Red jacket available

Applications:
- Cables are three conductor shielded constructions, suitable for watertight, non-flexing service.
- For use in shipboard power systems.

Features and Benefits:
- Watertight for mission-critical environments.
- Meet the 1 hour fire electrical circuit integrity requirements.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.
- Conforms to the surface transfer impedance and EMP response time requirements.
- Quik-Prep® Extruded Covering: eliminates the need for costly secondary operations that involve materials such as synthetic tubing, insulating varnishes and phase markers (Ref. DOD-STD-2003-1); significantly reduces overall total installed costs; enhances the integrity of the cable insulation system for more reliable performance as a result of fewer preparation requirements.

Features and Benefits: (cont’d)
- Quik-Prep® Rip Cord: effectively separates the jacket from the watertight cable core for easier stripability and quicker cable preparation time; no longitudinal scoring is needed preventing potential damage to the underlying conductor insulation system eliminating repair time, potential scrap and increasing operator safety.

Compliances:
- M24643/67

Quality Programs and Certifications:
- ANSI/NCSL Z540-1
- MIL-I-45208A
- MIL-STD-790
- NHB 5300.4 (1C)
- ISO 9001:2008

Packaging:
- Per MIL Spec

---

### QUIK-PREP® M24643/67 1000V, Three-Conductor, Shielded, Watertight, Low-Smoke

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Ordering information: Example: 397790.00 = LS3OW-50 Q-P BLK; 397790.09 = LS3OW-50 Q-P WHT
*Ampacity calculated at 60 Hz AC (rms) or DC based on MIL-HDBK-299
Military Shipboard Cables

QUIK-PREP® M24643/68, Type LS4OW
1000V, Four-Conductor, Shielded, Watertight, Low-Smoke

Product Construction:

Conductor:
- Multi AWG (see chart) uncoated copper
- Class C, D stranding per ASTM B8

Insulation:
- Sizes 50, 75, 100, 150 and 200: Silicone rubber glass tape – Method 5

Extruded Covering:
- Extruded covering over silicone rubber glass tape – 10 mils nominal
- NAVSEA Qualified

Shield:
- Aluminum/Polyester/Aluminum tape plus optimized tin copper braid

Rip Cord:
- Two (2) Watertight Aramid Yarns - 180° apart
- NAVSEA Qualified

Jacket:
- Low-Smoke, Zero-Halogen Cross-Linked Polyolefin (LSZH XL POLYO) – Color-code: Black (00) or White (09)

Print:
- Including but not limited to: GENERAL CABLE BRAND REX BRAND LS4OW-XXX M24643/68-XXXX XL POLYO YEAR OF MFG

Options:
- Red jacket available

Applications:
- Cables are four conductor constructions suitable for watertight, non-flexing service.
- For use in shipboard power systems.

Features and Benefits:
- Watertight for mission-critical environments.
- Meet the 1 hour fire electrical circuit integrity requirements.
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, Zero-Halogen system maintains circuit integrity as a result of minimal smoke generation, acid gas and toxicity.
- Conforms to the surface transfer impedance and EMP response time requirements.
- Quik-Prep® Extruded Covering: eliminates the need for costly secondary operations that involve materials such as synthetic tubing, insulating varnishes and phase markers (Ref. DOD-STD-2003-1); significantly reduces overall total installed costs; enhances the integrity of the cable insulation system for more reliable performance as a result of fewer preparation requirements.

Features and Benefits: (Cont’d)
- Quik-Prep® Rip Cord: effectively separates the jacket from the watertight cable core for easier stripability and quicker cable preparation time; no longitudinal scoring is needed preventing potential damage to the underlying conductor insulation system eliminating repair time, potential scrap and increasing operator safety.

Compliances:
- M24643/68
- ANSI/NCSL Z540-1
- MIL-I-45208A
- MIL-STD-790
- NHB 5300.4 (1C)
- ISO 9001:2008

Packaging:
- Per MIL Spec

QUIK-PREP® M24643/68 1000V, Four-conductor, Shielded, Watertight, Low-Smoke

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<th>Max. Cable Dia.</th>
<th>Min. AVG Jacket Thickness</th>
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Ordering information: Example: 397850.00 = LS4OW-50 Q-P BLK; 397850.09 = LS4OW-50 Q-P WHT

*Ampacity calculated at 60 Hz AC (rms) or DC based on MIL-HDBK-299

Phone: (888) 593-3355
Fax: (859) 572-8463
www.generalcable.com
Section 2: Shore-2-Ship

**POWER CABLE FOR COLD IRONING**

- Shore2Ship™ THOF-500E
Shore2Ship™ THOF-500E
Power Cable for Cold Ironing

With Global Warming and concerns for Environmental Degradation as a priority Maritime Agencies all over the world are talking about Cold Ironing – And so is General Cable.

Even when at berth, ships' engines are generally left running to maintain essential services. Cold Ironing – one of the primary and preferred solutions to the emissions reduction regulations - also referred to as “Shoreside Power” or “Shore-to-Ship Power”, provides vessels at berth a power source to plug into on shore, allowing them to maintain essential services while turning their engines off completely.

The cable and connectors used for cold ironing are very specialized as they are required to withstand the severity of the environment in which they are applied – exposure to sea water and direct sunlight, continuous motion of the ship, and the repeated flexing of a portable power system among others.

General Cable’s Shore2Ship™ THOF-E cable is designed with all of these challenges in mind. Known for its Anaconda® Brand of mining-grade cable, General Cable was able to apply its engineering expertise to the development of the THOF-E design incorporating:

- A physically tough jacket designed to resist the worst abrasion
- A dual layer CPE jacket extruded under pressure to fill the cable's interstices
- Maximum flexibility to facilitate repeated use without causing harm to the cable core

In 1997 the International Maritime Organization (IMO) adopted Annex VI (Regulations for the Prevention of Air Pollution from Ships) to MARPOL (International Convention for the Prevention of Pollution from Ships), which specifically dictates the reduction of vessel pollutants. Leading the way in the U.S. the California Environmental Protection Agency’s Air Resources Board enacted the “At-Berth Ocean-Going Vessels Regulation” containing a clearly defined compliance schedule starting January 1, 2010.
Shore2Ship™ THOF-500®
Enhanced THOF-500 Shore-to-Ship Power Cable
600V/2000V, EPR 90°C

General Cable’s THOF-500® design eliminates identified flaws of the original Mil-DTL-915/6K THOF-500 cable

Product Construction
Conductors:  
• 500 kcmil tinned coated copper per ASTM B33 and ASTM B172

Insulation:  
• Ethylene Propylene Rubber (EPR) 90°C  
• Color Coded: black, white, red

Separator:  
• 2 mil non-hygroscopic opaque polyester

Jacket:  
• Reinforced, two-layer, flame-retardant, extra-heavy-duty, thermoset Chlorinated Polyethylene (CPE) - black

Print:  
• GENERAL CABLE® 3/C 500 KCMIL 600V/2000V THOF-500E SHORE2SHIP™ POWER CABLE

Options:  
• Other jacket colors upon request

Features:  
• Dual-layer reinforced jacket for superior physical strength and abrasion resistance  
• Pressure extruded jacket for water resistance  
• Flexible construction for easy handling  
• Flame- and sunlight-resistant  
• Rated 2 kV

Compliances:
Industry:  
• Meets requirements of RHH/RHW per UL 44

Flame Test:  
• MSHA (30 CFR Part 7)

Other:  
• ICEA S-75-381: Portable and Power Feeder Cables for use in mines and similar applications

Packaging:  
• 1500 ft, 1000 ft or 500 ft Lengths  
• Standard: Non-Returnable Wooden Reels  
• Option: Returnable Wooden or Steel Reels

Copper Weight: 4808.6 lbs/1000ft (7155.5 kg/km)

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<th>COND. SIZE</th>
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<th>NOMINAL JACKET THICKNESS</th>
<th>NOMINAL CABLE O.D.</th>
<th>NOMINAL CABLE WEIGHT</th>
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(1221/24) | 0.095  
(2.41) | 0.250  
(6.35) | 2.89  
(73.41) | 7890  
(11742) |
Section 3: ShipLAN® — Navy Shipboard Communications Cables

**M24643 COPPER COMMUNICATIONS CABLE – THERMOSET, LOW-SMOKE, ZERO-HALOGEN**

- **M24643/59** – CAT5e Non-Watertight, Shielded, Low-Smoke, Zero-Halogen Thermoset Cable
- **M24643/61** – CAT5e Non-Watertight, Shielded, Low-Smoke, Zero-Halogen Thermoset Patch Cable
- **ShipLAN® Cross-Reference**
General Cable is proud to have a long and distinguished history of participation in military programs that span over four decades. In partnership with Lockheed Martin, General Cable qualified the first Category 5e data cable for use in Naval Shipboard applications to a Naval Sea Systems Command (NAVSEA) specification prior to the existence of MIL-DTL-24643/59-03UO.

