# ENCORE WIRE LIMITED

AN AFFILIATE OF ENCORE WIRE CORPORATION

## PRODUCT CATALOG


CORE WIRE
14 STRAND
GREEN
ENCORE WIRE
BLUE
1/0
10-2G
12-2G

## ON THE MOVE

Since 1990, Encore Wire Limited has built its success with a firm focus on customer service. From our corporate headquarters and manufacturing facility in McKinney, Texas, we have developed and implemented new methods and innovative solutions at every stage of our production, warehousing, shipping, and support processes. Our customers are the beneficiaries of our success. We call our philosophy Select Service – it's our way of doing business and our commitment to you.

## ON DEMAND

Encore offers one stop sourcing for your residential, commercial, tray cable, MTW, portable cord, coax, telephone/station and thermostat wire needs. Expansive, state-of-the-art warehouse facilities allow us to maintain inventory levels that are broad and deep. We have what you need, when you need it – on demand.

## ON THE JOB

Innovations developed for our warehousing also make your operation more efficient. Color coding and high visibility labeling identify wire type and size at a glance, from any angle. Our Easy Pac system provides a stable, easy handling, transparent packaging system that saves space, reduces waste, and keeps material costs down. Our exclusive Easy Cart gives you greater mobility in your warehouse or on your job site.

## ON TIME

Order with confidence. Encore consistently maintains an exceptional 95%+ order fill rate; fewer backorders minimize your operational headaches and administrative costs. Our order pulling and packing procedures emphasize personal responsibility and accuracy. Special attention to palletized packing creates a more stable shipping medium and lets you verify your order without breaking it down – each item is clearly visible for an expedient check in.

## ON GUARD

Innovations in insuring our product gets to you in the same condition it left our plant are nothing short of ingenious. Product "lost in transit" is virtually eliminated – our white security tape is placed on every palletized shipment making tampering readily apparent. Our bright red "100% Order Fill" ribbons remind shippers and customers alike that shipments are complete and verified. We require our pallet suppliers to color code their product, allowing us to easily identify vendors delivering lesser quality pallets; your problems with broken, damaged pallets are corrected at the source. Certified scales at our entrance and exit ensure weights and verify loads.

## ON THE MONEY

Every facet of our operation is constantly reviewed to keep our focus squarely on meeting the needs of our customers. Through Select Service, we can deliver the product and service levels that keep your satisfaction and profit levels high. Who do you want to do business with? Select Service. Select Encore.

## ON TARGET

Encore Wire has been the driving force behind industry innovations in colors for both commercial and residential building wire. Encore has been recognized throughout the industry with numerous product and service awards, including Showstopper Awards for the National Electrical Contractors' Association (NECA) as well as the *EC&M* and *CEE News* Electrical Product of the Year. Encore uses the latest in technological advances in manufacturing equipment and warehousing to provide the products you need when you need them.

ENCORE WIRE LIMITED
AN AFFILIATE OF ENCORE WIRE CORPORATION

Welcome:

Encore maintains corporate offices and manufacturing facilities in McKinney, Texas, approximately 35 miles north of Dallas. Our stock is publicly traded on the "Nasdaq" market ("WIRE").

Since 1990, we've grown steadily with a firm focus on customer service. Responsiveness to our customers is our primary goal at Encore, with an emphasis on building and maintaining strong relationships. Our award winning colors have set the benchmark in both commercial and residential wire. Encore's expansive, state of the art warehouse facilities allow us to maintain inventory levels that are broad and deep, allowing you to order with confidence. We've been able to establish strong customer loyalty by achieving the highest order fill rate in the industry while rapidly handling customer inquiries, orders, and shipments.

Thank you for allowing us to be a part of your business. We look forward to earning your trust and loyalty.

Daniel L. Jones

President

# TABLE OF CONTENTS

**ENGINEERING SPECIFICATIONS:**

**Standards:** ASTM B-3 for soft-drawn temper solid copper wire

ASTM B-8 for soft-drawn temper concentric lay stranded copper wire

ASTM B-787 for 19-wire combination unilay stranded wire

| Size AWG | Number of Strands | Outside Diameter (Inches) | Approx. Shipping Lbs./M.ft |
|---|---|---|---|
| 14 | Solid | .0641 | 14 |
| 12 | Solid | .0808 | 23 |
| 10 | Solid | .1019 | 39 |
| 8 | Solid | .1285 | 54 |
| 8 | 7 | .142 | 59 |
| 6 | Solid | .162 | 85 |
| 6 | 7 | .178 | 89 |
| 4 | Solid | .204 | 126 |
| 4 | 7 | .225 | 129 |
| 3 | 19 | .252 | 163 |
| 2 | Solid | .257 | 200 |
| 2 | 7 | .283 | 216 |
| 1 | 19 | .322 | 259 |
| 1/0 | 19 | .362 | 326 |
| 2/0 | 19 | .405 | 411 |
| 3/0 | 19 | .456 | 518 |
| 4/0 | 7 | .512 | 654 |
| 4/0 | 19 | .512 | 660 |
| 250 | 37 | .558 | 772 |
| 300 | 37 | .611 | 926 |
| 350 | 37 | .661 | 1150 |
| 400 | 37 | .706 | 1235 |
| 500 | 37 | .789 | 1544 |
| 600 | 61 | .866 | 1853 |
| 750 | 61 | .968 | 2316 |
| 1000 | 61 | 1.117 | 3088 |

*The above data is approximate and subject to normal manufacturing tolerances.*

**Construction:**

Soft-drawn Solid or Stranded Annealed Bare Copper.

**Application:**

Copper Conductors are used in overhead electrical transmission and distribution systems, for grounding electrical Systems, and where high conductivity and flexibility are required for equipment and circuit grounding.

**Features:**

Highest conductivity per unit area of all common commercial metals. Excellent corrosion resistance. Flexible, easily worked and formed into place. Packaged on non-returnable spools for easy transportation to job sites and to provide adequate footage for mass installations. Good fatigue resistance; not subject to breaks due to nicks or cuts when terminating. Totally recyclable with high scrap value.



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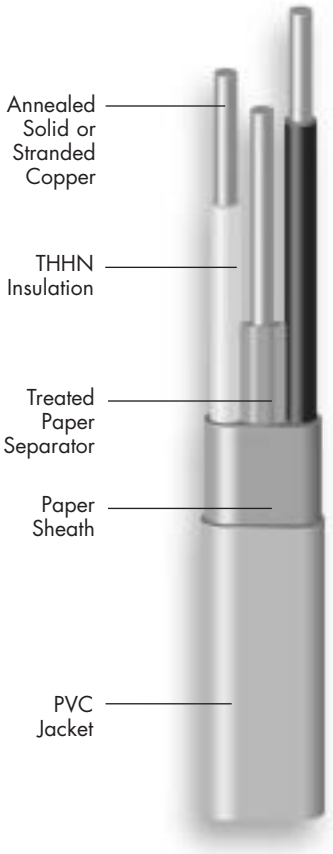


**ENGINEERING SPECIFICATIONS:**

**Standards:** Underwriters Laboratories Standard 719
Federal Specification A-A-59544
ASTM B-3 and B-8
New York State DOS 16120-87-1222-1050

**LISTED E-123775**

## Application:

Type NM-B (Non-metallic sheathed cables) have a broad range of usage as defined in Article 334 of the 2002 National Electrical Code (NEC). Type Nonmetallic-sheathed cable (NM-B) is primarily used in residential wiring as branch circuits for outlets, switches, and other loads. Type NM-B is rated for 600 volts for both exposed and concealed work in normally dry locations at temperatures not to exceed 90°C with ampacity limited to that of 60°C conductors, as specified in the National Electrical Code. Type NM-B may be installed or fished in air voids and joints and in masonry block or tile walls where such walls are not exposed nor subject to excessive moisture or dampness.

| AWG Size and No. of Conductors | No. of Strands | Ground Wire Size | Insulation Thickness PVC (mils) | Nylon Jacket Thickness (mils) | Ampacity Rating | Approx. Outside Diameter (Inches) | Approx. Shipping Lbs./M.ft |
|---|---|---|---|---|---|---|---|
| **Without Ground** | | | | | | | |
| 14/2 | Solid | - | 15 | 4 | 15 | .16 x .35 | 53 |
| 12/2 | Solid | - | 15 | 4 | 20 | .17 x .38 | 69 |
| 10/2 | Solid | - | 20 | 4 | 30 | .21 x .43 | 110 |
| 14/3 | Solid | - | 15 | 4 | 15 | .295 | 64 |
| 12/3 | Solid | - | 15 | 4 | 20 | .335 | 88 |
| 10/3 | Solid | - | 20 | 4 | 30 | .396 | 137 |
| 8/3 | 7 | - | 30 | 5 | 40 | .540 | 228 |
| 6/3 | 7 | - | 30 | 5 | 55 | .610 | 339 |
| **With Ground** | | | | | | | |
| 14/2 | Solid | 14 | 15 | 4 | 15 | .16 x .35 | 62 |
| 12/2 | Solid | 12 | 15 | 4 | 20 | .17 x .38 | 86 |
| 10/2 | Solid | 10 | 20 | 4 | 30 | .21 x .43 | 129 |
| 8/2 | 7 | 10 | 30 | 5 | 40 | .29 x .58 | 193 |
| 6/2 | 7 | 10 | 30 | 5 | 55 | .33 x .68 | 269 |
| 14/3 | Solid | 14 | 15 | 4 | 15 | .325 | 80 |
| 12/3 | Solid | 12 | 15 | 4 | 20 | .370 | 112 |
| 10/3 | Solid | 10 | 20 | 4 | 30 | .435 | 170 |
| 8/3 | 7 | 10 | 30 | 5 | 40 | .555 | 262 |
| 6/3 | 7 | 10 | 30 | 5 | 55 | .612 | 355 |
| 4/3 | 7 | 8 | 40 | 6 | 70 | .820 | 625 |
| 2/3 | 7 | 8 | 40 | 6 | 95 | .946 | 900 |
| 14/4 | Solid | 14 | 15 | 4 | 12 | .360 | 94 |
| 12/4 | Solid | 12 | 15 | 4 | 16 | .425 | 136 |
| 10/4 | Solid | 10 | 20 | 4 | 30 | .545 | 210 |

*Ampacity shown above is per the 2002 National Electrical Code.*
*The above data is approximate and subject to normal manufacturing tolerances.*
** Color-coding for four-conductor NM-B is Black, White, Red, and Blue.*
** 12/2-2 & 14/2-2 available color code as follows: Black, White, Red, and White with Red Stripe.*

## Construction:

### Conductors:

Solid 14 - 10 AWG soft, uncoated copper, per ASTM- B3. Stranded 8 AWG conductor and larger uncoated, per ASTM B8.

### Conductors Insulation:

Color-coded Polyvinyl chloride (PVC) compound meeting the required thickness of Type THHN with a heat stabilized nylon rated for 90°C in dry locations.

### Grounding Conductor:

Soft, uncoated copper per ASTM B3 and/or ASTM B8.

### Assembly:

2-conductor construction have the insulated conductors laid parallel. When a ground wire is present, it is wrapped with paper and laid parallel between the insulated conductors. The entire cons-truction is wrapped with a paper separator before applying the PVC outer jacket. 3- and 4-conductor constructions have the insulated conductors twisted together. When a a ground wire is present, it is wrapped with paper and twisted together with the insulated conductors.

### Jacket:

A 30 mil, color-coded, PVC jacket is applied over the completed assembly as follows:

| | | |
|---|---|---|
| * | 14 AWG | White |
| * | 12 AWG | Yellow |
| * | 10 AWG | Orange |
| * | 8 AWG | Black |
| * | 6 AWG | Black |

### Print Legend:

E123775 (SIZE) WITH GROUND TYPE NM-B 600 VOLTS (UL) DATE/TIME/OPER



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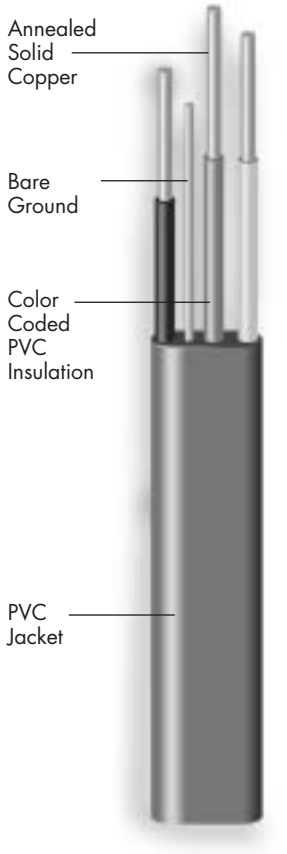


**ENGINEERING SPECIFICATIONS:**

**Standards:** Underwriters Laboratories Standard 493
Federal Specification A-A-59544
ASTM B-3 and B-8
New York State DOS 16120-87 1222-1052

**Packaging:** 14-10, with and without ground, 2 and 3 conductors — 250' EasyPac, 1000' Reel.
8-larger, with and without ground, 2 and 3 conductors — 125' EasyPac, 500' Reel
***Note:*** Longer length reels available upon request when minimum order quantity is met.

**LISTED E-123776**

## Application:

Type UF-B (Underground Feeder cables) have a broad usage, as defined in Articles 340 of the 2002 National Electric Code (NEC). Type UF-B may be installed as interior wiring in wet, dry, or in corrosive locations at temperatures not to exceed 90°C ( with ampacity limited to that for 60°C conductors) as specified by the National Electrical Code. Type UF-B may be used underground, including direct burial and/or exposed to direct rays of the sun.

| AWG Size and No. of Conductors | No. of Strands | Ground Wire Size | Insulation Thickness PVC (mils) | Nylon Jacket Thickness (mils) | Ampacity Rating | Approx. Outside Diameter (Inches) | Approx. Shipping Lbs./M.ft |
|---|---|---|---|---|---|---|---|
| **Without Ground** | | | | | | | |
| 14/2 | Solid | - | 15 | 4 | 15 | .20 x .39 | 52 |
| 12/2 | Solid | - | 15 | 4 | 20 | .21 x .42 | 76 |
| 10/2 | Solid | - | 20 | 4 | 30 | .23 x .46 | 113 |
| 14/3 | Solid | - | 15 | 4 | 15 | .20 x .57 | 64 |
| 12/3 | Solid | - | 15 | 4 | 20 | .21 x .62 | 129 |
| 10/3 | Solid | - | 20 | 4 | 30 | .23 x .68 | 165 |
| 8/3 | 7 | - | 30 | 5 | 40 | .34 x .96 | 313 |
| 6/3 | 7 | - | 30 | 5 | 55 | .37 x 1.25 | 425 |
| **With Ground** | | | | | | | |
| 14/2 | Solid | 14 | 15 | 4 | 15 | .21 x .40 | 64 |
| 12/2 | Solid | 12 | 15 | 4 | 20 | .22 x .43 | 92 |
| 10/2 | Solid | 10 | 20 | 4 | 30 | .24 x .47 | 140 |
| 8/2 | 7 | 10 | 30 | 5 | 40 | .32 x .62 | 213 |
| 6/2 | 7 | 10 | 30 | 5 | 55 | .41 x .81 | 312 |
| 14/3 | Solid | 14 | 15 | 4 | 15 | .20 x .57 | 93 |
| 12/3 | Solid | 12 | 15 | 4 | 20 | .21 x .62 | 134 |
| 10/3 | Solid | 10 | 20 | 4 | 30 | .23 x .68 | 194 |
| 8/3 | 7 | 10 | 30 | 5 | 40 | .34 x .96 | 330 |
| 6/3 | 7 | 10 | 30 | 5 | 55 | .40 x 1.20 | 449 |

*Ampacity shown above is per the 2002 National Electrical Code.*
*The above data is approximate and subject to normal manufacturing tolerances.*

## Construction:

### Conductors:

Solid 14 - 10 AWG soft, uncoated copper per ASTM- B3. Stranded 8 AWG conductor and larger uncoated per ASTM - B8.

### Conductors Insulation:

Color-coded, Polyvinyl chloride (PVC) compound meeting the required thickness of Type THHN or THWN with an heat-stabilized nylon rated for 90°C in dry or 75°C in wet locations.

### Grounding Conductor:

Soft, uncoated copper per ASTM B3 and or B8.

### Assembly:

2- and 3-conductor constructions have the insulated conductors laid parallel. When a ground wire is present, it is laid in a valley between the insulated conductors.

### Jacket:

A gray color-coded PVC jacket is applied over the completed assembly.

### Print Legend:

E123776 (SIZE) WITH GROUND TYPE UF-B SUNLIGHT RESISTANT 600 VOLTS (UL) DATE/TIME/OPER



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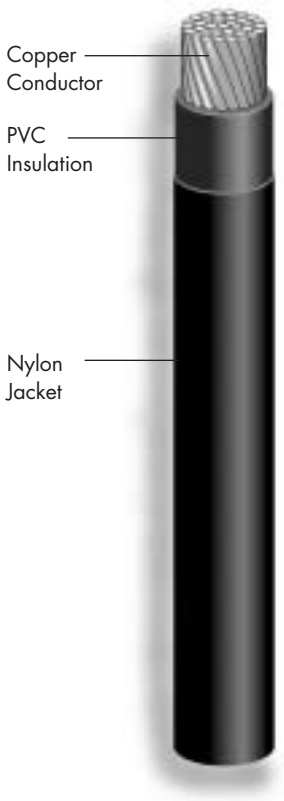


**ENGINEERING SPECIFICATIONS:**

**Standards:** Underwriters Laboratories Standard UL-83, UL-1063, UL-758.
Federal Specification A-A-59544
New York State DOS 16120-87-1222-1048
ASTM Class B Stranding AWM Spec 1316, 1317, 1318, 1319, 1320, 1321
Canadian Standards Association C22.2 No. 75
NEMA WC5/ICEA S-61-402

**Packaging:** 14 and 12 AWG — 4 x 500' spools, 2,000' per carton or 2,500' reels. 10 AWG — 2 x 500' spools, 1,000' per carton or 2,500' reel. 8 AWG — 500' carton, 1,000', 2,500', or 5,000' reel. 6 AWG — 500', 1,000', 2,500', or 5,000' reel. 4 AWG through 1000 KCMIL — 500', 1,000', or longer lengths on reels.

## Application:

Encore Type THHN-THWN-2 building wire is intended for general purpose applications as defined by the National Electrical Code (NEC). Suitable for new construction or rewiring for 600-volt applications. When used as type THHN or THWN-2, conductor is suitable for use in wet or dry locations at temperatures not to exceed 90°C, or not to exceed 75°C in oil or coolants. When used as type MTW, conductor is suitable for use in dry locations at 90°C, or not to exceed 60°C in wet locations or where exposed to oils or coolants. When used as type AWM temperatures should not exceed 105°C in dry locations.

| Size AWG Size | No. of Strands | Insulation Thickness PVC (mils) | Nylon Jacket Thickness (mils) | Approx. Outside Diameter (inches) | Allowable Ampacities 60° C | 75° C | 90° C | Approx. Shipping Lbs./M.Ft. |
|---|---|---|---|---|---|---|---|---|
| 14 | Solid | 15 | 4 | 0.102 | 15 | 15 | 15 | 17 |
| 12 | Solid | 15 | 4 | 0.118 | 20 | 20 | 20 | 25 |
| 10 | Solid | 20 | 4 | 0.150 | 30 | 30 | 30 | 39 |
| 14 | 19 | 15 | 4 | 0.110 | 15 | 15 | 15 | 18 |
| 12 | 19 | 15 | 4 | 0.128 | 20 | 20 | 20 | 27 |
| 10 | 19 | 20 | 4 | 0.161 | 30 | 30 | 30 | 40 |
| 8 | 19 | 30 | 5 | 0.212 | 40 | 50 | 55 | 69 |
| 6 | 19 | 30 | 5 | 0.250 | 55 | 65 | 75 | 109 |
| 4 | 19 | 40 | 6 | 0.318 | 70 | 85 | 95 | 166 |
| 3 | 19 | 40 | 6 | 0.345 | 85 | 100 | 110 | 202 |
| 2 | 19 | 40 | 6 | 0.375 | 95 | 115 | 130 | 254 |
| 1 | 19 | 50 | 7 | 0.430 | 110 | 130 | 150 | 316 |
| 1/0 | 19 | 50 | 7 | 0.470 | 125 | 150 | 170 | 398 |
| 2/0 | 19 | 50 | 7 | 0.515 | 145 | 175 | 195 | 488 |
| 3/0 | 19 | 50 | 7 | 0.565 | 165 | 200 | 225 | 603 |
| 4/0 | 19 | 50 | 7 | 0.620 | 195 | 230 | 260 | 731 |
| 250 | 37 | 60 | 8 | 0.730 | 215 | 255 | 290 | 903 |
| 300 | 37 | 60 | 8 | 0.780 | 240 | 285 | 320 | 1058 |
| 350 | 37 | 60 | 8 | 0.830 | 260 | 310 | 350 | 1211 |
| 400 | 37 | 60 | 8 | 0.880 | 280 | 335 | 380 | 1332 |
| 500 | 37 | 60 | 8 | 0.970 | 320 | 380 | 430 | 1735 |
| 600 | 61 | 70 | 9 | 1.060 | 355 | 420 | 475 | 1990 |
| 750 | 61 | 70 | 9 | 1.170 | 400 | 475 | 535 | 2468 |
| 1000 | 61 | 70 | 9 | 1.300 | 455 | 545 | 615 | 3263 |

*Ampacity shown above is per the 2002 National Electrical Code.*
*The above data is approximate and subject to normal manufacturing tolerances.*

**LISTED**
**SOLID E-123774**
**STRANDED E-156879**

**Construction:**

**Conductors:**
Solid conductors, uncoated copper, per ASTM B3.
Stranded conductors uncoated copper per ASTM B3, ASTM B787and ASTM B8.

**Conductors Insulation:**
Color-coded, Polyvinyl chloride (PVC), heat- and Moisture-resistant, flame-retardant compound per UL-83 and UL-1063.

**Jacket:**
A tough, polyamide, outer-nylon covering per UL-83 and UL-1063.

**Features:**
Slick, outer-nylon jacket for easy pulling. VW-1 rated 14 AWG - 1 AWG, 1/0 AWG and larger is rated for CT use. 6 AWG and larger is rated for Sunlight Resistance in all colors. All sizes are rated "Gasoline and Oil Resistant II."

**Print Legend:**

**Conductor Sizes 14 AWG through 10 Awg Solid:**
E123774 (SIZE) AWG TYPE THHN OR THWN-2 GASOLINE AND OIL RESISTANT II VW-1 600V (UL) OR AWM OR C-(UL) TYPE T90 NYLON OR TWN 75 FT1

**Conductor Sizes 14 AWG through 1 AWG Stranded:**
E156879 (SIZE) AWG TYPE MTW OR THHN OR THWN-2 GASOLINE AND OIL RESISTANT II VW-1 600V (UL) OR AWM OR C-(UL) TYPE T90 NYLON OR TWN 75 FT1 DATE/TIME/OPER

**Conductor Sizes 1/0 AWG - 500 KCMIL Stranded:**
E156879 (SIZE) AWG OR KCMIL TYPE MTW OR THHN OR THWN-2 GASOLINE AND OIL RESISTANT II SUNLIGHT RESISTANT FOR CT USE 600V (UL) OR C-(UL) TYPE T90 NYLON OR TWN 75 FT1 DATE/TIME/OPER

**Conductor Sizes 500 KCMIL - 1000 KCMIL Stranded:**
E156879 (SIZE) KCMIL TYPE MTW OR THHN OR THWN-2 GASOLINE AND OIL RESISTANT II SUNLIGHT RESISTANT FOR CT USE 600V (UL)
DATE/TIME/OPER



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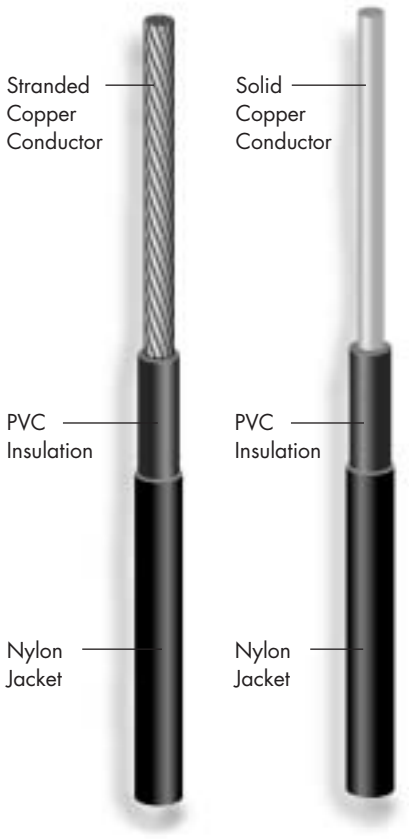


**ENGINEERING SPECIFICATIONS:**

**Standards:** Underwriters Laboratories Standards UL-62, UL-758 and UL 1063
AWM Style 1310, 1312, 1316, 1318, 1321
New York State DOS 16120-871222-1048.

**Packaging:** 4 x 500' spools, 2000' per carton, 2500' reel.

**LISTED E-156878**

| Size AWG Size | No. of Strands | Insulation Thickness PVC (mils) | Nylon Jacket Thickness (mils) | Allowable Ampacities | Approx. Outside Diameter (inches) | Approx. Shipping Lbs./M.Ft. |
|---|---|---|---|---|---|---|
| 18 | 16 | 15 | 4 | 6 | 0.088 | 8 |
| 16 | 26 | 15 | 4 | 8 | 0.101 | 11 |

*Ampacity shown above is per the 2002 National Electrical Code.*
*The above data is approximate and subject to normal manufacturing tolerances.*

| Size AWG Size | No. of Strands | Insulation Thickness PVC (mils) | Nylon Jacket Thickness (mils) | Allowable Ampacities | Approx. Outside Diameter (inches) | Approx. Shipping Lbs./M.Ft. |
|---|---|---|---|---|---|---|
| 18 | solid | 15 | 4 | 6 | 0.0783 | 8 |
| 16 | solid | 15 | 4 | 8 | 0.0888 | 11 |

*Ampacity shown above is per the 2002 National Electrical Code.*
*The above data is approximate and subject to normal manufacturing tolerances.*

## Application:

Encore Type TFN or TFFN conductors are primarily used as fixture wire as specified by the National Electrical Code (NEC) at temperatures not to exceed 90°C in dry location. When used as type MTW, conductor conductor is suitable for use in dry locations at 90°C, or not to exceed 60°C in wet locations or where exposed to oils or coolants. When used as type AWM temperatures should not exceed 105°C in dry locations. Voltage rating for all applications is 600 volts.

## Construction:

### Conductors:

Solid conductors, uncoated copper per ASTM B3. Stranded conductors, uncoated copper per ASTM B174

### Conductors Insulation:

Color-coded Polyvinyl chloride (PVC), heat- and Moisture-resistant, flame-retardant compound.

### Jacket:

A tough, polyamide, outer-nylon covering.

### Features

Slick, outer-nylon jacket for easy pulling. VW-1 rated, all sizes rated for gasoline- and oil-resistant II.

### Print Legend:

**Conductor Sizes 18 AWG through 16 AWG Solid:**
E156878 (SIZE) AWG TYPE TFN GASOLINE AND OIL RESISTANT II VW-1 600V (UL)

**Conductor Sizes 18 AWG through 16 AWG Stranded:**
E156878 (SIZE) AWG TYPE MTW OR TFFN GASOLINE AND OIL RESISTANT II VW-1 600V (UL) OR AWM



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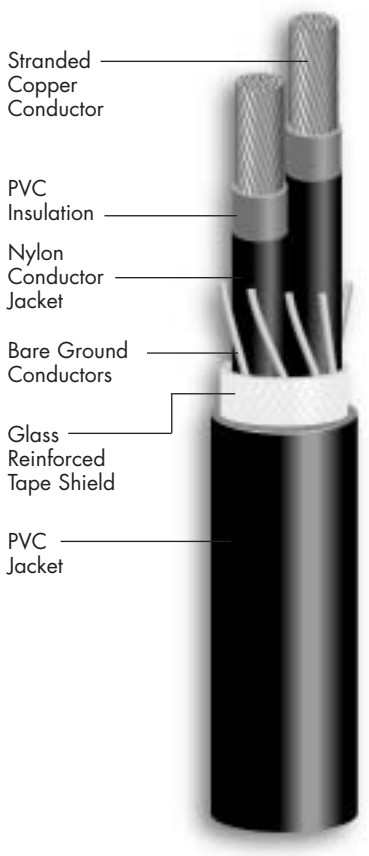


**ENGINEERING SPECIFICATIONS:**

**Standards:** Underwriters Laboratories UL-854, UL- 83 National Electrical Code Articles 338 & 230

**LISTED E-174428**

## Application:

For above-ground electrical service use from the electric utility power-service-point to the meter or service-entrance panel. Under special conditions as permitted, the NEC Type SE Style U can be used for interior wiring as branch circuits to ranges, ovens, cooking units, or clothes dryers. This cable is manufactured in accordance with Article 338 of the NEC and also the requirements of Underwriters Laboratories Standard 854. Type SE Style U is approved for installation in accordance with Article 230 of the NEC and has a voltage rating of 600 volts.

| Insulated Conductor Size AWG and Stranding | Concentric Neutral Conductor Size AWG | Nominal Diameter (Inches) | Ampacity 1 | Ampacity 2 | Standard Coils (Feet) | Package NR Reels (Feet) | Approx. Weight Lbs./M.Ft. |
|---|---|---|---|---|---|---|---|
| 10-solid/1025 | 10 | .295x.455 | 30 | - | 250 | 500/1000 | 142 |
| 8-7/0486 | 8 | .400x.625 | 55 | - | 250 | 500/1000 | 219 |
| 6-7/0612 | 6 | .445x.705 | 75 | - | 150 | 500/1000 | 319 |
| 6-7/0612 | 8 | .440x.700 | 75 | - | 200 | 500/1000 | 290 |
| 4-7/0772 | 4 | .540x.870 | 95 | 100 | 150 | 500/1000 | 494 |
| 4-7/0772 | 6 | .515x.850 | 95 | 100 | 150 | 500/1000 | 445 |
| 3-7/0867 | 3 | .605x.970 | 110 | 110 | 150 | 500/1000 | 609 |
| 3-7/0867 | 5 | .570x.930 | 110 | 110 | 150 | 500/1000 | 547 |
| 2-7/0974 | 2 | .640x1.030 | 130 | 125 | 100 | 500/1000 | 745 |
| 2-7/0974 | 4 | .600x1.000 | 130 | 125 | 100 | 500/1000 | 668 |
| 1-19/0664 | 1 | .720x1.180 | 150 | 150 | - | 500/1000 | 941 |
| 1/0-19/0745 | 1/0 | .740x1.240 | 170 | 175 | - | 500/1000 | 1157 |
| 2/0-19/0837 | 2/0 | .810x1.350 | 195 | 200 | - | 250/1000 | 1431 |
| 3/0-19/0940 | 3/0 | .890x1.480 | 225 | 225 | - | 250/1000 | 1775 |

*Ampacity 1-Based upon the 2002 National Electric Code, 90° C Dry Rating*
*Ampacity 2-Three Wire, Single-Phase Dwelling Services.*

*The above data is approximate and is subject to normal manufacturing tolerances.*

## Construction:

### Conductors:

Bare, soft copper per ASTM B-3, Class B concentrically stranded per ASTM B-8.

### Conductors Insulation:

High dielectric strength, heat- and moisture-resistant, black or colored polyvinyl chloride (PVC) rated for continuous use at 90°C dry; 75°C wet, meeting the requirements of UL-83 for THHN or THWN wire.

### Conductor Jacket:

Clear, nylon sheath meeting the requirements of UL-83 for THHN or THWN.

### Concentric Neutral:

Bare, soft copper, evenly distributed and helically applied over the insulated conductors so as to produce the equivalent AWG size required by UL 854.

### Assembly:

Conductors are parallel, with the concentric neutral conductor cabled around the conductor assembly. A Glass-reinforced tape is applied overall.