Still in a class by itself, General Cable continues to meet the highest performance standards with a MIL-DTL-24643/59-03UO-qualified Category 5e Naval Shipboard data communications cable. ShipLAN® Category 5e cable combines high performing electrical characteristics with low-toxicity, low-smoke, zero-halogen, and flame-retardant properties necessary for shipboard environments. General Cable’s ShipLAN® Category 5e cable is constructed with a proprietary thermoset jacket system that provides flexibility for ease of installation and stripability for quicker preparation and termination time.

ShipLAN® Category 5e electrical characteristics are subjected to a mechanical stress resistance test. This test simulates the stress imposed on the cable during shipboard installation. Real-life installations challenge a cable’s resistance to such stresses as tensile strain imposed by pulling; crushing forces imposed by cable clamps, straps, and stuffing tubes; bending forces imposed by routing; and twisting due to re-spooling. The cable’s ability to resist the rigors of this environment is confirmed after stress testing when its electrical performance is still in compliance with MIL-DTL-24643/59-03UO and ANSI/TIA/EIA 568 B.2-2001. ShipLAN® Category 5e cable meets the following mechanical stress resistance qualifications:

- Operating Tensile Load
- Long Term Minimum Bend
- Cable Compression

As a preferred supplier to the military, General Cable continues its participation as a technical member of and key contributor to the National Electrical Manufacturers Association (NEMA) 7HW Shipboard Technical Committee, responsible for the generation and maintenance of MIL-DTL-24643 and associated slash sheets.
Conductor: 24 AWG solid bare copper
Insulation: High Density Polyethylene (HD-PE)
Color code: Pair 1: White-Blue/Blue
Pair 2: White-Orange/Orange
Pair 3: White-Green/Green
Pair 4: White-Brown/Brown
Screen: Longitudinal aluminum/polyester 25% min. overlap (alum. side out)
Shield: 36 AWG tin-coated copper—optimized coverage
Jacket: Cross-linked polyolefin (low-smoke, zero-halogen) – black (BLK)

Including but not limited to:
GENERAL CABLE (F) LSC50S-4 M24643/59-03UO XLPOLYO LO24P0045438A SHIPLAN SHIELDED MARINE CABLE CAT5E 4/24 PAT 5767441 AAAAA* MO/YR** XXXXXX FT***

*Order Number  **Date  ***Footage Marking

PRINT:
For the requirements of M24643 for high speed data transmission. Tested to 100 MHz.
IEEE 802.3: 1000BASE-T (Gigabit Ethernet); 100 BASE-TX, 10 BASE-T
155 Mbp/s, 622 Mbp/s ATM
ANSI X3.263: 100 Mb/s
4/16 Mb/s Token Ring
Broadband and Baseband analog video

FEATURES AND BENEFITS:
APPLICATIONS:

FEATURES AND BENEFITS:
M24643/59
ANSI/TIA/EIA 568 B.2-2001
ISO/IEC 11801
COMPLIANCES:
ELECTRICAL PERFORMANCE:
MIL-STD-790
ISO 9001:2000
QUALITY PROGRAMS
AND CERTIFICATIONS:

PACKAGING:
1000' put-ups on wooden reels

General Cable
4 Tesseneer Drive
Highland Heights, Kentucky 41076-9753
Telephone: (800) 424-5666
(859) 572-8000
Email: info@generalcable.com
www.generalcable.com

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Form No. INS-0101-0809
36402
ShipLAN® Non-Watertight Category 5e Patch Cable
M24643/61-020D, Type LSCPSOS-4 Non-Watertight
2 Pair, 24 AWG – Twisted Pair, Foil/Braid Shielded Cat 5e, Low-Smoke, Zero-Halogen Patch Cable

**PRODUCT CONSTRUCTION:**
- **Conductor:** 24 AWG stranded tin-copper
- **Insulation:** High Density Polyethylene (HD-PE)
- **Color code:**
  - Pair 1: White/Blue/Blue
  - Pair 2: White/Orange/Orange
  - Pair 3: White/Green/Green
  - Pair 4: White/Brown/Brown
- **Screen:**
  - Pair 1: White-Blue/Blue
  - Pair 2: White-Orange/Orange
  - Pair 3: White-Green/Green
  - Pair 4: White-Brown/Brown
- **Screen:** Longitudinal aluminum/polyester 25% min. overlap (alum. side out)
- **Shield:** Cross-linked polyolefin (low-smoke, zero-halogen) – black (BLK)
- **Outer Jacket:** Tin-coated copper—optimized coverage

**ELECTRICAL PERFORMANCE:**

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**FEATURES AND BENEFITS:**
- **Shielding system protects signals from electromagnetic interference (EMI) and radio frequency interference (RFI).** Extremely tough cross-linked jacket provides excellent fluid resistance and mechanical and environmental protection.

**APPLICATIONS:**
- Easy interface with shielded RJ45 connectors
- Suitable for Category 5e applications in environments requiring high performance and minimal interference.

**COMPLIANCES:**
- ISO 9001:2000
- MIL-STD-790
- QUALITY PROGRAMS AND CERTIFICATIONS:
  - UL-508
  - CE Mark
  - NRTL

**PACKAGING:**
1000’ pull-ups on wooden reels

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Form No. INS-0103-1209 7/94

Printout is 100% of Actual Size

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**ShipLAN Cross Reference**

- Please visit [www.sentinelconn.com](http://www.sentinelconn.com) to view Sentinel Data Sheets on these specific part numbers.
- Please visit [www.amphenol-socapex.com](http://www.amphenol-socapex.com) to view Amphenol Data Sheet on this specific product.
Brand Rex Brand Military Shipboard Cables Catalog

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M24643C TECHNICAL INFORMATION

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- MIL-DTL-M24643C ASTM Definitions
- MIL-DTL-M24643C Conductor Identification Methods
- MIL-DTL-M24643C Navy Standard Sizes
- MIL-DTL-M24643C Standard Identification Code
# MIL-DTL-M24643C
## Alphabetical Listing

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<td>Standard Nominal Diameters and Cross-Sectional Areas of AWG Sizes of Solid Round Wires Used as Electrical Conductors (DoD adopted)</td>
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<td>Standard Specification for Polyethylene Plastics Molding and Extrusion Materials</td>
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<td>Standard Practice for Operating Xenon Arc Type (Water Cooled) Light-Exposure Apparatus Wire and Without Water for Exposure of Plastics</td>
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MIL-DTL-M24643C
Conductor Identification Methods

**Method 1.** Identification Method 1 shall be surface printing of both number and color designations. The legend shall be printed in contrasting color: preferably white ink on black or dark background or black ink on white or light background. The printing can be on the conductor insulation provided the jacket is transparent or on the jacket if the jacket is not transparent. The legend shall be repeated at intervals not exceeding 3 inches and alternate legends shall be inverted. For example, 10 ORANGE BLACK KCALB EGNARO 01. The character type shall be block and shall have a height in accordance with the diameter over which it is applied as follows:

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<td>0.330 and larger</td>
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**Method 2.** Identification Method 2 shall be the use of translucent (opaque) polyester tapes which have been printed with both the number and the color designation. The legend shall be printed with black ink and shall be repeated at intervals not exceeding 3 inches and alternate legends shall be inverted. The character type shall be block and shall be approximately 3/32 inch height.

**Method 3.** Identification Method 3 shall be the use of solid base colors or solid base colors with tracers as required. The base color may be either the color or the insulation or the color of a coating applied to the insulation. The tracers shall be approximately 1/32 inch wide ink stripes of the required color applied helically with 1-1/2 + 1/4 inch lay. If two tracers are required, the second shall be half the width of the first.

**Method 4.** Identification Method 4 shall be the use of colored braids. Tracers shall consist of the required colors applied by three adjacent carriers. Where two tracers are required, they shall be applied with reverse lay.

**Method 5.** Identification Method 5 shall be the use of the printed letter on the outermost insulating tape or the printed letter on a polyester binder tape over the insulating tapes. The letters shall be approximately 3/16 inch high and shall have been printed at intervals not exceeding 3 inches prior to the application of the tape to the conductor. If the insulating tapes are white, no printing is required on the B (white) conductor.

**Method 6.** Identification Method 6 shall consist of numerals printed in ink on the conductor insulation. For conductors having a jacket directly over the insulation, the numerals may be printed in ink on the jacket, at the manufacturer’s option. White ink shall be used for a red or black background; black ink shall be used for a white background. Numerals shall be perpendicular or parallel to the longitudinal axis of the conductor (see figure 1). Numeral width shall be proportional to conductor outside diameter (o.d.) as shown in Method 1 (see 3.4.12.2.1).