### Overall Jacket:

Extruded, protective, gray PVC jacket over the taped assembly in accordance with UL Standard 854.

### Print Legend:

**Conductor Sizes 14 AWG through 3/0 AWG Stranded:**

E174428 TYPE SE STYLE U THHN OR THWN CDRS, 600 VOLTS 2 CDRS (SIZE) CU 1 CDR (SIZE) CU (UL) DATE/TIME/OPER



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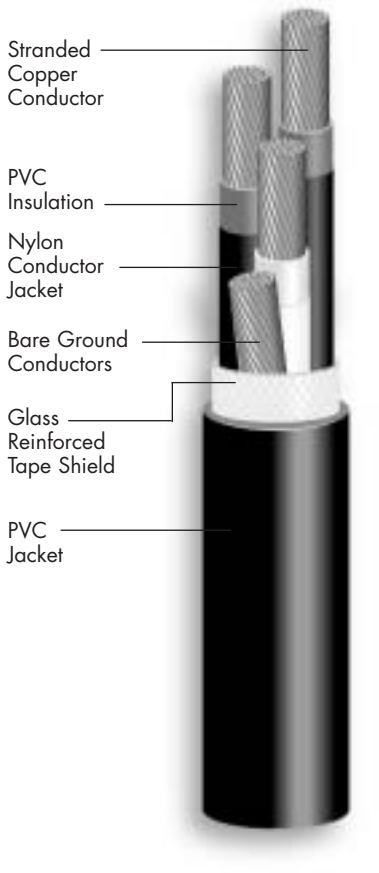


**ENGINEERING SPECIFICATIONS:**

**Standards:** Underwriters Laboratories UL-854, UL- 83 National Electrical Code Articles 338 & 230

**LISTED E-174428**

## Application:

For above-ground electrical service use from the electric utility power-service-point to the meter or service entrance panel. Under special conditions as permitted, the NEC Type SE Style U can be used for interior wiring as branch circuit to ranges, ovens, cooking units, or clothes dryers. This cable is manufactured in accordance with Article 338 of the NEC and the requirements of Underwriters Laboratories Standard 854. Type SE Style R is approved for installation in accordance with Article 230 of the NEC and has a voltage rating of 600 volts.

| Insulated Conductor Size AWG and Stranding | Bare Grounding Conductor Size AWG | Nominal Diameter (Inches) | Package NR Reels (Feet) | Ampacity 1 | Weight 2 | Approx. Lbs./M.Ft. |
|---|---|---|---|---|---|---|
| 6-7/0612 | 6-7/0612 | .665 | 500/1000 | 75 | - | 432 |
| 4-7/0772 | 6-7/0612 | .830 | 500/1000 | 95 | 100 | 601 |
| 3-7/0867 | 5-7/0688 | .895 | 500/1000 | 110 | 110 | 737 |
| 2-7/0974 | 4-7/0772 | .970 | 500/1000 | 130 | 125 | 911 |
| 1-19/0664 | 3-7/0867 | 1.100 | 500/1000 | 150 | 150 | 1151 |
| 1/0-19/0745 | 2-7/0974 | 1.200 | 500/1000 | 170 | 175 | 1417 |
| 2/0-19/0837 | 1-19/0664 | 1.310 | 500/1000 | 195 | 200 | 1768 |
| 3/0-19/0940 | 1/0-19/0745 | 1.430 | 500/1000 | 225 | 225 | 2186 |
| 4/0-19/1055 | 2/0-19/0837 | 1.610 | 500/1000 | 260 | 250 | 2729 |

*Ampacity 1-Based upon the 2002 National Electric Code, 90° C Dry Rating*
*Ampacity 2-Three Wire, Single-Phase Dwelling Services.*

*The above data is approximate and is subject to normal manufacturing tolerances.*

## Construction:

### Conductors:

Bare, soft copper per ASTM B-3, Class B concentrically stranded per ASTM B-8

### Conductors Insulation:

High dielectric strength, heat- and moisture-resistant, black or colored polyvinyl chloride (PVC) rated for continuous use at 90°C dry, 75°C wet, meeting the requirements of UL-83 for THHN or THWN wire.

### Conductor Jacket:

Clear nylon sheath meeting the requirements of UL-83 for THHN or THWN.

### Grounding Conductor:

Bare, soft copper grounding conductor per ASTM B-3 and concentrically stranded per ASTM B-8.

### Assembly:

Conductors are twisted together with the bare copper grounding conductor in one interstice. A glass-reinforced tape is applied over the cabled core.

### Overall Jacket:

Extruded, protective, gray PVC jacket over the taped assembly in accordance with UL Standard 854.

### Print Legend:

**Conductor Sizes 14 AWG through 4/0 AWG Stranded:**

E174428 TYPE SE STYLE R THHN OR THWN CDRS 600 VOLTS 3 CDRS (SIZE) CU 1 CDR (SIZE) CU (UL) DATE/TIME/OPER



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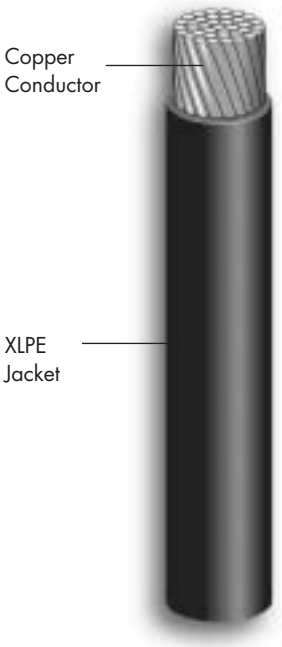


**ENGINEERING SPECIFICATIONS:**

**Standards:** Underwriters Laboratories - Standard UL-44
Canadian Standard C22.2 No. 38
Insulated Cable Engineers Association ICEA S-95-658
Institute of Electrical and Electronics Engineers IEEE 1202. Federal Specification A-A-59544
NEMA Publication No. WC-70 and the National Electric Code.

**Packaging:** 14 thru 10 AWG — 2500' Reel, 8 thru 4/0 AWG — 500', 1000', 2500' & 5000' reels, 250 thru 500 KCMIL — 500', 1000' & 2500' reels, 600 & 750 KCMIL & longer lengths on reels.

**LISTED E-177544**

## Application:

Type XHHW-2 conductors are primarily used in conduit or other recognized raceways for services, feeders, and branch circuit wiring, as specified in the National Electric Code (NEC). XHHW-2 conductors may be used in wet or dry locations at temperatures not to exceed 90°C. XHHW-2 conductors are rated for 600 volts. Suitable for use in low-leaking circuit requiring a dielectric constant of 3.5 or less. Compound is rated sunlight-resistant in black only. All cables comply with UL's VW-1 (Vertical-Wire) Flame Test. Cables pass IEEE 1202/CSA (70,000 BTU/hr) cable-tray flame test. 1/0 AWG and larger may be used in cable tray in accordance with the National Electrical Code.

## Construction:

### Conductors:

Stranded, uncoated bare copper per ASTM B3, ASTM B787 and ASTM B8.

### Conductors Insulation:

Cross-Linked Polyethylene (XLP) insulation per UL-44

### Print Legend:

**Conductor Sizes 14 AWG through 1 AWG Stranded:**
E177544 (SIZE) AWG TYPE XHHW-2 600 VOLTS SUNLIGHT RESISTANT VW-1 600V (UL) OR C-(UL) TYPE RW90 FT1 DATE/TIME/OPER

**Conductor Sizes 1/0 AWG through 1000 KCMIL Stranded:**
E177544 (SIZE) AWG OR KCMIL TYPE XHHW-2 600 VOLTS SUNLIGHT RESISTANT FOR CT USE (UL) OR C-(UL) TYPE RW90 FT1 DATE/TIME/OPER

| AWG Size and No. of Conductors | No. of Strands | Insulation Thickness XLPE (mils) | Approx. Outside Diameter (inches) | Ampacities 90° C | Approx. Shipping Lbs./M.Ft. |
|---|---|---|---|---|---|
| 14 | 19 | 30 | 0.162 | 15 | 21 |
| 12 | 19 | 30 | 0.179 | 20 | 29 |
| 10 | 19 | 30 | 0.203 | 30 | 45 |
| 8 | 7/19 | 45 | 0.262 | 55 | 70 |
| 6 | 7/19 | 45 | 0.299 | 75 | 115 |
| 4 | 7/19 | 45 | 0.342 | 95 | 164 |
| 3 | 19 | 45 | 0.367 | 110 | 206 |
| 2 | 7/19 | 45 | 0.400 | 130 | 235 |
| 1 | 19 | 55 | 0.475 | 150 | 320 |
| 1/0 | 19 | 55 | 0.513 | 170 | 365 |
| 2/0 | 19 | 55 | 0.556 | 195 | 440 |
| 3/0 | 19 | 55 | 0.605 | 225 | 620 |
| 4/0 | 19 | 55 | 0.660 | 260 | 770 |
| 250 | 37 | 65 | 0.748 | 290 | 894 |
| 300 | 37 | 65 | 0.801 | 320 | 1010 |
| 350 | 37 | 65 | 0.851 | 350 | 1231 |
| 400 | 37 | 65 | 0.896 | 380 | 1350 |
| 500 | 37 | 65 | 0.979 | 430 | 1720 |
| 600 | 61 | 80 | 1.086 | 475 | 2028 |
| 750 | 61 | 80 | 1.188 | 535 | 2511 |
| 1000 | 61 | 80 | 1.337 | 615 | 3288 |

*Ampacity shown above is per the 2002 National Electrical Code.*
*The above data is approximate and subject to normal manufacturing tolerances.*



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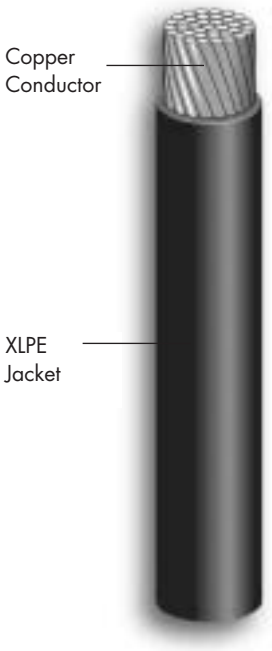



**ENGINEERING SPECIFICATIONS:**

**Standards:** Underwriters Laboratories - Standard UL-44, UL 854, Federal Specification A-A-59544.
Insulated Cable Engineers Association ICEA S-66-524
NEMA Publication No. WC 7.
New York State DOS-16120-871222-1048.
National Electric Code.

**Packaging:** 12 thru 10 AWG — 2500' reel, 8 thru 4/0 AWG — 500', 1000', 2500' & 5000' reels, 250 thru 500 KCMIL — 500', 1000' & 2500' reels, 600 & 750 KCMIL & longer lengths on reels.

**LISTED E-174428**

**Application:**

Type USE-2 or RHH or RHW-2 copper conductors are suitable for use in conduit and raceways installed underground in conduit, in wet locations, and where condensation and moisture accumulations within the conduit do not exceed 90°C. When used as RHH or RHW-2, conductor temperatures shall not exceed 90° C in wet or dry locations. Voltage rating for USE-2 or RHH or RHW-2 conductors is 600 volts. Compound is rated sunlight-resistant. 1/0 and larger is rated for CT use.

**Construction:**

**Conductors:**

Stranded conductors uncoated copper per ASTM B787and ASTM B8.

**Conductors Insulation:**

Cross-Linked Polyethylene (XLP) insulation per UL 854.

**Print Legend:**

**Conductor Sizes 14 AWG through 1 AWG Stranded:**

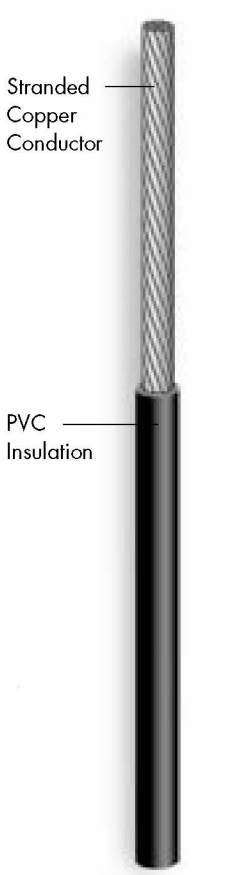
E174428 (SIZE) AWG TYPE USE-2 OR RHH OR RHW OR RHW-2 600 VOLTS XLPE (UL) DATE/TIME/OPER

**Conductor Sizes 1/0 AWG through 1000 KCMIL Stranded:**

E174428 (SIZE) AWG OR KCMIL TYPE USE-2 OR RHH OR RHW OR RHW-2 600 VOLTS XLPE SUNLIGHT RESISTANT FOR CT USE (UL) OR C-(UL) TYPE RW90 FT1
DATE/TIME/OPER

| AWG Size and No. of Conductors | No. of Strands | Insulation Thickness XLPE (mils) | Approx. Outside Diameter (inches) | Ampacities 90° C | Approx. Shipping Lbs./M.Ft. |
|---|---|---|---|---|---|
| 12 | 19 | 45 | 0.179 | 20 | 29 |
| 10 | 19 | 45 | 0.203 | 30 | 45 |
| 8 | 7/19 | 60 | 0.262 | 55 | 70 |
| 6 | 7/19 | 60 | 0.299 | 75 | 115 |
| 4 | 7/19 | 60 | 0.342 | 95 | 164 |
| 3 | 19 | 60 | 0.367 | 110 | 206 |
| 2 | 7/19 | 60 | 0.400 | 130 | 235 |
| 1 | 19 | 80 | 0.475 | 150 | 320 |
| 1/0 | 19 | 80 | 0.513 | 170 | 365 |
| 2/0 | 19 | 80 | 0.556 | 195 | 440 |
| 3/0 | 19 | 80 | 0.605 | 225 | 620 |
| 4/0 | 19 | 80 | 0.660 | 260 | 770 |
| 250 | 37 | 95 | 0.748 | 290 | 894 |
| 300 | 37 | 95 | 0.801 | 320 | 1010 |
| 350 | 37 | 95 | 0.851 | 350 | 1231 |
| 400 | 37 | 95 | 0.896 | 380 | 1350 |
| 500 | 37 | 95 | 0.979 | 430 | 1720 |
| 600 | 61 | 110 | 1.086 | 475 | 2028 |
| 750 | 61 | 110 | 1.188 | 535 | 2511 |
| 1000 | 61 | 110 | 1.337 | 615 | 3288 |

*Ampacity shown above is per the 2002 National Electrical Code.*
*The above data is approximate and subject to normal manufacturing tolerances.*




**ENGINEERING SPECIFICATIONS:**

**Standards:** UL Standard 1063 - Machine Tool Wire and Cables, UL Standard 758
Appliance Wire CSA Standard as TEW

**Packaging:** 18 through 12 AWG — 2,000' ctns (4 x 500') and 2,500' reels 10 AWG — 1,000 ctns (2 x 500') and 2,500' reels 8 through 2 AWG available on 500', 1,000' and 2,500' or as requested

**MACHINE TOOL WIRE**
**LISTED E-156879**

## Application:

Encore Type MTW or TEW conductors are primarily used in control cabinets, in machine tool application, and appliance wiring applications at temperatures -.25°C to 105°C. For use in accordance with the National Electrical Code (NEC) and NFPA Standard 79. Voltage rating for all applications is 600 volts.

## Construction:

### Conductors:

Bare annealed copper per ASTM B-3, B-8 and B787

### Conductors Insulation:

Color-coded, Polyvinyl chloride (PVC), heat- and Moisture-resistant, flame-retardant compound per UL-1063.