Numeral width shall be 1/3 numeral height. Each numeric legend shall be underlined. Two digit legends which are parallel to the longitudinal axis shall have the bottom numeral underlined. Legends shall be alternately inverted and shall repeat at intervals not greater than 1½ inches.
## MIL-DTL-24643C
### Navy Standard Sizes

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<td>Second Tracer Color</td>
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</table>
Brand Rex Brand Military Shipboard Cables Catalog

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Section 5: NAVSEA Cables

NAVSEA COAXIAL, TWINAX & TRIAXIAL CABLE

- 6262065-1 - Double Optimized Shielded Waterblocked Triaxial RF Cable
- 6322493 - Double Optimized Shielded 75 Ohm Non-Waterblocked Triaxial RF Cable
- 6323052 - Double Optimized Shielded 50 Ohm Non-Waterblocked Flexible Coaxial RF Cable
- 6323054 - Double Optimized Shielded 75 Ohm Non-Waterblocked Coaxial RF Cable
- 6323055 - Optimized Shielded Non-Waterblocked Twinaxial RF Cable
- 6323056 - Double Optimized Shielded 75 Ohm Non-Waterblocked Triaxial RF Cable
- 6323059 - Double Optimized Shielded 75 Ohm Non-Waterblocked Triaxial RF Cable
Product Construction:

Conductor:
- 12 AWG (7/20) stranded silver coated copper

Dielectric Core:
- Cross-linked foam Polyethylene

Inner Shield Braid:
- Silver plated copper conductor

Watertight:
- Water blocking compound

Inner Jacket:
- Filled, cross-linked, thermoset, Low-Smoke, Low-Halogen polymer

Outer Shield Braid:
- Optimized shield configuration, silver coated copper conductor

Watertight:
- Water blocking compound

Jacket:
- Filled, cross-linked, thermoset, Low-Smoke, Low-Halogen polymer per M24643

Print:
- Including but not limited to:
  NAVSEA 6262065-1GENERAL CABLE BRAND REX BRAND T-13138 YEAR OF MFG

Applications:
- Optimized shielded triaxial cable suitable for shipboard application.
- Intended to function as the primary transmission media for 'NTOS' low level serial data.

Features and Benefits:
- Watertight for mission-critical environments.
- Shielding system protects signals from electromagnetic interference (EMI) and radio frequency interference (RFI).
- Thermoset system for advanced mechanical fortification.
- Low-smoke, low toxicity system for circuit integrity.

Compliances:
- Materials in accordance with M24643
- ANSI/NCSL Z540-1
- MIL-I-45208A
- MIL-STD-790
- NHB 5300.4 (1C)
- ISO 9001:2000

Packaging:
- Per MIL Spec

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Product Code</th>
<th>Product Description</th>
<th>Cable Diameter</th>
<th>Max. Cable Weight</th>
<th>Velocity of Propagation</th>
<th>Max. Capacitance</th>
<th>Characteristic Impedance</th>
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<tr>
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<td>0.450 ± .010</td>
<td>165</td>
<td>77 ± 3%</td>
<td>29</td>
<td>50 ± 2</td>
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Note: see NAVSEA specification for additional performance characteristics
Military Shipboard Cables

**NAVSEA 6322493**
Radio Frequency Cable, Triaxial, 75 ohm, Non-Watertight

---

**Product Construction:**

**Conductor:**
- 18 AWG (19/30) stranded tin coated copper

**Dielectric Core:**
- Cross-linked foam Polyethylene

**Inner Shield Braid:**
- Tin coated copper conductor

**Wrap:**
- Polyester tape

**Inner Jacket:**
- Filled, cross-linked, thermoset, Low-Smoke, Low-Halogen polymer

**Outer Shield Braid:**
- Optimized shield configuration, tin coated copper conductor

**Wrap:**
- Polyester tape

**Jacket:**
- Filled, cross-linked, thermoset, Low-Smoke, Low-Halogen polymer per M24643

---

**Print:**
- Including but not limited to: NAVSEA 6322493 GENERAL CABLE BRAND REX BRAND T-12824A YEAR OF MFG

**Applications:**
- Optimized shielded 75 ohm triaxial cable suitable for shipboard application.
- For use in a protected or interior environment.

**Features and Benefits:**
- Non-watertight for mission-critical environments.
- Shielding system protects signals from electromagnetic interference (EMI) and radio frequency interference (RFI).
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, low toxicity system for circuit integrity.

**Compliances:**
- Materials in accordance with M24643

**Quality Programs and Certifications:**
- ANSI/NCSL Z540-1
- MIL-I-45208A
- MIL-STD-790
- NHB 5300.4 (1C)
- ISO 9001:2000

**Packaging:**
- Per MIL Spec

---

**Catalog Number**: T-12824A

**Product Code**: 580270.00.77

**Product Description**: 6322493

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<th>Max. Cable Weight</th>
<th>Min. Velocity of Propagation</th>
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<td>T-12824A</td>
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<td>0.465 ± .015</td>
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Military Shipboard Cables

**NAVSEA 6323052**
Radio Frequency Cable, Flexible, Coaxial, 50 ohm, Double Shielded, Low-Smoke, Non-Watertight

**Product Construction:**

**Conductor:**
- 12 AWG (19/25) stranded silver plated copper

**Dielectric Core:**
- Cross-linked foam Polyethylene

**Inner Shield Braid:**
- Optimized shield configuration, silver coated copper conductor

**Wrap:**
- Polyester tape

**Outer Shield Braid:**
- Optimized shield configuration, silver coated copper

**Wrap:**
- Polyester tape

**Jacket:**
- Composite jacket material of extruded low-smoke, low-halogen bedding compound bonded to filled cross-linked thermoset low-smoke, low-halogen polymer compound (Method B)

**Print:**
- Including but not limited to:
  - NAVSEA 6323052 GENERAL CABLE BRAND REX BRAND T-13293 YEAR OF MFG

**Applications:**
- Double optimized shielded, 50 ohm, coaxial cable suitable for shipboard application.
- For use in exposed weather locations.

**Features and Benefits:**
- Non-watertight for mission-critical environments.
- Shielding system protects signals from electromagnetic interference (EMI) and radio frequency interference (RFI).
- Thermoset system for advanced mechanical fortification.
- Low smoke, low toxicity system for circuit integrity.

**Compliances:**
- Materials in accordance with M24643
- Quality Programs and Certifications:
  - ANSI/NCSL Z540-1
  - MIL-I-45208A
  - MIL-STD-790
  - NHB 5300.4 (1C)
  - ISO 9001:2000

**Packaging:**
- Per MIL Spec

**NAVSEA 6323052 - Radio Frequency Cable, Flexible, Coaxial, 50 ohm, Double Shielded, Low-Smoke, Non-Watertight**

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<th>Catalog Number</th>
<th>Product Code</th>
<th>Product Description</th>
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<th>Velocity of Propagation</th>
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<td>80 ± 3%</td>
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<td>50 ± 2</td>
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Phone: (888) 593-3355
Fax: (859) 572-8463
www.generalcable.com
Military Shipboard Cables

**NAVSEA 6323054**
Radio Frequency Cable, Flexible, Coaxial, 75 ohm, Double Shielded, Low-Smoke, Non-Watertight

**Product Construction:**

**Conductor:**
- 18 AWG (19/30) stranded tin coated copper

**Dielectric Core:**
- Cross-linked foam Polyethylene

**Inner Shield Braid:**
- Optimized shield configuration, tin coated copper conductor

**Wrap:**
- Polyester tape

**Outer Shield Braid:**
- Optimized shield configuration, tin coated copper

**Wrap:**
- Polyester tape

**Jacket:**
- Composite jacket material of extruded low-smoke, low-halogen bedding compound bonded to filled cross-linked thermoset low-smoke, low-halogen polymer compound (Method B)

**Print:**
- Including but not limited to:
  - NAVSEA 6323054 GENERAL CABLE BRAND REX BRAND T-13136 YEAR OF MFG

**Applications:**
- Double optimized shielded, 75 ohm, coaxial cable suitable for shipboard application.
- For use in exposed weather locations.

**Features and Benefits:**
- Non-watertight for mission-critical environments.
- Shielding system protects signals from electromagnetic interference (EMI) and radio frequency interference (RFI).
- Thermoset system for advanced mechanical fortification.
- Low-Smoke, low toxicity system for circuit integrity.