### Print Legend:

**Conductor Sizes 18 AWG through 2 AWG Stranded:**
E156879 (SIZE) AWG TYPE MTW 600 VOLTS OIL-RESISTANT I VW-1 (UL) OR AWM OR C-(UL) TYPE TEW FT1

| Size AWG Size | PVC Insulation Thickness (mils) | No. of Strands | Approx. Outside Diameter (inches) | Approx. Copper Lbs./M.Ft. | Approx. Shipping Lbs./M.Ft. |
|---|---|---|---|---|---|
| 18 | .030 | 16/30 | 0.110 | 5.20 | 10 |
| 16 | .030 | 26/30 | 0.123 | 8.02 | 13 |
| 14 | .030 | 19/W | 0.132 | 12.59 | 19 |
| 12 | .030 | 19/W | 0.151 | 19.98 | 28 |
| 10 | .030 | 19/W | 0.205 | 31.64 | 41 |
| 8 | .045 | 19/W | 0.234 | 50.06 | 69 |
| 6 | .060 | 19/W | 0.300 | 81.01 | 110 |
| 4 | .060 | 19/W | 0.348 | 128.84 | 166 |
| 3 | .060 | 19/W | 0.374 | 163.05 | 212 |
| 2 | .060 | 19/W | 0.404 | 204.53 | 251 |

*The above data is approximate and subject to normal manufacturing tolerances.*



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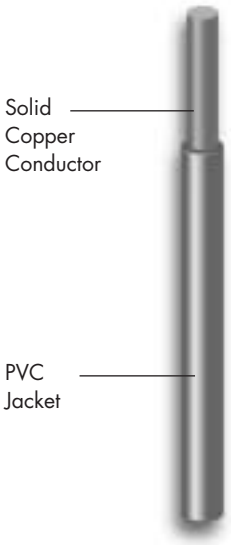
# #8 SOL GREEN TW




**LISTED E-123774**

**ENGINEERING SPECIFICATIONS:**

**Standards:** Underwriters Laboratories Standard UL-83

**Packaging:** 500', 1000' and 5000' reels.

## Application:

Encore Wire Type TW is suitable for use in conduit or other recognized raceways for services, feeders, and branch circuit wiring. Suitable for use in wet or dry locations where conductors temperatures do not exceed 75°C.

## Construction:

## Conductors:

Bare annealed copper per ASTM B-3

## Conductors Insulation:

Color-coded, Polyvinyl chloride (PVC), heat- and Moisture-resistant, flame-retardant compound per UL-83.

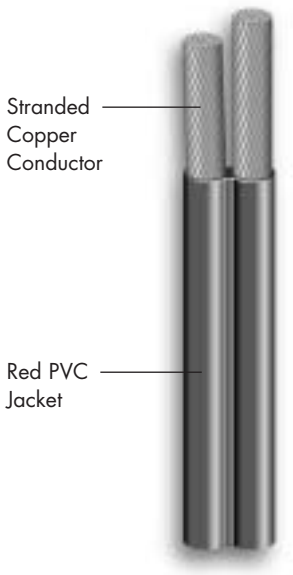
## Print Legend:

**Conductor Sizes 8 AWG through 6 AWG Stranded:**
E123774 (SIZE) AWG TYPE TW 600 VOLTS OIL RESISTANT I VW-1 (UL)

| AWG Size and No. of Conductors | No. of Strands | Insulation Thickness PVC (mils) | Approx. Outside Diameter (inches) | Approx. Shipping Lbs./M.Ft. |
|---|---|---|---|---|
| 8 | Solid | 45 | .219 | 69 |

*The above data is approximate and subject to normal manufacturing tolerances.*

# BRAKE CABLE/RV ZIP CORD




**ENGINEERING SPECIFICATIONS:**

**Standards:** Non-UL listed

## Application:

S.A.E. non-UL listed Brake Cable consists of 2 parallel conductors. For use on 12 volt lighting systems on recreational vehicles.

## Construction:

S.A.E. stranded bare wire soft-drawn copper conductors insulated with 60°C PVC

## Print Legend:

14/2 SAE CU 19 STRAND RVIA .030 PVC LOW VOLTAGE BRAKE CABLE

| S/B Gauge Size | No. of Conductors | Insulation Thickness PVC (mils) | Approx. Outside Diameter (inches) | Standard Package | Approx. Shipping Lbs./M.Ft. |
|---|---|---|---|---|---|
| 14 | 2 | .030 | 47 | 3,000' Reel | 37 |
| 12 | 2 | .030 | 61 | 2,000' Reel | 53 |
| 10 | 2 | .030 | 86 | 1,000' Reel | 79 |

*The above data is approximate and subject to normal manufacturing tolerances.*



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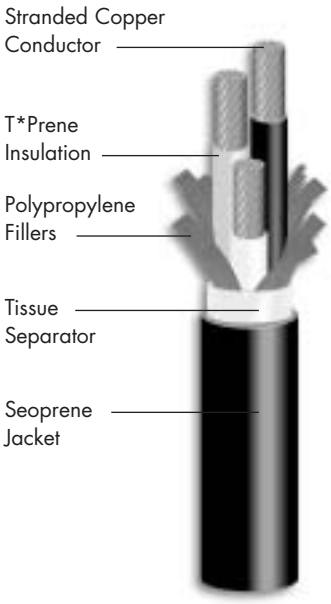


**ENGINEERING SPECIFICATIONS:**

**Standards:** UL listed, Federal Specification JC-580B, MSHA approved, CSA approved STW or SJTW.

**Packaging:** Standard industry put-ups available. 250', 500' or 1000' lengths may be available. Call your local agent or factory for availability.

| AWG Size and No. of Conductors | No. of Strands | Type | Temp Rating ° C | AMPS | Nominal Outside Diameter (Inches) | Approx Shipping Lbs./M.ft |
|---|---|---|---|---|---|---|
| 18/3 | 16/30 | SJEW | 90 | 10 | .310 | 53 |
| 18/4 | 16/30 | SJEW | 90 | 7 | .335 | 65 |
| 16/3 | 26/30 | SJEW | 90 | 13 | .335 | 67 |
| 16/4 | 26/30 | SJEW | 90 | 10 | .360 | 78 |
| 14/3 | 41/30 | SJEW | 90 | 18 | .370 | 83 |
| 14/4 | 41/30 | SJEW | 90 | 15 | .400 | 103 |
| 12/3 | 65/30 | SJEW | 90 | 25 | .430 | 124 |
| 12/4 | 65/30 | SJEW | 90 | 20 | .475 | 157 |
| 10/3 | 105/30 | SJEW | 90 | 30 | .580 | 220 |
| 18/3 | 16/30 | SJEOOW | 105 | 10 | .310 | 55 |
| 18/4 | 16/30 | SJEOOW | 105 | 7 | .335 | 66 |
| 16/2 | 26/30 | SJEOOW | 105 | 13 | .315 | 54 |
| 16/3 | 26/30 | SJEOOW | 105 | 13 | .330 | 67 |
| 16/4 | 26/30 | SJEOOW | 105 | 10 | .360 | 78 |
| 14/3 | 41/30 | SJEOOW | 105 | 18 | .370 | 84 |
| 14/4 | 41/30 | SJEOOW | 105 | 15 | .400 | 104 |
| 12/3 | 65/30 | SJEOOW | 105 | 25 | .435 | 123 |
| 12/4 | 65/30 | SJEOOW | 105 | 20 | .475 | 157 |
| 18/3 | 16/30 | SEOOW | 105 | 10 | .365 | 69 |
| 18/4 | 16/30 | SEOOW | 105 | 7 | .395 | 81 |
| 16/3 | 26/30 | SEOOW | 105 | 13 | .390 | 81 |
| 16/4 | 26/30 | SEOOW | 105 | 10 | .420 | 99 |
| 14/3 | 41/30 | SEOOW | 105 | 18 | .525 | 149 |
| 14/4 | 41/30 | SEOOW | 105 | 15 | .575 | 183 |
| 12/3 | 65/30 | SEOOW | 105 | 25 | .595 | 199 |
| 12/4 | 65/30 | SEOOW | 105 | 20 | .645 | 242 |
| 10/3 | 105/30 | SEOOW | 105 | 30 | .655 | 259 |
| 10/4 | 105/30 | SEOOW | 105 | 25 | .705 | 316 |
| 8/3 | 119/30 | SEOOW | 105 | 40 | .701 | 332 |
| 8/4 | 119/30 | SEOOW | 105 | 35 | .783 | 425 |
| 6/3 | 119/27 | SEOOW | 105 | 55 | .818 | 473 |
| 6/4 | 119/27 | SEOOW | 105 | 45 | .892 | 544 |
| 4/3 | 119/.0177 | SEOOW | 105 | 70 | .982 | 628 |
| 4/4 | 119/.0177 | SEOOW | 105 | 60 | 1.104 | 886 |

*Ampacity shown above is per the 2002 National Electrical Code.*
*The above data is approximate and subject to normal manufacturing tolerances.*

**Application:**
National Electrical Code (NEC) Article 400 and associated articles. Federal and Military use under Federal Spec. JC-580B. Portable power distribution. Push button remote controls. Motor control, stage equipment and lighting. Industrial control and robotic systems. Portable cord for outdoor application. Special use cord requiring mechanical toughness and high environmental resistance. For application requiring flame retardance and MSHA recognition.

**Construction:**
Annealed flexible stranded bare copper conductors. Lightweight, high dielectric strength, chemical, oil, and gas resistant seoprene jacket. Cabled for maximum flexibility and roundness per UL62 standards. Water resistant, lightweight polypropylene fillers are employed in cord interstices to achieve a firm, compact, cylindrical cord. A tissue separator is employed under jacket to facilitate jacket removal. Cable rated at –50°C to 105°C. Seoprene jacket is flame retardant, oil, and outdoor (UV) resistant with high tear and abrasion resistance. Color coded conductors for easy identification.

**Features:**
Flexible and tough Seoprene 105, Black jacket. UL Listed SEOOW 600V and SJEOOW 300V to NEC Article 400, CSA approved STW 105°C. Offers –50°C to 105°C temperature extremes. Seoprene 105°C offers excellent abrasion, ozone, chemical, and oil resistance. Has high dielectric strength insulation. Lightweight, long lasting, easy to carry and easy to handle. All components are recyclable and non-hazardous for environmental landfill disposal.



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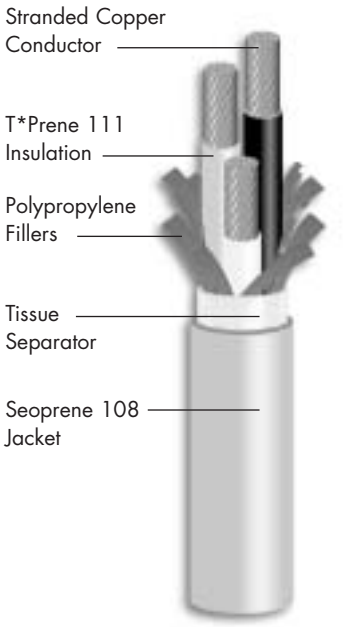


**ENGINEERING SPECIFICATIONS:**

**Standards:** UL listed, Federal Specification JC-580B, MSHA approved, CSA approved STW or SJTW.

**Application:**

National Electrical Code (NEC) and associated articles. Federal and Military use under Federal Spec. JC-580B. Portable power distribution. Push button remote controls. Motor control, stage equipment and lighting. Industrial control and robotic systems. Portable cord for outdoor application. Special use cord requiring mechanical toughness and high environmental resistance. For application requiring flame retardance and MSHA recognition.

**Construction:**

Annealed flexible stranded bare copper conductors. Lightweight high dielectric strength seoprene insulation. Cabled for maximum flexibility and roundness per UL62 and ICEA 5-61-402 standards. Water resistant, lightweight polypropylene fillers are employed in cord interstices to achieve a firm, compact, cylindrical cord. A tissue separator is employed under jacket to facilitate jacket removal. Lightweight, chemical, oil, and gas resistant Seoprene 108 jacket, cable rated at –60°C to 105°C. Seoprene 108 jacket is flame retardant, oil and outdoor (UV) resistant with high teat and abrasion resistance. Color coded conductors for easy identification.

**Features:**

Flexible and tough Suprene 105 Yellow jacket. UL Listed SEOOW 600V and SJEOOW 300V to NEC Article 400, CSA approved STW or SJTW –50°C to 105°C. Offers –60°C to 105°C temperature extremes. Suprene 105 Yellow offers excellent abrasion, ozone, chemical and oil resistance. Suprene 105 Yellow also has water and oil resistant conductors. Has high dielectric strength insulation. Lightweight, long lasting, easy to carry and easy to handle. All components are recyclable and non-hazardous for environmental landfill disposal.

| AWG Size and No. of Conductors | No. of Strands | Type | AMPS | Nominal Outside Diameter (Inches) | Approx Shipping Lbs./M.ft |
|---|---|---|---|---|---|
| 16/3 | 26/30 | SJEOOW | 13 | .348 | 68 |
| 14/3 | 41/30 | SJEOOW | 18 | .391 | 84 |
| 12/3 | 65/30 | SJEOOW | 25 | .460 | 126 |
| 16/3 | 26/30 | SEOOW | 13 | .414 | 82 |
| 14/3 | 41/30 | SEOOW | 18 | .556 | 152 |
| 12/3 | 65/30 | SEOOW | 25 | .635 | 197 |

*Ampacity shown above is per the 2002 National Electrical Code.*
*The above data is approximate and subject to normal manufacturing tolerances.*



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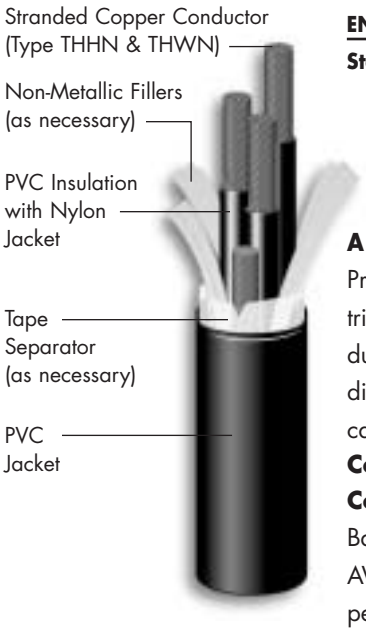


**ENGINEERING SPECIFICATIONS:**

**Standards:** Underwriters Laboratories UL-1277
National Electrical Code Article 336
ICEA Method 4

**LISTED E-179429**

## Application:

Primarily used for connecting power devices in an industrial environment. Suitable for installation in channels, ducts, wireways, cable trays, and conduit. Approved for direct burial in wet or dry locations and outdoor in cable trays where a sunlight-resistant rating is required.

## Construction:

### Conductors:

Bare, soft-annealed copper per ASTM B-3, B-8 Sizes 8 AWG thru 4/0 AWG Concentric, compressed stranded per ASTM B-3 and ASTM B-8 and UL-83

### Conductors Insulation:

High dielectric strength, heat- and moisture-resistant, colored polyvinyl chloride (PVC) rated for continuous use at 90°C dry; 75°C wet to meet UL-83 requirements for type THHN or THWN wire.

### Grounding Conductor:

Soft, uncoated copper per ASTM B3 and or B8.

### Assembly:

The insulated conductors are cabled together with or without a bare ground with or without fillers as required to form a round, compact core. A nylon rip cord is supplied for easy stripping.

### Color Coding:

Black insulation with ICEA Method 4 printed number.

### Overall Jacket:

Abrasion-, oil- and chemical-resistant and highly flame-retardant PVC jacket to meet UL-1277 standard.