**Compliances:**
- Materials in accordance with M24643
- ANSI/NCSL Z540-1
- MIL-I-45208A
- MIL-STD-790
- NHB 5300.4 (1C)
- ISO 9001:2000

**Packaging:**
- Per MIL Spec

**NAVSEA 6323054 - Radio Frequency Cable, Flexible, Coaxial, 75 ohm, Double Shielded, Low-Smoke, Non-Watertight**

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<th>Cable Diameter</th>
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<td>73%</td>
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<td>75 ± 3</td>
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Phone: (888) 593-3355
Fax: (859) 572-8463
www.generalcable.com
Military Shipboard Cables

NAVSEA 6323055
Radio Frequency Cable, Twinaxial, 78 ohm, Low-Smoke, Non-Watertight

Product Construction:

Conductor:
• 20 AWG (19/32), 2 conductors each, stranded tin coated copper

Dielectric Core:
• Cross-linked foam Polyethylene
• Each core: 1 colored white, 1 colored black

Filler Core:
• Cross-linked Polyethylene, flame retardant, strands to be used to maintain concentricity

Wrap:
• Polyester tape

Shield Braid:
• Optimized shield configuration, tin coated copper conductor

Jacket:
• Composite jacket material of extruded low-smoke, low-halogen bedding compound bonded to filled cross-linked thermoset low-smoke, low-halogen polymer compound (Method B)

Print:
• Including but not limited to: NAVSEA 6323055 GENERAL CABLE BRAND REX BRAND T-13294 YEAR OF MFG

Applications:
• Optimized shielded, 78 ohm, twinaxial cable suitable for shipboard application.
• For use in protected or interior environment.

Features and Benefits:
• Non-watertight for mission-critical environments.
• Shielding system protects signals from electromagnetic interference (EMI) and radio frequency interference (RFI).
• Thermoset system for advanced mechanical fortification.
• Low-Smoke, low toxicity system for circuit integrity.

Compliances:
• Materials in accordance with M24643

Quality Programs and Certifications:
• ANSI/NCSL Z540-1
• MIL-I-45208A
• MIL-STD-790
• NHB 5300.4 (1C)
• ISO 9001:2000

Packaging:
• Per MIL Spec

NAVSEA 6323055 - Radio Frequency Cable, Twinaxial, 78 ohm, Low-Smoke, Non-Watertight

<table>
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<th>Catalog Number</th>
<th>Product Code</th>
<th>Product Description</th>
<th>Cable Diameter</th>
<th>Max. Cable Weight</th>
<th>Nom. Velocity of Propagation</th>
<th>Max. Capacitance</th>
<th>Characteristic Impedance</th>
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<td>6323055</td>
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<td>60</td>
<td>74%</td>
<td>24</td>
<td>78 ± 5</td>
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</table>
Military Shipboard Cables

NAVSEA 6323056
Radio Frequency Cable, Flexible, Triaxial, 50 ohm, Low-Smoke, Non-Watertight

Product Construction:

Conductor:
- 20 AWG (19/32) stranded tin coated copper

Dielectric Core:
- Cross-linked foam Polyethylene

Inner Shield Braid:
- Tin coated copper conductor

Inner Jacket:
- Filled, cross-linked, thermoset, low-smoke, low-halogen polymer

Outer Shield Braid:
- Optimized shield configuration, tin coated copper conductor

Jacket:
- Composite jacket material of extruded low-smoke, low-halogen bedding compound bonded to filled cross-linked thermoset low-smoke, low-halogen polymer compound (Method B)

Print:
- Including but not limited to: NAVSEA 6323056 GENERAL CABLE BRAND REX BRAND T-13295 YEAR OF MFG

Applications:
- Optimized shielded, 50 ohm, triaxial cable suitable for shipboard application.

Features and Benefits:
- Non-watertight for mission-critical environments.
- Shielding system protects signals from electromagnetic interference (EMI) and radio frequency interference (RFI).
- Thermoset system for advanced mechanical fortification.
- Low smoke, low toxicity system for circuit integrity.

Compliances:
- Materials in accordance with M24643
- ANSI/NCSL Z540-1
- MIL-I-45208A
- MIL-STD-790
- NHB 5300.4 (1C)
- ISO 9001:2000

Packaging:
- Per MIL Spec

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NAVSEA 6323056 – Radio Frequency Cable, Flexible, Triaxial, 50 ohm, Low-Smoke, Non-Watertight

<table>
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<th>Catalog Number</th>
<th>Product Code</th>
<th>Product Description</th>
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<td>6323056</td>
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<td>70 ± 3%</td>
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**Product Construction:**

**Conductor:**
- 24 AWG (19/36) stranded tin coated copper

**Dielectric Core:**
- Cross-linked foam Polyethylene

**Inner Shield Braid:**
- Tin coated copper conductor

**Inner Jacket:**
- Filled, cross-linked, thermoset, low-smoke, low-halogen polymer

**Outer Shield Braid:**
- Optimized shield configuration, tin coated copper conductor

**Jacket:**
- Composite jacket material of extruded low-smoke, low-halogen bedding compound bonded to filled cross-linked thermoset low-smoke, low-halogen polymer compound (Method B)

**Print:**
- Including but not limited to:
  NAVSEA 6323059 GENERAL CABLE BRAND REX BRAND T-13339 YEAR OF MFG

**Applications:**
- Optimized shielded, 75 ohm, lightweight triaxial cable suitable for shipboard application
- For use in a protected or interior environment

**Features and Benefits:**
- Non-watertight for mission-critical environments.
- Shielding system protects signals from electromagnetic interference (EMI) and radio frequency interference (RFI).
- Thermoset system for advanced mechanical fortification.
- Low smoke, low toxicity system for circuit integrity.

**Compliances:**
- Materials in accordance with M24643
- ANSI/NCSL Z540
- MIL-I-45208A
- MIL-STD-790
- NHB 5300.4 (1C)
- ISO 9001:2000

**Packaging:**
- Per MIL Spec

**NAVSEA 6323059 - Radio Frequency Cable, Flexible, Lightweight, Triaxial, 75 ohm, Low-Smoke, Non-Watertight**

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<th>Catalog Number</th>
<th>Product Code</th>
<th>Product Description</th>
<th>Cable Diameter</th>
<th>Max. Cable Weight</th>
<th>Velocity of Propagation</th>
<th>Max. Capacitance</th>
<th>Characteristic Impedance</th>
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<td>85</td>
<td>70 ± 3%</td>
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<td>75 ± 3</td>
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### Section 6: M85045F & M49291C Military Shipboard Fiber Optic Cables and Accessories

#### M85045F Cable, Fiber Optic, Watertight, Low-Smoke, Zero-Halogen

- **M85045/13** Eight Fibers, Thermoplastic, Multimode or Singlemode, Watertight, Low-Smoke
- **M85045/15** Four Fibers, Thermoplastic, Multimode or Singlemode, Watertight, Low-Smoke
- **M85045/16** One Fiber, Thermoplastic, Multimode or Singlemode, Watertight, Low-Smoke
- **M85045/17** Eight Fibers, Thermoset, Multimode or Singlemode, Watertight, Low-Smoke
- **M85045/18** Four Fibers, Thermoset, Multimode or Singlemode, Watertight, Low-Smoke
- **M85045/20** Twenty four, Thirty Three or Thirty Six Fibers, Thermoset, Multimode or Singlemode, Watertight, Low-Smoke
- **M85045/21** Eight Fiber, Outboard, Multimode or Singlemode, Watertight, Low-Smoke
- **M85045/22** Eighteen Fibers, Thermoplastic, Multimode or Singlemode, Watertight, Low-Smoke
- **M85045/23** Eighteen Fibers, Outboard, Multimode or Singlemode, Watertight, Low-Smoke
- **M85045/24** Ninety Fibers, Thermoset, Multimode or Singlemode, Watertight, Low-Smoke
- **M85045/25** Seven 8mm Tubes, Thermoset or Thermoplastic, Blown Optical Fiber
- **M85045/26** One 8mm Tube, Thermoset or Thermoplastic, Blown Optical Fiber

#### M49291C Fiber, Optical

- **M49291/6-05** Multimode, 500μm, Blown Optical Fiber
- **M49291/7-02** Singlemode, 500μm, Blown Optical Fiber
BLOWN OPTICAL FIBER ACCESSORIES

- AA-59731-U-8E — 8mm Tube Union
- AA-59731-T-8E — 8mm Tube Tee
- AA-59731-EC-8E — 8mm End Cap
- AA-59728-TFP-8 — 8mm Tube Fitting Plug
- Raychem SFTS-1 — Adhesive/Sealant Tape
- AA-59730-TTP-2 — Tapered Tube Plug (2 - 6 fibers)
- AA-59730-TTP-3 — Tapered Tube Plug (8 - 12 fibers)
- Tube Clips (TM-08) SMC
- A-A-59729-TFU — Furcation Assemblies (Note: # of cables, length & color must be specified)
- Tube Cutter
- Cutter Replacement Blades

BLOLITE is a registered trademark of Brand-Rex Limited and is used under license.
## QUALIFIED PRODUCTS LIST (QPL)

**OF**

PRODUCTS QUALIFIED UNDER PERFORMANCE SPECIFICATION

MIL-PRF-85045

CABLES, FIBER OPTICS

GENERAL SPECIFICATION

<table>
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<tr>
<th>GOVERNMENT DESIGNATION</th>
<th>MANUFACTURER’S DESIGNATION OR TYPE NUMBER</th>
<th>TEST OR QUALIFICATION REFERENCE</th>
<th>SPECIFICATION SHEET</th>
<th>SUPPLIER’S NAME</th>
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<td>OC-1423P</td>
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Manufacturer: General Cable Industries, Inc. (CAGE Code: 71124)

Location: 1600 West Main Street, Willimantic, CT 06226-1128, US

Plant Locations:
1. Same Address as Manufacturer
2. General Cable Industries, Inc. (Franklin, MA), CAGE Code: 4A4A4, 20 Forge Park, Franklin, MA 02038-3134
M85045F Military Specification
Low-Smoke, Zero-Halogen (LSZH) Shipboard Fiber Optic Cables

General Cable has supplied military specification wire and cable for 40 years and has a distinguished list of participation in important programs.

Military qualified fiber optic cables (MIL-PRF-85045) are listed below:

<table>
<thead>
<tr>
<th>M85045F Part Identifying #</th>
<th>General Cable Catalog Number</th>
<th>Cable Diameter in (mm)</th>
<th>Jacket Type</th>
<th>Number of Fibers</th>
<th>Fiber Type</th>
<th>Minimum Bend Diameter</th>
<th>Maximum Tensile Load</th>
<th>Nominal Weight</th>
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<td></td>
<td></td>
<td></td>
<td>Installation in (cm)</td>
<td>Installation lbs (N)</td>
<td>lbs/1000' kg/km</td>
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<td>Multimode</td>
<td>7.0 (18)</td>
<td>605 (2700)</td>
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<td>420 (1875)</td>
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Cables are listed on Qualified Products List MIL-PRF-85045 (QPL) Defense Supply Center, Columbus-United States Department of Defense
General Cable was the first fiber manufacturer to become a Qualified Products Listed (QPL) supplier of a militarized version of blown optical fiber technology in September of 2001. Today, we continue to remain the only qualified supplier of blown optical fiber fully engineered and tested to all the stringent requirements of M85045F and M49291C.

General Cable’s Blolite® blown optical fiber technology was first installed on the aircraft carrier USS Harry Truman in 1997. Early proof of successful use of this technology and its future-proof capabilities for which it was designed, resulted in the formal development and qualification of the technology for the U.S. Navy. Key developments in military shipboard fiber optic technology have been the digitization of command, control and communication systems over a common infrastructure. This convergence has enabled significant savings in space and weight as well as greatly improved system functionality and damage tolerance. Blown optical fiber technology has furthered these advances by adding opportunities for cost savings, easy upgradeability and design flexibility.

General Cable’s Blolite® blown optical fiber solution has proven to be the SOLUTION for the U.S. Navy fleet.

<table>
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<tr>
<th>M85045F PIN (see Note)</th>
<th>General Cable Catalog Number</th>
<th>QPL Status</th>
<th>Description</th>
<th>Jacket Material</th>
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<td>1-8mm Tube</td>
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Note: ‘E’ indicates enhanced thermoset jacket; ‘S’ indicates standard thermoplastic jacket

BOF = Blown Optical Fiber
M85045F & M49291C Military Specifications
Biolite® Blown Optical Fiber Technology (BOFT)

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<th>Outer Diameter</th>
<th>Fiber Type</th>
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<td>OC-009S-BF-XXXX(QPL)*</td>
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<td>Singlemode</td>
<td>Biolite™ BOF System</td>
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</table>

XXXX indicates color of blown optical fiber outer coating
*Blown optical fiber outer coating is available in standard colors: Blue, Orange, Green, Brown, Slate, White, Red, Black, Yellow, Violet, Rose, Aqua

<table>
<thead>
<tr>
<th>Fiber Characteristics</th>
<th>MIL-PRF-49291C/7-02 Singlemode</th>
<th>MIL-PRF-49291C/6-05 Multimode 62.5/125</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intended use</td>
<td>Blown Optical Fiber</td>
<td>Blown Optical Fiber</td>
</tr>
<tr>
<td>Type</td>
<td>Matched Clad</td>
<td>Graded Index</td>
</tr>
<tr>
<td>Mode Field Diameter</td>
<td>9.2 ± .4 @ 1310 nm</td>
<td>N/A</td>
</tr>
<tr>
<td>Core Diameter</td>
<td>8.3 µm nominal</td>
<td>62.5 ± 3 µm</td>
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<tr>
<td>Cladding Diameter</td>
<td>125 ± 1 µm</td>
<td>125 ± 1 µm</td>
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<tr>
<td>Coating Diameter # 1</td>
<td>250 ± 15 µm</td>
<td>250 ± 15 µm</td>
</tr>
<tr>
<td>Coating Diameter # 2</td>
<td>500 ± 25 µm</td>
<td>500 ± 25 µm</td>
</tr>
<tr>
<td>Coating Clad. Conc. Error</td>
<td>≤10.5 µm</td>
<td>≤10.5 µm</td>
</tr>
<tr>
<td>Overall Core-Clad Ratio</td>
<td>≥0.84 µm</td>
<td>≥0.84 µm</td>
</tr>
<tr>
<td>Attenuation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>850 nm</td>
<td>N/A</td>
<td>3.5 dB/km</td>
</tr>
<tr>
<td>1300 nm</td>
<td>N/A</td>
<td>1.0 dB/km</td>
</tr>
<tr>
<td>1310 nm</td>
<td>.4 dB/km</td>
<td>N/A</td>
</tr>
<tr>
<td>1550 nm</td>
<td>.3 dB/km</td>
<td>N/A</td>
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<tr>
<td>Bandwidth (overfill):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>850 nm</td>
<td>N/A</td>
<td>≥300 MHz-km</td>
</tr>
<tr>
<td>1300 nm</td>
<td>N/A</td>
<td>≥600 MHz-km</td>
</tr>
<tr>
<td>Bandwidth (RML/EMBc):</td>
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<tr>
<td>850 nm</td>
<td>N/A</td>
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<tr>
<td>1300 nm</td>
<td>N/A</td>
<td>≥700 MHz-km</td>
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<tr>
<td>Dispersion</td>
<td>≤3.2 ps/nm – km @ 1310</td>
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</tr>
<tr>
<td></td>
<td>≤22 ps/nm – km @ 1550</td>
<td>N/A</td>
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<tr>
<td>Radiation Resistance</td>
<td>Refer to Specification</td>
<td>Refer to Specification</td>
</tr>
<tr>
<td>Proof Test</td>
<td>100 kpsi (690MPa)</td>
<td>100 kpsi (690MPa)</td>
</tr>
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</table>
### General Cable Shipboard BOF Parts List

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<thead>
<tr>
<th>Description</th>
<th>General Cable Part Number</th>
<th>Gov't/Military Part Number</th>
<th>Anixter Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>8mm Duct Union</td>
<td>77-7225</td>
<td>AA-59731-U-8E</td>
<td>263068</td>
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<tr>
<td>5mm Duct Union</td>
<td>77-7224</td>
<td></td>
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<tr>
<td>8mm Duct Tee</td>
<td>77-7229</td>
<td>AA-59731-T-8E</td>
<td>263069</td>
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<tr>
<td>5mm Duct Tee</td>
<td>77-7228</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8mm Duct End Cap</td>
<td>705620</td>
<td>AA-59731-EC-8E</td>
<td>263071</td>
</tr>
<tr>
<td>5mm Duct End Cap</td>
<td>705630</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8mm Duct Fitting Plug</td>
<td>77-7231</td>
<td>AA-59728-TFP-8</td>
<td>263070</td>
</tr>
<tr>
<td>5mm Duct Fitting Plug</td>
<td>77-7230</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adhesive/Sealant Tape</td>
<td>706910</td>
<td>Raychem SFTS-1</td>
<td>057573</td>
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<tr>
<td>Tapered Duct Plug:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>TTP-2 (2-6 fibers) 8mm</td>
<td>706920</td>
<td>AA-59730-TTP-2</td>
<td></td>
</tr>
<tr>
<td>TTP-3 (8-12 fibers) 8mm</td>
<td>706930</td>
<td>AA-59730-TTP-3</td>
<td></td>
</tr>
<tr>
<td>Duct Clips(TM-08) SMC</td>
<td>706940</td>
<td>N/A</td>
<td></td>
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<tr>
<td>Furcation Assemblies</td>
<td>N/A</td>
<td>A-A-59729-TFU-</td>
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<tr>
<td>Note: # of cables, length &amp; color must be specified</td>
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<td></td>
<td></td>
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<tr>
<td>Duct Cutter</td>
<td>707050</td>
<td>N/A</td>
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<tr>
<td>Cutter Rep. Blades</td>
<td>707060</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>8mm Duct</td>
<td>705610</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>5mm Duct</td>
<td>705600</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>8MM Duct End Caps</td>
<td>77-7222</td>
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<td></td>
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<tr>
<td>5MM Duct End Caps</td>
<td>77-7223</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>5MM Duct Inline Splitter</td>
<td>705990</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>8MM to 5MM Reducer</td>
<td>77-7227</td>
<td>AA-59731-R-E</td>
<td></td>
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Phone: (888) 593-3355
Fax: (859) 572-8463
www.generalcable.com
Brand Rex Brand Military Shipboard Cables Catalog

Table of Contents

Section 7:

TECHNICAL INFORMATION

- Glossary
- Metric Conversion
- Temperature Conversion Table
## Glossary

**Abrasion Resistance**: Ability of a wire, cable or material to resist surface wear.

**Accelerated Aging**: A test in which voltage, temperature, etc. are increased above normal operating values to obtain observable deterioration in a relatively short period of time. The plotted results give expected service life under normal conditions.