### Print Legend:

E-179429 (SIZE) TYPE TC CABLE THHN OR THWN CDRS SUNLIGHT RESISTANT 600 VOLTS DIRECT-BURIAL (UL) DATE/TIME/OPER

**Type TC Power Cable With Ground**

| Size AWG | No. of Conds. | Size of Ground Wire | Insulation Thickness PVC (inches) | Approx. Outside Diameter (inches) | Approx. Weight per mft (Lbs.) |
|---|---|---|---|---|---|
| 8 | 3<br>4 | 10 AWG | .060<br>.060 | .610<br>.660 | 315<br>385 |
| 6 | 3<br>4 | 8 AWG | .060<br>.060 | .690<br>.760 | 452<br>558 |
| 4 | 3<br>4 | 8 AWG | .080<br>.080 | .880<br>.965 | 704<br>878 |
| 2 | 3<br>4 | 6 AWG | .080<br>.080 | 1.008<br>1.115 | 1029<br>1287 |
| 1 | 3<br>4 | 6 AWG | .080<br>.080 | 1.135<br>1.258 | 1203<br>1642 |
| 1/0 | 3<br>4 | 6 AWG | .080<br>.080 | 1.225<br>1.355 | 1517<br>1931 |
| 2/0 | 3<br>4 | 6 AWG | .080<br>.080 | 1.328<br>1.468 | 1831<br>2426 |
| 3/0 | 3<br>4 | 4 AWG | .080<br>.080 | 1.438<br>1.588 | 2249<br>2879 |
| 4/0 | 3<br>4 | 4 AWG | .080<br>.110 | 1.558<br>1.788 | 2740<br>3608 |
| 250 Kcmil | 3 | 4 AWG | .110 | 1.840 | 3394 |
| 300 Kcmil | 3 | 3 AWG | .110 | 1.972 | 3950 |
| 350 Kcmil | 3 | 3 AWG | .110 | 2.080 | 4510 |
| 400 Kcmil | 3 | 3 AWG | .110 | 2.192 | 5070 |
| 500 Kcmil | 3 | 2 AWG | .110 | 2.380 | 6242 |

*The above data is approximate and subject to normal manufacturing tolerances.*

*8 AWG through 4/0 AWG is 19 strand per conductor;*
*250 KCMIL through 500 KCMIL is 37 strand per conductor*

**Type TC Power Cable Without Ground**

| Size AWG | No. of Conds. | Insulation Thickness PVC (inches) | Approx. Outside Diameter (inches) | Approx. Weight per mft (Lbs.) |
|---|---|---|---|---|
| 8 | 3<br>4 | .060<br>.060 | .610<br>.655 | 282<br>351 |
| 6 | 3<br>4 | .060<br>.060 | .685<br>.750 | 400<br>504 |
| 4 | 3<br>4 | .080<br>.080 | .875<br>.961 | 652<br>826 |
| 2 | 3<br>4 | .080<br>.080 | 1.004<br>1.105 | 947<br>1204 |
| 1 | 3<br>4 | .080<br>.080 | 1.140<br>1.255 | 1121<br>1562 |
| 1/0 | 3<br>4 | .080<br>.080 | 1.225<br>1.355 | 1436<br>1850 |
| 2/0 | 3<br>4 | .080<br>.080 | 1.325<br>1.465 | 1750<br>2345 |
| 3/0 | 3<br>4 | .080<br>.080 | 1.435<br>1.585 | 2120<br>2750 |
| 4/0 | 3<br>4 | .080<br>.110 | 1.555<br>1.785 | 2610<br>3480 |
| 250 Kcmil | 3<br>4 | .110<br>.110 | 1.842<br>2.040 | 3246<br>4115 |
| 300 Kcmil | 3<br>4 | .110<br>.110 | 1.970<br>2.181 | 3802<br>4830 |
| 350 Kcmil | 3<br>4 | .110<br>.110 | 2.080<br>2.310 | 4360<br>5547 |
| 400 Kcmil | 3<br>4 | .110<br>.110 | 2.190<br>2.430 | 4920<br>6265 |
| 500 Kcmil | 3<br>4 | .110<br>.110 | 2.380<br>2.640 | 6005<br>7662 |



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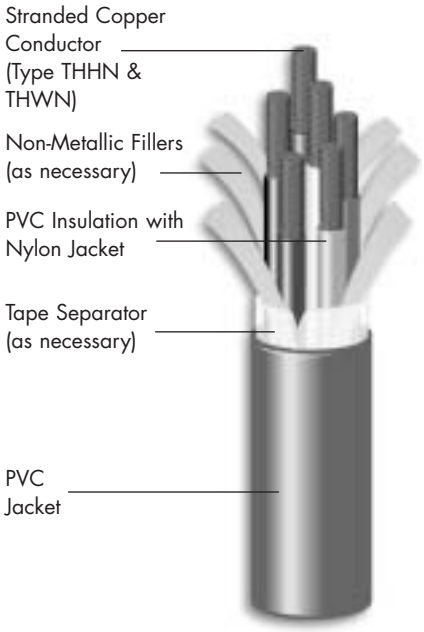


**ENGINEERING SPECIFICATIONS:**

**Standards:** Underwriters Laboratories UL-1277
National Electrical Code
Articles 336
ICEA S-73-532, ICEA Method 1
Color-coded

**Packaging:** Available in 1000' & 5000' Reels

**LISTED E-179429**

## Application:

Primarily used for connecting power devices in an industrial environment. Suitable for installation in channels, ducts, wireways, cable trays, and conduit. Approved for direct burial in wet or dry locations and outdoor in cable trays where a sunlight-resistant rating is required.

| Size AWG | No. of Conds. | Insulation Thickness PVC (inches) | Approximate Outside Diameter (inches) | Approximate Weight per mft (Lbs.) |
|---|---|---|---|---|
| 14 AWG | 2 | .045 | .230 x .340 | 58 |
| | 3 | .045 | .350 | 79 |
| | 4 | .045 | .380 | 99 |
| | 5 | .045 | .410 | 118 |
| | 6 | .045 | .450 | 139 |
| | 7 | .045 | .460 | 148 |
| | 8 | .045 | .490 | 178 |
| | 9 | .045 | .525 | 199 |
| | 10 | .045 | .600 | 238 |
| | 11 | .045 | .615 | 257 |
| | 12 | .045 | .620 | 275 |
| 12 AWG | 2 | .045 | .250 x .380 | 78 |
| | 3 | .045 | .390 | 101 |
| | 4 | .045 | .420 | 130 |
| | 5 | .045 | .470 | 162 |
| | 6 | .045 | .510 | 194 |
| | 7 | .045 | .540 | 220 |
| | 8 | .045 | .590 | 272 |
| | 9 | .045 | .630 | 304 |
| | 10 | .045 | .680 | 336 |
| | 11 | .045 | .700 | 365 |
| | 12 | .045 | .710 | 393 |
| 10 AWG | 2 | .045 | .260 x .430 | 115 |
| | 3 | .045 | .460 | 152 |
| | 4 | .045 | .500 | 207 |
| | 5 | .045 | .585 | 260 |
| | 6 | .045 | .650 | 320 |
| | 7 | .045 | .655 | 362 |
| | 8 | .045 | .705 | 412 |
| | 9 | .045 | .755 | 459 |
| | 10 | .045 | .820 | 512 |
| | 11 | .060 | .850 | 558 |
| | 12 | .060 | .855 | 572 |
| **Type TC – with Ground** | | | | |
| 12 AWG | 3 | .045 | .34 | 80 |
| 10 AWG | 3 | .045 | .47 | 194 |

*The above data is approximate and subject to normal manufacturing tolerances.*

## Construction:

### Conductors:

Bare, soft-annealed copper per ASTM B-3, B-8

### Conductors Insulation:

High dielectric strength, heat- and moisture-resistant, colored polyvinyl chloride (PVC) rated for continuous use at 90°C dry; 75°C wet to meet UL-83 requirements for type THHN or THWN wire.

### Assembly:

The insulated conductors are cabled together with or without fillers as required to form a round, compact core. A nylon rip cord is supplied for easy stripping.

### Color Coding:

Color-coded insulation with ICEA Method 1 with printed number.

### Overall Jacket:

Abrasion-, oil- and chemical-resistant and highly flame-retardant PVC jacket to meet UL-1277 standard.

### Print Legend:

E-179429 (SIZE) TYPE TC CABLE THHN OR THWN CDRS SUNLIGHT RESISTANT 600 VOLTS DIRECT-BURIAL (UL) DATE/TIME/OPER



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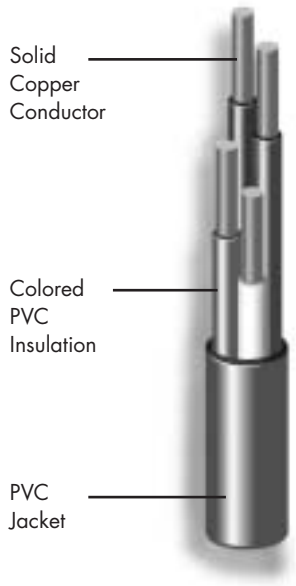
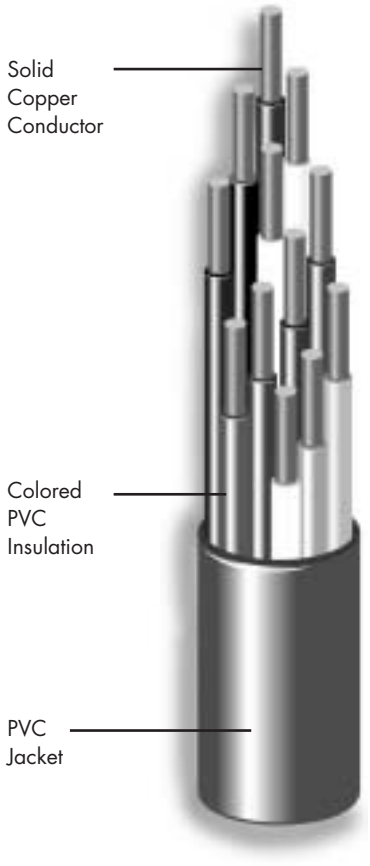



| AWG/No. Conductor CL2 | Conductor Strand | Nom. Insulation Thickness | | Nom. Jacket Thickness | | Nom. O.D. | | Standard Put-Up | Approx. Weight/M′ |
|---|---|---|---|---|---|---|---|---|---|
| | | Inches | mm | Inches | mm | Inches | mm | | |
| 18/2 | Solid | .006 | .15 | .014 | .35 | .132 | 3.35 | 500′rl. | 14 |
| 18/3 | Solid | .006 | .15 | .014 | .35 | .140 | 3.55 | 500′rl. | 20 |
| 18/4 | Solid | .006 | .15 | .014 | .35 | .154 | 3.91 | 250′rl. | 26 |
| 18/5 | Solid | .006 | .15 | .015 | .35 | .168 | 4.26 | 250′rl. | 32 |
| 18/6 | Solid | .006 | .15 | .015 | .35 | .184 | 4.67 | 250′rl. | 38 |
| 18/7 | Solid | .006 | .15 | .019 | .35 | .184 | 4.67 | 250′rl. | 45 |
| 18/8 | Solid | .006 | .15 | .019 | .35 | .200 | 5.08 | 250′rl. | 50 |
| 18/10 | Solid | .006 | .15 | .019 | .43 | .242 | 6.14 | 250′rl. | 66 |
| 18/12 | Solid | .006 | .15 | .017 | .43 | .250 | 6.35 | 250′rl. | 75 |

| AWG/No. Conductor CL2 | Conductor Strand | Nom. Insulation Thickness | | Nom. Jacket Thickness | | Nom. O.D. | | Standard Put-Up | Approx. Weight/M′ |
|---|---|---|---|---|---|---|---|---|---|
| | | Inches | mm | Inches | mm | Inches | mm | | |
| 20/2 | Solid | .006 | .15 | .014 | .35 | .114 | 2.89 | 500′rl. | 10 |
| 20/3 | Solid | .006 | .15 | .014 | .35 | .121 | 3.07 | 500′rl. | 13 |
| 20/4 | Solid | .006 | .15 | .014 | .35 | .132 | 3.35 | 250′rl. | 17 |
| 20/5 | Solid | .006 | .15 | .015 | .35 | .145 | 3.68 | 250′rl. | 21 |
| 20/6 | Solid | .006 | .15 | .015 | .35 | .158 | 4.01 | 250′rl. | 25 |
| 20/7 | Solid | .006 | .15 | .019 | .35 | .158 | 4.01 | 250′rl. | 29 |
| 20/8 | Solid | .006 | .15 | .019 | .35 | .171 | 4.34 | 250′rl. | 33 |
| 20/10 | Solid | .006 | .15 | .019 | .40 | .204 | 5.18 | 250′rl. | 40 |
| 20/12 | Solid | .006 | .15 | .017 | .40 | .211 | 5.35 | 250′rl. | 47 |




**Thermostat Conductor Color-Coding**

2 - Red, white
3 - Red, white, green
4 - Red, white, green, blue
5 - Red, white, green, blue, yellow
6 - Red, white, green, blue, yellow, brown
7 - Red, white, green, blue, yellow, brown, orange
8 - Red, white, green, blue, yellow, brown, orange, black
9 - Red, white, green, blue, yellow, brown, orange, black, pink
10 - Red, white, green, blue, yellow, brown, orange, black, pink, and grey
12 - Red, white, green, blue, yellow, brown, orange, black, pink, grey, purple and beige

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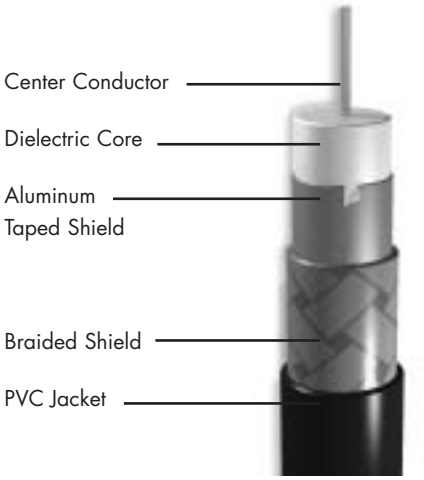


## RG-59/U

| Type | AWG | Shielding | Jacket OD | NOM IMP | Vel. of Prop. | (NOM) CAP PF/Ft. | Attenuation MHZ. db/100 Ft. | | Approx. Weight |
|---|---|---|---|---|---|---|---|---|---|
| RG-59/U | 22 Solid Bare Copper Clad Steel | 100% Aluminum Tape + 40% Aluminum Braid | Black PVC .242 | 75 ohms | 81% | 17.3 | 50<br>100<br>400<br>1000 | 2.0<br>2.9<br>5.6<br>9.3 | 1000' Reel - 26 lbs<br>1000' Box Pack - 24 lbs |


## RG-6/U

| Type | AWG | Shielding | Jacket OD | NOM IMP | Vel. of Prop. | (NOM) CAP PF/Ft. | Attenuation MHZ. db/100 Ft. | | Approx. Weight |
|---|---|---|---|---|---|---|---|---|---|
| RG-6/U | 18 Solid Bare Copper Clad Steel | 100% Bonded Aluminum + 60% Aluminum Braid | Black PVC .274 | 75 ohms | 81% | 17.0 | 100<br>400<br>1000 | 2.1<br>4.4<br>7.3 | 1000' Reel - 33 lbs<br>1000' Box Pack - 31 lbs |


## RG-6 Quad

| Type | AWG | Shielding | Jacket OD | NOM IMP | Vel. of Prop. | (NOM) CAP PF/Ft. | Attenuation MHZ. db/100 Ft. | | Approx. Weight |
|---|---|---|---|---|---|---|---|---|---|
| RG-6 Quad | 18 Solid Bare Copper Clad Steel | 100% Aluminum Tape 60% Aluminum Braided Shield 100% Aluminum Tape Shield 40% Aluminum Braided Shield | Black PVC .307 | 75 ohms | 80% | 16.3 | 100<br>400<br>1000 | 2.0<br>4.0<br>7.4 | 1000' Reel - 36 lbs<br>1000' Box Pack - 34 lbs |

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## Station Wire

| AWG/No. Conductor CL2 | Conductor Strand | Nom. Insulation Thickness Inches | Insulation Thickness mm | Nom. Jacket Thickness Inches | Jacket Thickness mm | Nominal O.D. Inches | Nominal O.D. mm | Nominal Cap @ 1kHz pF/FT | Cond. DCR @ 20c Max. Ohms/M′ | Impedance Ohms | Weight Per M′ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22/4 | Solid | .006 | .15 | .014 | .35 | .117 | 2.97 | 20 | 17 | 58 | 13 |
| 24/4 | Solid | .007 | .17 | .020 | .50 | .124 | 3.14 | 17 | 26 | 65 | 11 |