**ACM**: Aluminum conductor material.

**Accelerator**: A chemical additive that hastens a chemical reaction under specific conditions.

**Admittance**: The measure of the ease with which an alternating current flows in a circuit. The reciprocal of impedance.

**AEIC**: Association of Edison Illuminating Companies

**Aerial Cable**: A cable suspended in the air on poles or another overhead structure.

**Aging**: The change in properties of a material with time under specific conditions.

**AIA**: Aluminum Interlocked Armor.

**Alloy**: A metal formed by combining two or more different metals to obtain desirable properties.

**Alternating Current**: Electric current that continually reverses its direction. It is expressed in cycles per second (hertz or Hz).

**Ambient Temperature**: The temperature of the medium surrounding an object. Generally a lower temperature than the temperature at which the cable is operating.

**American Wire Gauge (AWG)**: A standard North American system for designating wire diameter

**Ampacity**: See Current Carrying capacity.

**Ampere**: The unit of current. One ampere is the current flowing through one ohm of resistance at one volt potential.

**Analog**: A data format using continuous physical variables such as voltage amplitude or frequency variations.

**Anneal (Soften)**: Relief of mechanical stress through heat and gradual cooling. Annealing copper renders it less brittle.

**Armor**: A protective metal covering commonly in the form of flexible interlocking aluminum, bronze, or steel tape steel wires, or aluminum sheath.

**ASTM**: American Society for Testing and Materials.

**Attenuation**: The general term used to denote the decrease of power from one point to another. In fiber optics, the optical power loss per unit length is expressed logarithmically in decibels per kilometer (dB/km) at a specific wavelength.

**Audio Frequency**: The range of frequencies audible to the human ear. Usually 20-20,000 Hz.

**AWM**: Designation for appliance wiring material.

**Bandmarking**: A continuous circumferential band applied to a conductor at regular intervals for identification.

**Bandwidth**: (1) The difference between the upper and lower limits of a given band of frequencies. Expressed in Hertz. (2) A measure of the maximum frequency range over which light intensity exiting a waveguide one kilometer in length can be varied before the attenuation varies 3dB from the mean. The greater the bandwidth, the greater the information carrying capacity. Bandwidth is expressed in Megahertz (MHZ)=D0Kilometer (km).

**Bending Radius**: Radius of curvature that a cable can be safely bent without any adverse effects.

**Binder**: A spirally served tape used for holding assembled cable components in place awaiting subsequent manufacturing operations.

**Bonding Conductor**: An insulated or uninsulated conductor forming part of the cable assembly which is used for the purpose of connecting non-current carrying parts of electrical equipment to a system grounding conductor.

**Braid**: A fibrous or metallic group of filaments interwoven in cylindrical shape to form a covering over one or more wires.

**Braid Angle**: The smaller of the two angles formed by the shielding strand and the axis of the cable being shielded.

**Braid Carrier**: A spool or bobbin on a braider that holds one group of strands or filaments consisting of a specific number of ends. The carrier revolves during braiding operations.

**Braid Ends**: The number of strands used to make up one carrier. The strands are wound side-by-side on the carrier bobbin and lie parallel in the finished braid.
**Glossary**

**Breakdown Voltage**: The voltage at which the insulation between two conductors breaks down.

**CE Code, CEC**: Canadian Electrical Code

**Certified Test Report (CTR)**: A report providing actual test data on a cable. Tests are normally conducted by the Quality Control Department to confirm that the product being shipped conforms to specifications

**Compound**: An insulating or jacketing material made by mixing two or more polymeric ingredients.

**Concentric Stranded Conductors**: Manufactured to ASTM, ICEA, and CSA standards. The most common fixed installation type conductors are: 1) Round no diameter reduction; 2) Compressed approximately 3% diameter reduction; 3) Compact approximately 10% diameter reduction.

**Concentric Stranding**: A central wire surrounded by one or more layers of helically wound strands in a fixed round geometric arrangement.

**Concentricity**: The measurement of the location of the center of the conductor with respect to the geometric center of the surrounding insulation.

**Conductivity**: The capacity of a material to carry electrical current usually expressed as a percentage of copper conductivity (copper being 100%).

**Conductor**: An uninsulated wire suitable for carrying electrical current.

**Conductor Shield**: An extrusion of black semi-conducting thermoset material over the conductor to provide a smooth interface with the insulation for even distribution of electrical stress.

**Conduit (Electrical Raceway)**: A tube or pipe in which insulated wires and cables are run.

**Connector**: A device used to physically and electrically connect two or more conductors. Also used to physically connect cable to equipment.

**Continuity Check**: A test to determine whether electrical current flows continuously throughout the length of a single wire or individual wires in a cable.

**Coaxial Cable**: A cable consisting of two cylindrical conductors with a common axis, separated by a dielectric.

**Cold Flow**: Permanent deformation of the insulation or jacket due to mechanical force or pressure, (not due to heat softening).

**Color Code**: A system for circuit identification through use of solid colors and contrasting tracers.

**Compressed approximately 3%**:

**Concentric Stranded Conductors**:

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## Glossary

**Continuous Vulcanization:** Simultaneous extrusion and vulcanization of rubber-like (thermoset) coating materials. Often referred to as CV.

**Control Cable:** A multi-conductor cable made for operation in control of signal circuits.

**Copolymer:** A compound resulting from the polymerization of two different monomers.

**Copperweld:** The trade name of Flexo Wire Division (Copperweld Steel Corp.) for its copper-clad steel conductors.

**Cord:** A small, flexible, insulated wire or cable.

**Core:** In cables, a component or assembly of components over which additional components (shield, sheath, etc.) are applied.

**Corona:** A discharge due to ionization of air around a conductor due to a potential gradient exceeding a certain critical value.

**Coverage:** The percent of completeness with which a metal serving covers the underlying surface.

**CPE:** Chlorinated polyethylene can be used as either a thermoplastic or thermoset. It is a tough chemical and oil-resistant material and makes an excellent jacket for industrial control cable. As a thermoset, it can be used as an oil-resistant cord jacket. Typical temperature ratings range from -35°C to 90°C. Other outstanding properties include low water absorption and super crush resistance which are important attributes in industrial control applications.

**Creep:** The dimensional change with time of a material under a mechanical load.

**Cross-linked:** Inter-molecular bonds between long chain thermoplastic polymers by chemical or electron bombardment means. The properties of the resulting thermosetting material are usually improved (e.g XLPE).

**Crosstalk:** Signal interference between nearby conductors caused by pickup of stray energy.

**CSA:** Canadian Standards Association

**Current Carrying Capacity (Ampacity):**

- The maximum current an insulated conductor can safely carry without exceeding its insulation and jacket temperature limitations.

**Cut-Through Resistance:** The ability of a material to withstand cutting from a sharp edge or small radius under pressure.

**Decibel (dB):** A unit to express differences of power level. Used to express power gain in amplifiers or power loss in passive circuits or cables. The units in which the ratio of two power levels, P1 and P2, are expressed. The ratio in dB is given as (P1/P2).

**Delay Line:** A cable made to provide very low velocity of propagation with long electrical delay for transmitted signals.

**Derating Factor:** A factor used to reduce the current carrying capacity of a wire when used in environments other than that for which the value was established.

**Dielectric:** Any insulating material between two conductors that permits electrostatic attraction and repulsion to take place across it.

**Dielectric Constant (K):** The ratio of the capacitance of a condenser with dielectric between the electrodes to the capacitance when air is between the electrodes. Also called Permittivity and Specific Inductive Capacity (SIC).

**Dielectric Strength:** The voltage which an insulation can withstand before breakdown occurs. Usually expressed as a voltage gradient (such as volts per mil).

**Dielectric Test:** A test in which a voltage higher than the rated voltage is applied for a specified time to determine the adequacy of the insulation under normal conditions. Sometimes called a D2Hi-Pot test (high potential).