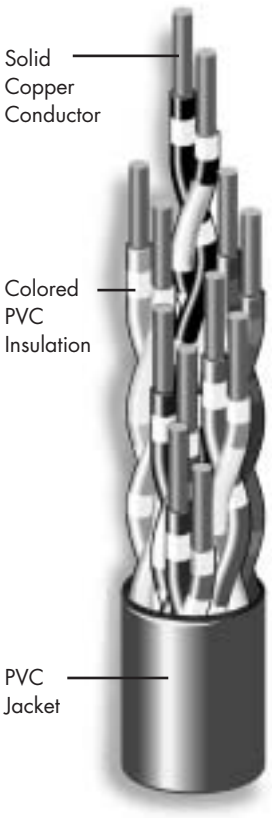
| No. of Conductors | Color |
|---|---|
| 1 | Red |
| 2 | Green |

| No. of Conductors | Color |
|---|---|
| 3 | Yellow |
| 4 | Black |

| Packaging: |
|---|
| 1000 ft. (305 m) Box |

**Application:**
Power limited circuit and communication cable for non-riser applications.

**Approvals:**
UL type CM/CL2-CMX Outdoor
NEC Article 725 and 800
C - UL Type CM/FT1




## Telephone Wire

| AWG/No. Conductor Cat 3 | Conductor Strand | Nom. Insulation Thickness Inches | Insulation Thickness mm | Nom. Jacket Thickness Inches | Jacket Thickness mm | Nominal O.D. Inches | Nominal O.D. mm | Mutual Capacitance Max pF/Ft | Cond. DCR Max. Ohms/M′ | Impedance Ohms ± 15% | Weight Per M′ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22/2 PR | Solid | .008 | .20 | .018 | .45 | .180 | 4.57 | 20.00 | 18.00 | 102 | 11 |
| 22/3 PR | Solid | .008 | .20 | .018 | .45 | .200 | 5.08 | 20.00 | 18.00 | 102 | 14 |
| 22/4 PR | Solid | .008 | .20 | .018 | .45 | .230 | 5.84 | 20.00 | 18.00 | 102 | 17 |
| 24/2 PR | Solid | .008 | .20 | .018 | .45 | .140 | 3.55 | 20.00 | 28.60 | 102 | 8 |
| 24/3 PR | Solid | .008 | .20 | .018 | .45 | .160 | 4.06 | 20.00 | 28.60 | 102 | 10 |
| 24/4 PR | Solid | .008 | .20 | .018 | .45 | .180 | 4.57 | 20.00 | 28.60 | 102 | 12 |
| 24/6 PR | Solid | .008 | .20 | .018 | .45 | .200 | 5.08 | 20.00 | 28.60 | 102 | 16 |

| Color Code Chart No. 1 | | | | |
|---|---|---|---|---|
| | Ring Conductor | | Tip Conductor | |
| PAIR | Insulation Color | Striped or Banded Marked | Insulation Color | Striped or Banded Marked |
| 1 | Blue | White | White | Blue |
| 2 | Orange | White | White | Orange |
| 3 | Green | White | White | Green |
| 4 | Brown | White | White | Brown |
| 5 | Slate | White | White | Slate |
| 6 | Red | Blue | Blue | Red |

| Packaging: |
|---|
| 1000 ft. (305 m) Box |

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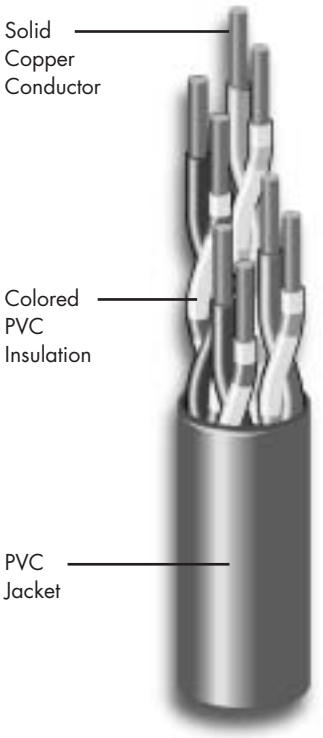


## Category 5E PVC

| No. of Pairs | Nom. AWG Conductor Size | Conductor Diameter | Nom. Insulation Thickness | Nom. Jacket Thickness | Nominal O.D. | Approx. Shipping Lbs./M.Ft |
|---|---|---|---|---|---|---|
| 4 | 24 | .0201 | .009 | .020 | .220 | 20 |

UL verified 4 pair 24 AWG. UL listed type CM/MP or CMR/MPR 60°C 300 volts, UL 444 ICEA 5-80-576. EIA/TIA 560, C5A FT4. 100 mb/s Data cable or any category 1,2,3 or 4 application. NEC art 800, TSB 36.NEMA low loss

**Insulation Colors:** 1-white/blue, blue
2- white/orange, orange
3- white/green, green
4- white/brown, brown

**Jacket Colors:** gray or blue
**Conductors:** 24 AWG bare copper
**Insulation:** poly-FR
**Jacket:** PVC

## Category 5E Plenum

| No. of Pairs | Nom. AWG Conductor Size | Conductor Diameter | Nom. Insulation Thickness | Nom. Jacket Thickness | Nominal O.D. | Approx. Shipping Lbs./M.Ft |
|---|---|---|---|---|---|---|
| 4 | 24 | .0201 | .007 | .015 | .180 | 20 |

UL verified 4 pair 24 AWG UL listed type CMP/MPP. UL 444 ICEA 5-80-576. EIA/TIA 568, C5A FT-6. 100mb/5 OATA cable or any category 1,2,3 or 4 application. NEC art 800, TSB 36 NEMA low loss. 60°C 300 volts.

**Insulation Colors:** 1- white/blue, blue
2- white/orange, orange
3- white/green, green
4- white/brown, brown

**Jacket Colors:** blue or natural
**Conductors:** 24 AWG bare copper
**Insulation:** FEP
**Jacket:** low smoke plenum

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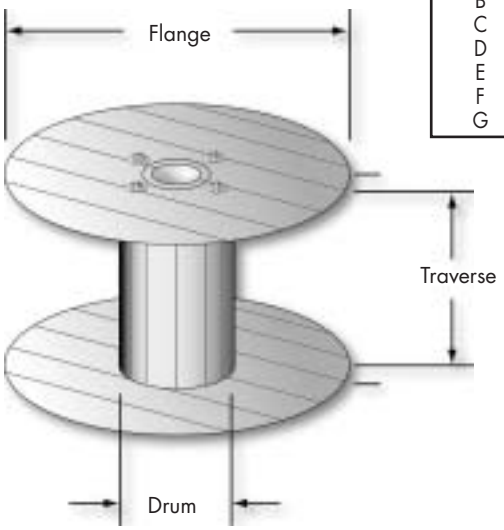


| | Flange | | Traverse | | Drum |
|---|---|---|---|---|---|
| A | 24 | x | 12 | x | 10 |
| B | 24 | x | 16 | x | 12 |
| C | 30 | x | 16 | x | 12 |
| D | 32 | x | 22 | x | 14 |
| E | 36 | x | 22 | x | 14 |
| F | 42 | x | 23 | x | 17 |
| G | 48 | x | 23 | x | 17 |

| Size | Length | THHN | XHHW | USE-2 |
|---|---|---|---|---|
| 6 AWG | 2,500 | A | A | B |
| 6 AWG | 5,000 | B | B | C |
| 4 AWG | 2,500 | B | B | B |
| 4 AWG | 5,000 | C | C | C |
| 3 AWG | 2,500 | B | B | C |
| 3 AWG | 5,000 | D | D | D |
| 2 AWG | 2,500 | C | C | C |
| 2 AWG | 5,000 | D | D | D |
| 1 AWG | 2,500 | C | C | C |
| 1 AWG | 5,000 | D | D | D |
| 1/0 | 2,500 | D | D | D |
| 1/0 | 5,000 | E | E | E |
| 2/0 | 2,500 | D | D | D |
| 2/0 | 5,000 | F | F | F |
| 3/0 | 2,500 | D | D | D |
| 3/0 | 5,000 | F | F | F |
| 4/0 | 2,500 | E | E | E |
| 4/0 | 5,000 | G | G | G |
| 250 KCMIL | 2,500 | E | E | E |
| 250 KCMIL | 4,000 | G | G | G |
| 300 KCMIL | 3,500 | G | G | G |
| 350 KCMIL | 3,000 | G | G | G |
| 400 KCMIL | 3,000 | G | G | G |
| 500 KCMIL | 2,500 | G | G | G |
| 600 KCMIL | 2,000 | G | G | G |
| 750 KCMIL | 1,500 | G | G | G |
| 1000 KCMIL | 1,000 | G | G | G |

## BUILDING WIRE TYPES

**MTW** Machine Tool Wire - Thermoplastic insullation (PVC), with or without nylon, 90°C dry locations

**NM-B** Non-metallic Sheathed Cable - Residential wire, THHN individual conductorswith an overall PVC jacket.

**RH** TYPE RH, A rubber- or XLP-insulated conductor for use at 75°C in dry locations

**RHH** TYPE RHH, A rubber- or XLP-insulated conductor for use at 90°C in dry locations

**RHW** TYPE RHW, A rubber- or XLP-insulated conductor for use at 75°C in dry and wet locations

**RHW-2** TYPE RHW-2, A rubber- or XLP-insulated conductor for use at 90°C in dry and wet locations

**RW-90** CSA designation for XHHW-2, cross-linked Polyethylene insulation (XLPE), 90°C rating in wet or dry locations

**SER** Service entrance round - THHN individual conductors with an overall PVC jacket.

**SEU** Service entrance unarmored - THHN individual conductors with an overall PVC jacket.

**T-90** CSA designation for THHN

**TC** Tray cable - THHN individual conductors with an overall PVC jacket.

**TEW** Canadian Standards Association type appliance wires

**TFFN** Fixture Wire, Thermoplastic insulation (PVC), flexible fixture wire, 90°C dry locations, Nylon jacket

**TFN** Thermoplastic insulation (PVC), flexible wire, 90°C dry locations, Nylon jacket

**THHN** Thermoplastic insulation (PVC), high heat resistant, 90°C rating, dry locations, Nylon jacket

**THWN-2** Thermoplastic insulation (PVC), high heat resistant, 90°C rating, wet locations, Nylon jacket

**UF-B** Underground feeder cable

**USE-2** Underground service entrance, cross-linked Polyethylene insulation (XLPE), direct burial, 90°C rating

**USE-2** Underground service entrance cable

**XHHW-2** Cross-linked Polyethylene insulation (XLPE), high heat resistant, 90°C rating, wet and dry locations

**S** Heavy duty, flexible, rubber-insulated and jacketed portable cord, 600V.

**SJ** SJ: Junior hard service, rubber-insulated pendant or portable cord. Same construction as type S, but 300V. Jacket thickness different.

**SJO** SJO: Same as SJ, but neoprene oil-resistant compound outer jacket. 300V, 60C.

**SJOOW** SJOOW: Same as type SJO, except oil-resistant insulation and oil- and weather-resistant jacket.

**SJT** SJT: Junior hard service thermoplastic or rubber-insulated conductors with overall thermoplastic jacket. 300V, 60C to 105C.

**SJTO** SJTO: Same as SJT but oil-resistant thermoplastic outer jacket. 60C.



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## ICEA Method 1

Uses solid colors with longitudinal or spiral stripes in accordance with ICEA Standard S-73-532 Table E-2.

| Conductor | Base Color | Stripe Color |
|---|---|---|
| 1 | Black | - |
| 2 | Red | - |
| 3 | Blue | - |
| 4 | Orange | - |
| 5 | Yellow | - |
| 6 | Brown | - |
| 7 | Red | Black |
| 8 | Blue | Black |
| 9 | Orange | Black |
| 10 | Yellow | Black |
| 11 | Brown | Black |
| 12 | Black | Red |
| 13 | Blue | Red |
| 14 | Orange | Red |
| 15 | Yellow | Red |
| 16 | Brown | Red |
| 17 | Black | Blue |
| 18 | Red | Blue |
| 19 | Orange | Blue |
| 20 | Yellow | Blue |
| 21 | Brown | Blue |
| 22 | Black | Orange |
| 23 | Red | Orange |
| 24 | Blue | Orange |
| 25 | Yellow | Orange |
| 26 | Brown | Orange |
| 27 | Black | Yellow |
| 28 | Red | Yellow |
| 29 | Blue | Yellow |
| 30 | Orange | Yellow |
| 31 | Brown | Yellow |
| 32 | Black | Brown |
| 33 | Red | Brown |
| 34 | Blue | Brown |
| 35 | Orange | Brown |
| 36 | Yellow | Brown |
| 37 | Black | - |

## ICEA Method 3

Uses solid colors with printed numbers and colors per IICEA Standard S-73-532 Table E-4.

| Conductor | Base Color | Printed |
|---|---|---|
| 1 | Black | 1-Black |
| 2 | Red | 2-Red |
| 3 | Blue | 3-Blue |
| 4 | Orange | 4-Orange |
| 5 | Yellow | 5-Yellow |
| 6 | Brown | 6-Brown |
| 7 | Red | 7-Red-Black |
| 8 | Blue | 8-Blue-Black |
| 9 | Orange | 9-Orange-Black |
| 10 | Yellow | 10-Yellow-Black |
| 11 | Brown | 11-Brown-Black |
| 12 | Black | 12-Black-Red |
| 13 | Blue | 13-Blue-Red |
| 14 | Orange | 14-Orange-Red |
| 15 | Yellow | 15-Yellow-Red |
| 16 | Brown | 16-Brown-Red |
| 17 | Black | 17-Black-Blue |
| 18 | Red | 18-Red-Blue |
| 19 | Orange | 19-Orange-Blue |
| 20 | Yellow | 20-Yellow-Blue |
| 21 | Brown | 21-Brown-Blue |
| 22 | Black | 22-Black-Orange |
| 23 | Red | 23-Red-Orange |
| 24 | Blue | 24-Blue-Orange |
| 25 | Yellow | 25-Yellow-Orange |
| 26 | Brown | 26-Brown-Orange |
| 27 | Black | 27-Black-Yellow |
| 28 | Red | 28-Red-Yellow |
| 29 | Blue | 29-Blue-Yellow |
| 30 | Orange | 30-Orange-Yellow |
| 31 | Brown | 31-Brown-Yellow |
| 32 | Black | 32-Black-Brown |
| 33 | Red | 33-Red-Brown |
| 34 | Blue | 34-Blue-Brown |
| 35 | Orange | 35-Orange-Brown |
| 36 | Yellow | 36-Yellow-Brown |
| 37 | Black | 37-Black |

## ICEA Method 4

Black insulation with printed color code per IICEA Standard S-73-532 Table E-4.

| Conductor | Base Color | Stripe Color |
|---|---|---|
| 1 | Black | 1 |
| 2 | Black | 2 |
| 3 | Black | 3 |
| 4 | Black | 4 |



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Studies have shown that cable failures are often due to damage caused during the installation. The recommended practices detailed below are based on information compiled from field studies and experience installing electrical conductors that are recognized by applicable codes and standards. These recommendations are intended to optimize the cable life.

Cables must not be installed below the minimum installation temperature without warming the cables. When installing in cold weather, cables should be stored in a heated environment for a period of at least 24 hours prior to the installation.

**Minimum Installation Temperature Guidelines**

| Jacket/Insulation Type | Minimum Installation Temperature | |
|---|---|---|
| PVC | -10°C | 14°F |
| XLPE | -40°C | -40°F |

## Guidelines for Installing Conductors in Cable Tray or Raceways

Before installation, be sure the raceway or conduit is sized in accordance with the requirements of the National Electric Code (NEC). Care should be taken to ensure that no sharp edges exist to protrude the cable's insulation as it being installed. It is essential to run a clean-out brush through the conduit to remove or loosen up any burrs. When finished, pull a swab through to clean out foreign objects.

When installing cables in wet underground locations, the cable ends must be sealed to prevent entry of moisture into the conductor strands. These seals should be left intact or remade after pulling if disrupted, until splicing, terminating, or testing is to be done. This practice is recommended to avoid unnecessary corrosion of the conductors and to safeguard against entry of moisture into the conductor strands, which would generate steam under overload, emergency loadings, or short-circuit conditions after the cable is energized.

Another important consideration is to not exceed the maximum allowable tensile strength or the maximum bending radius of the cable. The force required for pulling a given length can be reduced by the application of a pulling compound on cables in conduit and the use of rollers in cable trays

### A. Maximum Pulling Tension on a Cable

The maximum tension should not exceed .008 times of the circular mil area when pulled with a pulling eye attached to the copper conductor.

***Formula:*** Tm = .008 x N x CM

Where: Tm = max pulling tension, (lbs.)
N = number of conductors being pulled
CM = circular mill area of each conductor

### B. Maximum Permissible Pulling Length

The maximum length of cable that can safely be pulled through conduit is calculated as shown below.

***Formula:*** Lm = Tm / (W x C)

Where: Lm = maximum pulling length, feet
Tm = maximum tension, lbs.
W = weight of cable per foot, lbs
C = coefficient of friction (usually .5)

### C. Minimum Bending Radius:

The Minimum bending radii for both single and multiple conductor cable with or without lead sheath and without metallic shielding are as follows:

| Thickness of Conductor Insulation (inches) | Overall Diameter of Cable | | |
|---|---|---|---|
| | Inches 1.000 & less | Inches 1.001 - 2.000 | Inches 2.001 & over |
| | Minimum bending radius as a multiple of cable diameter | | |
| .169 & less | 4 | 5 | 6 |
| .170 & larger | 5 | 6 | 7 |

*The information presented here is, to the best of our knowledge, true and accurate. However, since conditions of use are beyond our control, all recommendations or suggestions are presented without guarantee or responsibility on our part. We disclaim all liability in connection with the use of information contained herein or otherwise.*

**AL**: The chemical symbol for aluminum.

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

**Accelerated Life Test**: An accelerated life test is a test in which certain factors such as voltage, temperature, etc., to which a cable is subjected, are increased in magnitude above normal operating values to obtain observable deterioration in a reasonable period and thereby afford some measure of the probable cable life under operating voltage, temperature, etc.

**A.C. Resistance**: The total resistance offered by a device in an alternating current circuit due to inductive and capacitive effects, as well as the direct current resistance.

**Active Current**: In an alternating current, a component in phase with the voltage; the working component as distinguished from the idle or watt-less component.

**Active Pressure**: In an A.C. circuit, the pressure that produces a current, as distinguished from the voltage impressed upon the circuit.

**Adhesion**: The state in which two surfaces are held together by interfacial forces, which may be chemical or mechanical in nature.

**Aging**: The irreversible change in properties or appearance of a material with time and under specific conditions (usually accelerated representations of environmental states, such as high temperature, oxygen, or other various conditions).

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

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

**Alternating Voltage**: The voltage developed across a resistance or impedance through which alternating current is flowing.

**Ambient Temperature**: Any all-encompassing temperature within a given area.

**American Wire Gauge**: A standard used in the determination of the physical size of a conductor determined by its circular mil area. Usually expressed as AWG.

**Ampacity**: The maximum current an insulated wire or cable can safely carry without exceeding either the insulation or jacket material limitations. (Same as Current Carrying Ampacity.)

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

**Ampere's Law**: The magnetic intensity at any point near a current carrying conductor can be computed on the assumption that each infinitesimal length of the conductor produces at the point of an infinitesimal magnetic density. The resulting magnetic intensity at the point is the vector sum of the contributions of all the elements of the conductor.

**Anneal**: The process of controlled heating and cooling of a metal to achieve predetermined characteristics as to tensile strength and elongation. Annealing copper renders it less brittle.

**ANSI**: The American National Standards Institute.

**Appliance Wire and Cable**: Appliance wiring material is a classification of Underwriters Laboratories, Inc., covering insulated wire and cable intended for internal wiring of appliances and equipment.

**Area of Conductor**: The size of a conductor cross-section, measured in circular mils, square inches, etc.

**ASA**: The American Standards Association. Former name of ANSI.

**ASME**: The American Society of Mechanical Engineers.

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

**AWG**: Abbreviation for American Wire Gauge. A standard system used in the United States for designating the size of an electrical conductor based on a geometric progression between two conductor sizes. Based on a circular mil system. 1 mil equals .001 inch.

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

**Balanced Circuit**: A circuit so arranged that the impressed voltages on each conductor of the pair are equal in magnitude but opposite in polarity with respect to ground.

**Bare Conductor**: A conductor having no covering. A conductor with no coating or cladding on the copper.

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

**Breakdown of Insulation**: Failure of an insulation resulting in a flow of current through the insulation. It may be caused by the application of too high voltage or by defects or decay.

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

**Breakout**: The point at which a conductor or group of conductors breaks out from a multi-conductor cable to complete circuits at various points along the main cable.

**Break Wire**: Wires used in the manufacture of both home and truck trailers to supply current to the electrical brake system.

**B. & S.**: Abbreviation for Brown & Sharpe Wire Gauge. Same as American Wire Gauge.

**Building Wire**: Wire used for light and power, 600 volts or less, usually not exposed to outdoor environment.

**Bunch Stranding**: A group of wires of the same diameter twisted together without a predetermined pattern.

**Buried Cable**: A cable installed directly in the earth without use of underground conduit. Also called "direct burial cable."

**Bus**: Wire used to connect two terminals inside of an electrical unit.

**Butt**: Joining of two conductors end-to end, with no overlap and with the axes in line.

**Butt Splice**: A splice wherein two wires from opposite ends butt against each other, or against a stop, in the center of a splice.

**C**: Degrees Celsius.

**Cable**: A group of individually insulated conductors in twisted or parallel configuration, with or without an overall covering.

**Cable Assembly**: A completed cable and its associated hardware ready to install.

**Cable Filler**: The material used in multiple conductor cables to occupy the spaces formed by the assembly of components, thus forming a core of the desired shape (normally cylindrical.)

**Cabling**: The twisting together of two or more insulated conductors to form a cable.

**Capacitance**: Storage of electrically separated charges between two plates having different potentials. The value depends largely on the surface area of the plates and the distance between them.

**Certificate of Compliance (C of C)**: A certificate that shows that the product being shipped meets customer's specifications.

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

**Charge**: The quantity of electricity held statically in a condenser or on an insulated conductor.

**Charging Current**: The current produced when a DC voltage is first applied to conductors of an un-terminated cable. It is caused by the capacitive reactance of the cable, and decreases exponentially with time.

**Circuit**: The complete path through which a current flows or part of the complete path, such as one conductor. A popular term for building wire sizes 14 through 10 AWG.

**Circular Mil**: The area of a circle one mil (.001") in diameter, 7.845 x 10-7 sq. in. Used in expressing wire cross-sectional area.

**Coating**: A material applied to the surface of a conductor to prevent environmental deterioration, facilitate soldering, or improve electrical performance.

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

**Cold Test**: Any test to determine the performance of cables during or after subjection to a specified low temperature for a specified time.

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

**Combination Unilay**: A stranding configuration that uses two strand sizes to achieve a 3% reduction in the conductor diameter without compression.

**Compact Stranded Conductor**: A unidirectional or conventional conductor manufactured to a specified diameter, approximately 8 to 10% below the nominal diameter of a non-compact conductor of the same cross-sectional area.

**Compatibility**: The ability of dissimilar materials to exist in mutual proximity or contact without changing their physical or electrical properties.

**Compressed Stranding**: A stranding configuration with concentric strands, in which either all layers or the outer layer only is passed through a die to reduce the conductor diameter by 3%.

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

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

**Concentricity**: In a wire or cable, the measurement of the location of the center of the conductor with respect to the geometric center of the surrounding insulation.

**Conductivity**: The capability 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.

**Conduit**: A channel for holding and protecting conductors and cables made of metal or an insulating material, usually circular in cross section, as in pipe.

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

**Contact:** The part of a connector that actually carries the electrical current and that is touched together or separated to control the flow.

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

**Continuous Vulcanization**: Simultaneous extrusion and vulcanization of rubber-like wires in a cable.

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

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

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

**Corrosion**: The deterioration of a material by chemical reaction or galvanic action.

**CPE**: Jacketing compound based on chlorinated polyethylene.

**Cross-Linked Polyethylene (XLP)**: Intermolecular bonds between long chain thermoplastic polymers by means of chemical or electron bombardment. The properties of the resulting thermosetting material are usually improved.



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**Cross-Sectional Area**: The area of a conductor exposed by cutting the conductor perpendicular to its longitudinal plane, expressed in circular mils, square inches, or square millimeters.

**Crosstalk**: Signal interference between nearby conductors caused by pickup of stray energy. It is also called induced interference.

**C.S.A.**: Abbreviation for Canadian Standards Association. The Canadian counterpart of the Underwriters Laboratories.

**Cu**: The chemical symbol for copper.

**Current**: The rate of flow of electricity in a circuit, measured in amperes.

**Current-Carrying Capacity**: The maximum current an insulated conductor or cable can continuously carry without exceeding its temperature rating. It is also called ampacity.

**Cut-Through**: Resistance of solid material to penetration by an object under conditions of pressure, temperature, etc.

**CV (Continuous Vulcanization)**: Simultaneous extrusion and vulcanization of wire coating materials.

**Cycle**: The complete sequence of alteration or reversal of the flow of an alternating electric current.

**Damp Location**: An outdoor location that is partially protected from weather or an indoor location subject to a moderate degree of moisture, such as a barn or basement.

**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.

**Die**: A device used in the drawing of the wire; that element through which the wire is drawn to achieve a predetermined diameter. A mold used to form the plastic compound around a wire or cable.

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

**Dielectric Absorption**: That property of an imperfect dielectric whereby there is an accumulation of electric charges within the body of the material when it is placed in an electric field.

**Dielectric Breakdown**: The voltage at which a dielectric material is punctured, which is divisible by thickness to give dielectric strength.

**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.

**Dielectric Strength**: The voltage that 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.

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

**Direct Capacitance**: The capacitance measured directly from conductor to conductor through a single insulating layer.

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

**Direct Current Resistance. (D.C.R.)**: The resistance offered by any circuit to the flow of direct current.

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

**Duct**: An underground or overhead tube for carrying electrical conductors.

**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.

**EIA**: Abbreviation for Electronic Industries Association.

**Elastomer**: An elastic, rubber-like substance.

**Elongation**: The amount that a conductor can stretch before breaking when a pulling force is applied.

**Embossing**: A marker identification by means of thermal indentation leaving raised lettering on the sheath material of cable.

**Emergency Overload**: Load that occurs when larger than normal currents are carried through a cable or wire over a certain period.

**Ends**: In braiding, the number of essentially parallel wires or threads on a carrier.

**Energize**: To apply rated voltage to a circuit or device in order to activate it.

**Equilay**: More than one layer of helically laid wires with the direction of lay reversed for successive layers, both with the length of lay the same for each layer.

**Ethylene Propylene Rubber (EPR)**: An ozone-resistant rubber consisting primarily of ethylene propylene copolymer (EPM) or ethylene propylene diene terpolymer (EPDM).

**Extrusion**: The process of continuously forcing both a plastic or elastomer and a conductor core through a die, thereby applying a continuous coating of insulation or jacket to the core or conductor.

**Feeder**: The circuit conductor between the service equipment and the final branch circuit over current device.

**Fiber**: A thread or thread-like structure. Also, a single discrete element used to transmit optical (light wave) information.

**Fiber Optics**: A light wave or optical communications system in which electrical information is converted to light energy, transmitted to another location through optical fibers, and is there converted back into electrical information.

**Field**: Area through which pass electric and/or magnetic lines of force.

**Filled Cable**: A telephone cable construction in which the cable core is filled with a material that will prevent moisture 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 or decrease cost.

**Film**: A thin plastic sheet.

**Fixture Wire**: A conductor used in lighting or similar equipment or used to connect a lighting fixture to branch circuit conductors. Common types include TF, TFN, and TFFN.

**Flame Resistance**: The ability of a material to restrict the spread of combustion to a low rate of travel, so that the flame will not be conveyed.

**Flame Retardant**: A chemical added to insulation materials to make them less combustible, such as antimony oxide (to PVC) or alumna trihydrate.

**Flammability**: The measure of the material's ability to support combustion.

**Flammability Test**: A test to determine the ability of a cable to resist ignition when placed near a source of heat or flame and to self-extinguish when removed from this source.

**Flat Cable**: A cable with two smooth or corrugated, but essentially flat, surfaces.

**Flat Conductor**: A wire having a rectangular cross-section, as opposed to round or square conductors.

**Flat Conductor Cable**: A cable with a plurality of flat conductors.

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

**Flexible**: That quality of a cable or cable component that allows for bending under the influence of outside force, as opposed to limpness which is bending due to the cable's own weight.

**Flexibility**: The ease with which a cable may be bent.

**FPM**: Feet per minute.

**FT-1**: A flammability rating established by Underwriters Laboratories for wires and cables that pass a specially designed vertical flame test. This designation has been replaced by VW-1.

**Frequency**: Number of times an alternating current reverses itself in one second. Expressed in Hertz (Hz), which is one cycle per second.

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

**Ground**: 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.

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

**Harness**: An arrangement of wires and cables, usually with many breakouts, which have been pulled together or pulled into a rubber or plastic sheath, used to interconnect an electric circuit.

**Hash Mark Stripe**: A non-continuous helical stripe applied to a conductor for identification.

**Heat Distortion**: Distortion or flow of a material or configuration due to application of heat.

**Heat Endurance**: The time of heat aging that a material can withstand before failing a specific physical or electrical test.

**Heat Resistance**: Ability of a substance to maintain physical and chemical identity and electrical integrity under specified temperature conditions.

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

**Helical Stripe**: A continuous, colored spiral stripe applied to a conductor for circuit identification.

**Hertz (Hz)**: A term that has replaced cycles-per-second as a unit of frequency.

**Hi Pot**: A test designed to determine the highest voltage that can be applied to a conductor without electrically breaking down the insulation.

**High Voltage**: Generally, a wire or cable with an operating voltage of over 35,000 volts.

**Hook-Up Wire**: A single insulated conductor used for low current, low voltage (usually under 600 volts) applications within enclosed electronic equipment.

**Hz**: Abbreviation for hertz.

**ICEA**: Insulated Cable Engineers Association (formerly IPCEA).

**IEC**: International Electro-technical Commission, similar to the ISO in structure and scope.

**IEEE**: Institute of Electrical and Electronics Engineers.

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

**Induced Current**: An electric current set up in a circuit by cutting lines of force; a current caused by electromagnetic induction.

**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 high resistance to the flow of electric current. Often called a dielectric in radio frequency cable.

**Insulation Level-100%**: Cable for use on grounded systems or where the system is provided with relay protection such that ground faults will be cleared as rapidly as possible but in any case within one minute.



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**Insulation Level-133%**: Cable for use on grounded systems or where the faulted section will be de-energized in a time not exceeding one hour.

**Insulation Resistance (I.R.)**: That resistance offered by insulation to an impressed DC voltage, tending to produce a leakage current through the insulation.

**Insulation Thickness**: The wall thickness of the applied insulation.

**ISO**: International Standards Organization.

**Jacket**: An outer covering, usually nonmetallic, mainly used for protection against the environment.

**Jumper Cable**: A short flat cable interconnecting two wiring boards or devices.

**Kcmil**: 1,000 circular mils.

**Kilo**: A numerical prefix denoting 1000.

**KV**: Kilovolt (1000 volts).

**KVA**: Kilovolt ampere.

**KW**: Kilowatt.

**Lay**: The axial distance required for one cabled conductor or conductor strand to complete one revolution about the axis around which it is cabled.

**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."

**Leaching and Non-Leaching**: In a leaching wire, the plasticizer will migrate when exposed to heat. A non-leaching wire will retain its plasticizer under extreme temperature conditions and remain flexible after baking.

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

**Life Cycle**: A test to determine the length of time before failure in a controlled, usually accelerated, environment.

**Listed**: Conductors or other equipment included in a list published by a nationally recognized testing laboratory.

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

**Longitudinal Wrap**: Tape applied longitudinally with the axis of the core being shielded.

**MC Metal-Clad Cable**: NEC type designation for power and control cables enclosed in a smooth metallic sheath, welded and corrugated metallic sheath, or interlocking tape armor.

**MCM**: One thousand circular mils.

**Megohm**: One million ohms.

**Megohmmeter**: A testing device that applies a DC voltage to a conductor and measures the resistance (in millions of ohms) offered by the conductor's insulation.