**Digital:** A data format that uses discrete or separate physical levels to contain information.

**Direct Burial Cable:** A cable installed directly in the earth.

**Direct Current:** An electric current that flows in only one direction.

**Direction of Lay:** The lateral direction in which the strands of a conductor run over the top of the cable conductor as they recede from an observer looking along the axis of the conductor or cable. Also applies to twisted cable.

**Dissipation Factor:** The tangent of the loss angle of the insulating material. (Also referred to as loss tangent, tan δ, and approximate power factor.)

**Drain Wire:** The uninsulated wire in contact with an electrostatic shield throughout its length, in an instrumentation or control cable used to discharge unwanted signals. Also provides a means of terminating laminated shields. Sometimes used to describe the metallic shielding wires of a power cable insulation shield.
**Glossary**

**Drawing:** In wire manufacturing, pulling the metal through a die or series of dies to reduce diameter to a specified size.

**Equal Load Sharing:** An even distribution of current between the parallel cables in a power circuit.

**Earth:** British terminology for zero-reference ground.

**Equilay:** See Unilay: More than one layer of helically laid wires with the length of the lay same for each layer.

**Eccentricity:** Like concentricity, a measure of the center of a conductor's location with respect to the circular cross section of the insulation. Expressed as a percentage of displacement of one circle within the other.

**Farad:** A unit of electrical capacity.

**Fatigue Resistance:** Resistance to metal crystallization which leads to conductors or wires breaking from flexing.

**EEMAC:** Electrical and Electronic Manufacturers Association of Canada (U.S. counterpart is NEMA).

**Ferrous:** Composed of and/or containing iron. A ferrous metal exhibits magnetic characteristics (e.g. steel armor).

**FEP:** Fluorinated ethylene propylene insulated wire (see Teflon).

**Elastomer:** A rubber-like substance. Any material that will return to its original dimensions after being stretched or distorted.

**Fiber:** A single, separate optical transmission element characterized by core and cladding.

**Electrostatic Shield:** A copper or laminated aluminum/mylar tape wrap around a signal or instrumentation circuit (pair, triad, etc.) to protect from the electric field radiated by a voltage source. The grounded shield intercepts static interference and carries it off to ground.

**Farad:** A unit of electrical capacity.

**Fiber Optics:** Light transmission through optical fibers communication and signaling.

**Fused Cable:** Cable construction in which the cable core is filled with a material that will prevent moisture or gasses from entering or passing through the cable.

**Filler:** 1) A material used in multi-conductor cables to occupy large interstices formed by the assembled conductors; 2) An inert substance added to a compound to improve properties.

**Flat Cable:** A cable with two essentially flat surfaces (e.g. NMD90).

**Elongation:** The fractional increase in length of material stressed in tension.

**Flame Resistance:** The ability of a material not to propagate flame once the heat source is removed (see FT1).

**Gauge:** A term used to denote the physical size of a wire.

**Ground (GND):** 1) A conducting connection between an electrical circuit and the earth, or other large conducting body, to serve as an earth thus making a complete electrical circuit; 2) Term used for non-current carrying conductor in a cable (see Bonding Conductor).

**Halogen:** A term used to identify any of the four elements chlorine, fluorine, bromine and iodine, grouped together because their chemical properties are similar.

**Flex Life:** The measurement of the ability of a conductor or cable to withstand repeated bending before breaking.

**Flexibility:** The ease with which a cable may be bent without sustaining damage.

**FT1:** One of several CSA flame test designations for wires and cables which pass the C22.2 No. 0.3 test requirements. (Other designations include FT2, FT4, etc.).

**Fusion Splice:** A splice accomplished by the application of localized heat sufficient to fuse or melt the ends of two lengths of optical fiber, forming a continuous single fiber.

**Fused Cable:** A cable construction in which the cable core is filled with a material that will prevent moisture or gasses from entering or passing through the cable.

**Ground (GND):** 1) A conducting connection between an electrical circuit and the earth, or other large conducting body, to serve as an earth thus making a complete electrical circuit; 2) Term used for non-current carrying conductor in a cable (see Bonding Conductor).

**Hard Drawn Copper Wire:** Copper wire that has not been annealed after drawing.
Glossary

Heat Shock: A test to determine stability of a material by sudden exposure to a high temperature for a short period of time.

Henry: The unit of inductance.

Hertz (Hz): A term replacing cycles-per-second as an indication of frequency.

Hi-Pot (High Potential): A test designated to determine the highest voltage that can be applied to a conductor without breaking down the insulation (see Dielectric Test).

High Voltage (HV): Generally, a wire or cable with an operating voltage of over 600 volts.

Hook-Up Wire: A wire used for low current, low voltage (under 1000 volts) applications within enclosed electronic equipment.

Hygroscopic: A material capable of absorbing moisture from the air.

Hypalon: Dupont's trade name for their chlorosulfonated polyethylene, an ozone resistant synthetic rubber.

ICEA (formerly IPCEA): Insulated Cable Engineers Association.

IEEE: Institute of Electrical and Electronics Engineers.

Impact Strength: A test for determining the mechanical punishment a cable can withstand without physical or electrical breakdown by impacting with a given weight, dropped a given distance, in a controlled environment.

Impedance: The total opposition that a circuit offers to the flow of alternating current or any other varying current at a particula frequency. It is a combination of resistance R and reactance X, measured in ohms.

Inductance: The property of a circuit or circuit element that opposes a change in current flow, thus causing current changes to lag behind voltage changes. It is measured in henrys.

Insulation: A material having good dielectric properties permitting close assembly of conductors in cable and equipment.

Insulation Level: A designation used to identify the insulation thickness required to protect a high voltage cable under ground fault conditions. Expressed as a percentage (e.g. 100% level, 133% level).

Insulation Shield (HV Cable): A two part shield consisting of a non-metallic component and a metallic component. The first component is an extrusion of black semi-conducting thermoset material over the insulation which provides uniform radial stress distribution across the insulation. The second component is a metallic shield which is typically copper tape or wire that functions as a bonding (grounding) conductor and/or a neutral conductor. The metallic shield also serves to conduct ground fault current in the event of insulation failure. See also drain wire.

Insulation Stress: High voltage stress which causes molecular separation in the insulation at sharp projections in the conductor. Controlled by conductor and insulation shielding, called a stress relief shield. Measured in volts per mil.

Interaxial Spacing: Center to center conductor spacing.

Interstices: Voids or valleys between individual strands in a conductor or between insulated conductors in a multi-conductor cable, (interstitial spaces).

Irradiation: In insulations, the exposure of the material to high energy emissions for the purpose of favorably altering the molecular structure by crosslinking.

Jacket: An outer covering, usually non-metallic, mainly used for protection against the environment.

kcmil: One thousand circular mils (MCM).

KILO: A prefix denoting 1000 (103).

kV: Kilovolt (1000 volts).

Laminated Tape: A tape consisting of two or more layers of different materials bonded together (e.g. aluminum/Mylar). Lay: The length measured along the axis of a wire or cable required for a single strand (in stranded wire) or conductor (in cable) to make one complete turn about the axis of the conductor or cable.

Lay Direction: The twist in the cable as indicated by the top strands while looking along the axis of the cable away from the observer. Described as right hand or left hand.

Leakage Current: The undesirable flow of current through or over the surface of an insulation.

Line Drop (Voltage Drop): A voltage loss occurring between any two points in a power circuit. Such loss, or drop, is due to the resistance, reactance, or leakage of the circuit, type of cable and configuration.

Line Voltage: The value of the potential existing on a supply or power line. Rated voltage of cables.

LOCA: Abbreviation for loss of coolant accident, a system malfunction associated with nuclear generating stations.
## Glossary

**Loss Factor:** The product of the dissipation and dielectric constant of an insulating material.

**Longitudinal Shield:** A tape shield, flat or corrugated, applied longitudinally with the axis of the core being shielded.

**Microampere:** One-millionth of an ampere (10^-6).

**Milliampere:** One-thousandth of an ampere (10^-3).

**Magnetic Noise:** Caused by current frequency. An AC powerline creates a magnetic field around that cable, this magnetic field causes the magnetic noise in neighboring control or instrumentation circuits.

**MCM:** One thousand circular mils (kcmil).

**Meg or Mega:** A prefix denoting 1,000,000.

**Megarad:** A unit for measuring radiation dosage.

**Messenger:** The linear supporting member, usually a high strength steel wire, used as the supporting element of a suspended aerial cable. The messenger may be an integral part of the cable, or exterior to it.

**Mho:** The unit of conductivity. The reciprocal of an ohm.

**Micro:** A prefix denoting one-millionth.

**Micron:** (m) Millionth of a meter.

**Mil:** A unit of length equal to one-thousandth of an inch (.001). Common unit for insulation thickness.

**Milli:** A prefix denoting one-thousandth (10^-3).

**Modulus of Elasticity:** The ratio of stress to strain in an elastic material.

**Moisture Absorption:** The amount of moisture, in percentage, that a material will absorb under specified conditions.

**Moisture Resistance:** The ability of a material to resist absorbing moisture from the air or when immersed in water.

**Multi-Conductor Cable:** A cable consisting of two or more conductors, either cabled or laid in a flat parallel construction, with or without a common overall covering.

**Mutual Capacitance:** Capacitance between two conductors when all other conductors including ground are connected together.

**Mylar:** DuPont trade name for a polyester material.

**Nano:** A numerical prefix denoting one-billionth (10^-9).

**National Electrical Code (NEC):** A U.S. consensus standard published by the National Fire Protection Association (NFPA) and incorporated in OSHA regulations. (Canadian Counterpart is the CE Code).

**NEMA:** National Electrical Manufacturers Association. (Canadian counterpart is EEMAC).

**Neoprene:** A synthetic rubber with good resistance to oil, chemicals and flame. Also called polychloroprene.

**Nomex:** DuPont trademark for a temperature resistant, flame-retardant nylon.

**Non Hygroscopic:** A material incapable of taking up or absorbing moisture from the air.

**Nylon:** An abrasion-resistant thermoplastic with good chemical resistance. A DuPont registered trademark.

**OHM:** The electrical unit of resistance.

**OSHA:** Abbreviation for the U.S. Occupational Safety and Health Act.

**Overlap:** The amount the trailing edge laps over the leading edge of a spiral tape wrap.

**Oxygen Index:** Percentage of oxygen necessary to support combustion in a gas mixture. Flame retardant materials have a higher oxygen index.

**Pair:** Two insulated wires of a single circuit twisted together or laid parallel.

**Parallel Cable:** Two or more cables used to share the current in heavily loaded power circuits which permits the use of smaller conductors.

**Percentage Conductivity:** Conductivity of a material expressed as a percentage of that of copper. Also used to indicate ratio of conductance between the phase conductor and the neutral in power cables.

**Pick:** Distance between two adjacent crossover points of braid filaments. The measurement in picks per inch indicates the degree of coverage.

**PICO:** A prefix denoting one-millionth of one-millionth (10^-12).

**Pitch:** In flat cable, the nominal distance between the index edges of two adjacent conductors.

**Pitch Diameter:** Diameter of a circle passing through the center of the conductors in any layer of a multi-conductor cable.
Plastic Deformation: Change in dimensions under load that is not recovered when the load is removed.

Plasticizer: A chemical agent added to plastics to make them softer and more pliable.

Plenum Cable: Cable approved for installation in plenums, (e.g. suspended ceiling) without the need for conduit.

Polyester: Polyethylene terephthalate which is used extensively in the production of a high strength moisture resistant film used as a cable core wrap (see Mylar).

Polyethylene (PE): A thermoplastic material having excellent electrical and physical properties.

Polymer: A material of high molecular weight formed by the chemical union of monomers.

Polyolefin: A family of thermoplastics based upon the unsaturated hydrocarbons know as olefins. When combined with butylene or styrene polymers they form compounds such as polyethylene and polypropylene.

Polypropylene (PPE): A thermoplastic similar to polyethylene but stiffer and having a higher softening point (temperature).

Polyurethane/PUR: This thermoplastic material is used primarily as a cable jacket material. It has excellent oxidation, oil, and ozone resistance. Some formulations also have good flame resistance. It is a hard material with excellent abrasion resistance. It has outstanding memory properties, making it an ideal jacket material for retractile cords.

Polyvinyl Chloride (PVC): A general purpose thermoplastic used for low voltage wire and cable insulation, and for jackets.

Power Factor: The ratio of resistance to impedance. The ratio of the actual power of an alternating current to apparent power. Mathematically, the cosine of the angle between the voltage applied and the current resulting.

Primary Insulation: The first layer of non-conductive material applied over a conductor, whose prime function is to act as electrical insulation.

Pulling Eye: A device fastened to a cable to which a hook may be attached in order to pull the cable.

Quad: Four insulated wires of a single circuit.

REA: Rural Electrification Administration. A branch of the U.S. Department of Agriculture.

Reactance: The opposition offered to the flow of alternating current by inductance or capacitance of a component or circuit.

Reel Drum Diameter: Diameter of the drum (or hub) of the reel.

Reel Flange Diameter (Reel Height): Diameter of the reel flanges.

Reel Traverse: Width of space between reel flanges.

Reel Width: Overall width of reel.

Ridge Marker: One or more ridges running laterally along the outer surface of an insulated wire or cable for purposes of identification.

Root Mean Square (RMS): The effective value of an alternating current or voltage.

Rope Lay Conductor: A conductor composed of a central core surrounded by one or more layers of helically laid groups of wires used in portable cables.

Rubber: A general term used to describe wire insulation and jackets made of thermosetting elastomers, such as natural or synthetic rubbers, EPR, neoprene, Hypalon, butyl rubber and others.

SBR: A copolymer of styrene and butadiene. Also GR-S or Buna-S. Most commonly used type of synthetic rubber.

Self Extinguishing: The characteristic of a material whose flame is extinguished after the igniting flame is removed.

Semi-Conductor: In wire industry terminology, a material possessing electrical conductivity that falls somewhere between that of conductors and insulators. Usually made by adding carbon particles to an insulator (e.g. conductor shield and insulation shield). Not the same as semi-conductor materials such as silicon, germanium, etc used for making transistors and diodes.

Separator: Pertaining to wire and cable, a layer of insulating material such as textile paper, Mylar, etc. which is placed between a conductor and its dielectric, between a cable jacket and the components it covers, or between various components of a multi-conductor cable. It can be utilized to improve stripping qualities, flexibility, or can offer additional mechanical or electrical protection to the components it separates.
Glossary

Served Wire Armor (SWA): Spiral wrap of galvanized steel wires applied around a cable to afford mechanical protection and increase the cable pulling tension characteristics, (mineshaft, submarine cable, etc.). Also used to denote steel wire armor.

Skin Effect: The tendency of alternating current to concentrate and to travel only on the surface of a conductor. Tendency increases with increase in frequency.

Sleeving: An extruded tube.

Spark Test: A test designed to locate imperfections (usually pin-holes) in the insulation of a wire or cable by application of voltage for a very short period of time while the wire is being drawn through the electrode field.

Specific Gravity: The ratio of the density (mass per unit volume) of a material to that of water.

Specific Inductive Capacity (SIC): Same as dielectric constant (See Dielectric Constant).

Tank Test: A voltage insulation test in which the insulated wire or cable is submerged in water and voltage is applied between the conductor and water serving as ground. Shielded cables are generally not tank tested due to the possibility of introducing contaminants on the outer surface of the insulation.

Teflon: DuPont Company trademark for fluorocarbon resins. (See FEP and TFE.)

Temperature Rating: The maximum temperature at which an insulating material may be used in continuous operation without loss of its basic properties (i.e. operating, overload, short circuit). The minimum temperature for safe handling.

Tensile Strength: The pull stress required to break a given specimen Measured in pounds per square inch. Also referred to as Ultimate Tensile Strength.

TFE: Tetrafluoroethylene. A thermoplastic material with good electrical insulating properties and chemical and heat resistance.

Thermoelastic: A material that can be softened repeatedly by heating and hardened by cooling through a temperature range characteristic of the plastic, and that in the softened state can be shaped by molding or extrusion.

Thermoset: A material that has been vulcanized by heat or other means and is substantially infusible and insoluble.

Three Conductor Cable: Three insulated conductors assembled with other necessary cable components (shield, filler, etc.) to form a core, protected by an overall jacket.

Tinned Copper: Tin coating added to copper to aid in soldering and inhibit corrosion.

Tray: A cable tray system is a unit or assembly of units or sections, and associated fittings, made of non-combustible materials forming a rigid structural system used to support cables. Cable tray systems (previously termed continuous rigid cable supports) include ladders troughs, channels, solid bottom trays, and similar structures.

Tray Cable: A factory assembled multi-conductor or multi-pair control, signal or power cable specifically approved under the Canadian Electrical Code for installation in trays.
**Glossary**

**Triad:** Three insulated wires of a single circuit forming a unit. (Two or more units are cabled to form a multi-triad cable.)

**Triplexed Cable:** Three individual cables twisted together.

**UL:** Underwriters Laboratories. A non-profit independent organization, which operates a listing service for electrical and electronic materials and equipment. (Canadian counterpart is CSA).

**UHF:** Abbreviation for ultra high frequency, 300 to 3,000 MHz
# Metric Conversion

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* 1 Pascal = 1 newton/m²
## Temperature Conversion Table

Read known temperature in bold face type. Corresponding temperature in degrees Fahrenheit will be found in column to the right. Corresponding temperature in degrees Centigrade will be found in column to the left.

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**Military Shipboard Interpolation Factors**

23.3 37.2 48.3 51.1 65.0 70.5

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**Interpolation Factors**

1.11

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