**Member**: A group of insulated wires to be cabled with other stranded groups into multiple-membered cable.

**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.

**Metal-Clad Cable**: Type MC; a multi-conductor cable, similar to type AC, in which the conductors are twisted together under aluminum or steel armor. With or without an overall PVC covering.

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

**Mhz**: Megahertz (one million cycles per second). Formerly mc.

**Mil**: A unit used in measured diameter of a wire or thickness of insulation over a conductor. One one-thousandth of an inch (.001").

**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.

**Monomer**: The basic chemical unit used in building a polymer.

**MTW**: Thermoplastic-insulated machine tool wire. 90C to 105C, 600V.

**Multi-conductor**: More than one conductor within a single cable complex.

**Mutual Capacitance**: Capacitance between two conductors when all other conductors, including ground, are connected together and then regarded as an ignored ground.

**Mylar**: DuPont trademark for a polyester material used in the form of a tape.

**National Electric Code (NEC)**: A consensus standard published by the National Fire Protection Association (NFPA) and incorporated in OSHA regulations.

**NBFU**: National Bureau of Fire Underwriters.

**NBS**: National Bureau of Standards.

**NEC**: National Electrical Code.

**NEMA**: National Electrical Manufacturers Association.

**NFPA**: National Fire Protection Association.

**NM-B**: Type NM, Nonmetallic Sheathed Cable. A cable assembly consisting of insulated conductors jacketed with a nonmetallic material (usually PVC).

**Nominal O.D.**: The desired diameter for a cable that is established within a +/- tolerance.



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**Non-Contaminating PVC**: A polyvinyl chloride formulation that does not produce electrical contamination through plasticizer migration.

**Nylon**: A group of polyamide polymers that are used for wire and cable jacket.

**O.D.**: Outside diameter.

**Off-Center**: Conductor displaced within the cross-section of its insulation.

**Ohm**: Unit of resistance such that a constant current of one ampere produces a force of one volt.

**Oil Aging**: Cable aged in an accelerated manner by placement in an oil bath and heated to a pre-set temperature for a stated time.

**Oil Resistance**: The ability of a conductor or cable insulation to resist physical degradation caused by exposure to oil.

**OSHA**: Abbreviation for Occupational Safety and Health Act. Specifically the Williams-Steiger law passed in 1970 covering all factors relating to safety in places of employment.

**Overall Diameter**: Finished diameter over wire and cable.

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

**Oxidation**: The process of uniting a compound with oxygen, usually resulting in an unwanted surface degradation of the material or compound.

**Pair**: Two insulated wires of a single circuit associated together.

**Pairing**: The union of two insulated single conductors through twisting.

**Parallel Cable**: Two insulated conductors side-by-side in a cable.

**Pay-Off**: The process of feeding a cable or wire from a bobbin, reel, or other packages. In addition, a device used for paying out wire or cable into a piece of equipment or machinery.

**Peak Voltage**: The maximum instantaneous voltage.

**Percent Conductivity**: Conductivity of a material expressed as a percentage of that of copper.

**Pigment**: A chemical added to the insulation compounds to impart color for circuit identification.

**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.

**Polyester**: Polyethylene terephthalate that is used extensively in the production of a high-strength, moisture-resistant film used as a cable core wrap.

**Polyethylene**: A thermoplastic material having the chemical identity of polymerized ethylene.

**Polymer**: A substance made of many repeating chemical units or molecules. The term polymer is often used in place of plastic, rubber, or elastomer.

**Polypropylene**: A thermoplastic polymer of propylene.

**Polyvinyl Chloride (PVC)**: A thermoplastic material composed of polymers of vinyl chloride, which may be rigid or elastomeric, depending on specific formulation.

**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 an angle between the voltage applied and the current resulting.

**PPE**: Portable Power Elastomer. Same as Type W, except that it is a thermoplastic elastomer insulation and jacket, whereas Type W is all thermoset.

**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 into or from a duct.

**Pulse Cable**: A type of coaxial cable constructed to transmit repeated high-voltage pulses without degradation.

**Put-up**: Refers to packaging of wire & cable, the term itself refers to the packaged product that is ready to be stored or shipped.

**PVC**: Polyvinyl chloride, a common thermoplastic insulation and jacketing material for building wire & cable.

**Quad**: A four-conductor cable.

**Rated Temperature**: The maximum temperature at which an electric component can operate for extended periods without loss of its basic properties.

**Rated Voltage**: The maximum voltage at which an electric component can operate for extended periods without undue degradation or safety hazard.

**Registration**: Alignment of one object with relation to another. Also called Register.

**Reinforcement**: A material used to reinforce, strengthen, or give dimensional stability to another material.

**Resin**: An organic substance of natural or synthetic origin characterized by being polymeric in structure and predominantly amorphous. Most resins, though not all, are of high molecular weight and consist of long chain or network molecular structure.

**Resistance**: In DC circuits, the opposition a material offers to current, measured in ohms. In AC circuits, resistance is the real component of impedance, and may be higher than the value measured at DC.

**RH**: Type RH, a rubber- or XLP-insulated conductor for use at 75°C in dry locations.

**RHH**: Type RHH, a rubber- or XLP-insulated conductor for use at 90°C in dry locations.

**RHW**: Type RHW, a rubber- or XLP-insulated conductor for use at 75°C in dry and wet locations.



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**RHW-2**: Type RHW-2, a rubber- or XLP-insulated conductor for use at 90°C in dry and wet locations.

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

**Ringing Out**: The process of locating or identifying specific conductive paths by means of passing current through selected conductors.

**RMS or rms**: Abbreviation for Root Mean Square.

**Rockwell Hardness**: A test for determining hardness in which a hardened steel ball or diamond point is pressed into the material under test.

**Rope Lay Conductor**: A conductor composed of a central core surrounded by one or more layers of helically laid groups of wire.

**Rope Strand**: A conductor composed of a center group of twisted strands surrounded by layers of twisted strands.

**Round Conductor**: A conductor whose cross-section is substantially circular.

**Rupture:** In breaking strength or tensile strength tests, the point at which the material physically comes apart, as opposed to elongation, yield strength, etc.

**S**: Heavy duty, flexible, rubber-insulated and jacketed portable cord, 600V.

**SAE**: Abbreviation for Society of Automotive Engineers.

**Secondary Insulation**: A high-resistance dielectric material that is placed over primary insulation to protect it from abrasion.

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

**Semi-Conducting Tape**: A tape of such resistance that when applied between two elements of a cable, the adjacent surfaces of the two elements will maintain substantially the same potential.

**Separator**: A layer of insulating material such as textile, paper, polyester, etc. Used to improve stripping qualities, flexibility, mechanical, or electrical protection to the components.

**Sheath:** The outer covering or jacket of a multi-conductor cable.

**Shield**: A metallic layer placed around a conductor or group of conductors to prevent electrostatic interference between the enclosed wires and external fields.

**Shock Test**: A test to determine the ability of a cable to withstand a violent physical concussion such as might occur during handling or use.

**Shore Hardness**: An instrument measure of the surface hardness of an insulating or jacket material.

**SIS**: Indicates single conductor having synthetic thermosetting insulation of heat-resistant, moisture-resistant, flame-retarding grade. Also made with chemically cross-linked polyethylene insulation. Used for switchboard wiring only, 90C.

**SJ**: Junior hard service, rubber-insulated pendant or portable cord. Same construction as type S, but 300V. Jacket thickness different.

**SJO**: Same as SJ, but neoprene, oil-resistant compound outer jacket. 300V, 60C.

**SJOOW**: Same as type SJO, except oil-resistant insulation and oil-and-weather-resistant jacket.

**SJT**: Junior hard service, thermoplastic- or rubber-insulated conductors with overall thermoplastic jacket. 300V, 60C to 105C.

**SJTO**: Same as SJT, but oil-resistant thermoplastic outer jacket. 60C.

**Skin Effect**: The tendency of alternating current, as its frequency increases, to travel only on the surface of a conductor.

**SO**: Hard service cord, same construction as type S, except oil-resistant neoprene jacket. 600V, 60C to 90C.

**Solid Conductor**: A single unit not divided into parts.

**SOOW**: Service cord with oil-resistant jacket, oil-resistant insulation, and weather-resistant. Also is water-resistant. 600V.

**SOW**: Water-resistant, neoprene-jacketed portable cord (UL/CSA).

**Spacing**: Distance between the closest edges to two adjacent conductors.

**Spark Test**: A test designed to locate imperfections (usually pin-holes) in the insulation of a wire or cable by application of a 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.

**Spiral Wrap**: The helical wrap of a material over a core.

**ST**: Hard service cord, jacketed, same as type S, except all-plastic construction. 600V, 60C to 105C.

**Stabilizer**: A metallic compound added to PVC to maintain the integrity of the insulation compound during processing and use.

**STO**: Same as ST, but with oil-resistant, thermoplastic outer jacket. 600V, 60C.

**STOO**: Same as STO, but with oil-resistant insulation.

**STOW/STOW**: Service cord with oil-resistant, Thermoplastic jacket, and weather-resistant. STOW meets CSA approval for outdoor use. Can be water-resistant.UL 600V.

**STW/STW**: Service cord with Thermoplastic and weather-resistant jacket, but not oil-resistant. Can be UL water-resistant. STW meets CSA approval for outdoor use. 600V.

**Strand**: A single uninsulated wire.

**Stranded Conductor**: A conductor composed of individual groups of wires twisted together to form an entire unit.



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**Sunlight Resistance**: The ability of a conductor or cable insulation to resist degradation caused by exposure to ultraviolet rays.

**Take-Up**: The process of accumulating wire or cable onto a reel, bobbin, or some other type of pack. Also, the device for pulling wire or cable through a piece of equipment or machine.

**Tank Test**: A voltage dielectric test in which the test sample is submerged in water, and voltage is applied between the conductor and water as ground.

**Tape Wrap**: A spirally applied tape over an insulated or uninsulated wire.

**TC**: Tray cable.

**Tear Strength**: The force required to initiate or continue a tear in a material under specified conditions.

**Temperature Rating**: The maximum temperature at which an insulating material may be used in continuous operation without loss of its basic properties.

**Tensile Strength**: The pull stress required to break a given specimen.

**Terminals**: Metal wire termination devices designed to handle one or more conductors and to be attached to a board, bus, or block with mechanical fasteners or to be clipped on.

**Test Lead**: A flexible insulated lead wire used for making tests, connecting instruments to a circuit temporarily, or for making temporary electrical connections.

**TEW**: Canadian Standards Association type appliance wires. Solid or stranded single conductor, plastic-insulated. 600V, 105C.

**TFFN**: Fixture wire; thermoplastic-covered, stranded with a nylon sheath. 90C.

**Thermal Aging**: Exposure to a thermal condition or programmed series of conditions for pre-described periods.

**Thermal Rating**: The maximum and/or minimum temperature at which a material will perform its function without undue degradation.

**Thermal Shock**: A test to determine the ability of a material to withstand heat and cold by subjecting it to rapid and wide changes in temperature.

**Thermocouple**: A device consisting of two dissimilar metals in physical contact, which when heated will develop an emf output.

**Thermoplastic**: A material that softens when heated and becomes firm on cooling.

**Thermoset**: A material that hardens or sets by heat, chemical, or radiation cross-linking techniques and that, once set, cannot be resoftened by heating.

**THHN**: 90C, 600 volt, nylon-jacketed building wire for dry and damp locations.

**THHN-2**: Incorrect reference, commonly misapplied when THWN-2 is called out.

**THW**: Thermoplastic vinyl-insulated building wire. Flame-retardant, moisture- and heat-resistant. 75C. Dry and wet locations.

**THWN**: 75C, 600 volt, nylon-jacketed building wire for dry or wet locations.

**THWN-2**: 90C, 600 volt, nylon-jacketed building wire for dry or wet locations.

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

**Tinsel**: A type of electrical conductor comprised of a number of tiny threads, each thread having a fine, flat ribbon of copper or other metal closely spiraled about it. Used for small-size cables requiring limpness and extra-long flex life.

**Tray**: A cable tray 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.

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

**Tubing**: A tube of extruded non-supported plastic or metallic material.

**Twisted Pair**: A twisted pair is composed of two small separately insulated wires twisted together without a common covering.

**UF**: Thermoplastic underground feeder and branch circuit cable.

**UL**: Abbreviation for Underwriters Laboratories, a nonprofit independent organization that operates a listing service for electrical and electronic materials and equipment.

**Unidirectional Concentric Stranding**: A stranding where each successive layer has a different lay length, thereby retaining a circular form without migration of strands from one layer to another.

**Unidirectional Stranding**: A term denoting that in a stranded conductor all layers have the same direction of lay.

**Unilay**: More than one layer of helically laid wires with the direction of lay and length of lay the same for all layers.

**USE**: Underground Service Entrance cable, rubber-insulated, neoprene or XLP jacketed.

**Valley**: Any void between the insulated conductors of a cable or between a cable core and its covering.

**Volt**: A unit of electrical pressure. One volt is the amount of pressure that will cause one ampere of current in one ohm of resistance.

**Voltage**: Electrical potential or electromotive force expressed in volts.

**Voltage Drop**: The amount of voltage loss from original input in a conductor of given size and length or over a connection such as a termination.



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**Voltage Levels**: Power-Limited 0-300 volts, Low Voltage 600-2000 volts, Medium Voltage 5000-69000 volts.

**Voltage Rating**: The highest voltage that may be continuously applied to a wire in conformance with standards or specifications.

**Volume Resistively (Specific Insulation Resistance)**: The electrical resistance between opposite faces of a 1-cm cube of insulating material, commonly expressed in ohms/centimeter.

**Vulcanization**: An irreversible process during which a rubber or polymeric compound, through a change in its chemical structure (for example, cross linking), become thermoset.

**VW-1**: A flammability rating established by Underwriters Laboratories for wires and cables that pass a specially designated vertical flame test, formerly designated FR-1. Multi-conductor flat or round portable power cables without grounding conductor.

**Wall Thickness**: The thickness of the applied insulation or jacket.

**Water Absorption**: Water by percent weight absorbed by a material after a given immersion period.

**Watt**: A unit of electrical power. One watt is equivalent to the power represented by one ampere of current under a pressure of one volt in a DC circuit.

**Wire**: A single conductor, typically with a covering of insulation.

**Wire Gauge**: A measure of the diameter or size of wires. The sizes are expressed by numbers.

**Working Voltage**: See Voltage Rating.

**XHHW-2**: High-temperature (90C), chemically cross-linked, polyethylene jacketed, small-diameter building wire.

**XLP**: Cross-linked polyethylene.

**Yield Strength**: The minimum stress at which a material will start to physically deform without further increase in load.

**Notes:**



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## Limited Warranty; Limitation of Liability:

Encore Wire Limited warrants title to the products it sells and warrants to our customer for a period of 12 months from the date of shipment by us that our products are free of defects in workmanship or material and are in conformity with applicable specifications and descriptions referred to or set out herein. If our products appear to be defective, discontinue their use and notify us promptly so that the matter may be investigated without delay. No claim shall be maintained hereunder unless the facts giving rise to it are discovered within 12 months of shipment and written notice thereof is given to Encore Wire Limited within 30 days of discovery at P.O. Box 1149, McKinney, Texas, 75069. The sole and exclusive remedy for breach of the above warranty shall be to refund the purchase price of or, at our sole option, to repair or replace, the product concerned f.o.b. our factory or such other place as we may designate. Encore Wire Limited will not be liable for any other loss or expense (including labor) not specifically described, and disclaims any liability for incidental or consequential damages. Also, the warranty shall not apply to any misuse of our products, including use contrary to our specifications or applicable building codes. The limited warranty stated in this paragraph is the sole and exclusive warranty made or given by us and, except as hereinafter provided, is made in lieu of all other warranties, written or oral, express or implied, none of which shall apply to sale of our products. Lengths of cable that are replaced by us in accordance with the foregoing shall become the property of Encore Wire Limited and shall be returned to us by our customer f.o.b. point of shipment. Any implied warranty of merchantability or fitness for a particular purpose or other warranty implied by law on our products is not herein disclaimed, but is limited in duration to the warranty period specified above. Some states do not allow limitations on how long an implied warranty lasts or limitations or exclusions of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.



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300 MCM

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