



EDITION 27

VOLUME 1

# 17 KEY ADVANTAGES & DIFFERENTIATED SOLUTIONS FOR MASS TRANSIT

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We've got it  
**MADE IN AMERICA™**

## BUILD AMERICA AND BUY AMERICA

Southwire's wire and cable products meet the Build America and Buy America policy and are fully compliant with 49 U.S.C. § 5323(j) regulation. All raw materials for cables including metals and compounds sourced for drawing, stranding, extrusion, cabling, and the final packaging are produced in the U.S. Southwire products are designed and manufactured in the USA, utilizing the highest quality sustainable materials to provide reliable solutions for transit needs. Scan the QR code to browse the top transit product specs for your upcoming Bipartisan Infrastructure Law (BIL) or Infrastructure Investment and Jobs Act (IIJA) projects.



BROWSE PRODUCTS



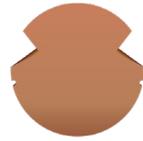
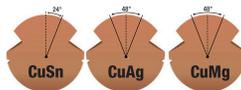
## ENVIRONMENTAL PRODUCT DECLARATION

As we continue to foster environmental stewardship and corporate sustainability, Southwire is developing a portfolio of Environmental Product Declarations (EPD) to help our customers achieve their LEED certifications. This ISO-14025 and ISO-21930-2017 report details the environmental impact of a product based on its Life Cycle Assessment (LCA) conducted per ISO-14044. Currently, over 100 Southwire products have independently verified EPDs. To view our product transparency, visit our sustainability page on Southwire.com.



## CONTACT WIRE

Overhead contact wire is offered in grooved, figure 8, and figure 9 shape in hard-drawn copper for speeds up to 100 mph or 160 km/hour. Copper alloyed with 0.2% tin or CuSn 0.2 is designed for a faster speed of just over 200 mph or 322 km/hour. Pure hard-drawn copper yields the greatest electrical conductivity at 97% IACS. Copper with 0.2% magnesium, CuMg 0.2, also known as Alloy 80 based on its IACS conductivity of 80%, is more ruggedized due to its enhanced tensile strength and breaking load over pure copper. Copper alloyed with more magnesium at 0.5%, CuMg 0.5, reduces the IACS conductivity to 55% but it features the highest tensile strength and breaking loads best for tunnel installs with a low line clearance.



## SouthWear® CONTACT WIRE

SouthWear® Contact Wire is mechanically rugged and commonly deployed to power overhead contact systems (OCS) for streetcars, trolleys, electric trolley buses, light rail, commuter rail, and high-speed mass transit lines. With branding on the top lobe and a 30% wear indicator mark on each side of the wire, linemen and field maintenance personnel can visually observe the worn condition of the SouthWear® contact wire without making physical contact.



## OVERHEAD CONTACT SYSTEMS

Southwire has an extensive bare conductor offering for overhead contact systems (OCS). Hard, medium, and soft-drawn copper cables are strung as messenger, jumper or hanger/dropper wires. Where extra flexibility is demanded for excessive movement or installations in tighter bends, we offer rope-lay configuration in Class G and Class H per ASTM B173. Southwire's patented C7® overhead conductor, comprised of a reinforced polymer composite core, is one of the best high-temperature and low-sag conductor (HTLS) design upgrades for AC voltage overhead systems for mass transit.



## TRACTION POWER CABLE

Southwire boasts a comprehensive line of traction power cables for Direct Current (DC) and third rail systems. Conductor options include bare or tinned copper in Classes B, C, D, K, G, and H stranding per ASTM B8, B172 or B173. The product is coextruded with a 2-layer Non-Lead Ethylene Propylene Rubber (NL-EPR) insulation and a Low-Smoke Zero-Halogen SOLONON® jacket. The 2 kV or 2.4 kV rated designs carry an FT4 vertical flame rating and an ST1 limited-smoke marking suitable for fixed guideway transit and passenger rail systems per NFPA 130.

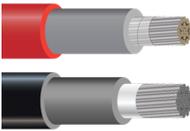


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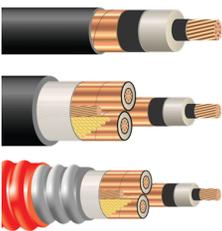
## SOLONONplus® CABLE

Heavy smoke and toxic gases can be generated from halogen-containing dielectric materials upon exposure to extreme heat. Thus, low-smoke zero-halogen (LSZH) formulations have become the top choice for safer public transportation in the event of a fire in less ventilated or confined spaces such as tunnels, manholes and network underground circuits in densely populated areas. SOLONONplus® product families encompass 600V/1kV XHHW-2, RHH/RHW-2, and RW90. LSZH Jackets are also offered on a wide variety of cables including medium voltage and multiconductor tray cables.



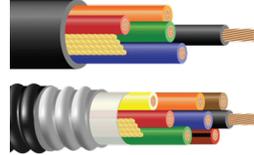
## DIESEL LOCOMOTIVE CABLE

Diesel Locomotive cable (DLO) from 12 AWG to 1111 kcmil contains a Class I flexible stranded tinned copper conductor co-extruded with a cross-linked EPDM insulation and a thermoset CPE jacket. This 2kV-rated product is MSHA-approved, UL-44 certified for Type RHH/RHW-2, and CSA C22.2 No 38 listed as RW90. The RHW-2 rating denotes the maximum continuous operating temperature of 90°C in both wet and dry locations. The FT4 vertical flame rating delays the spread of fire. DLO is frequently used on power or control circuits and motor leads but is becoming a popular choice for feeders and disconnects or otherwise compromised locations requiring superb flexibility.



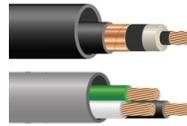
## MV-105 POWER CABLE

Single and multiconductor power cables rated from 5 kV to 35 kV are qualified to UL-1072 and certified under Southwire's unique E-file E66602. The product features a lead-free EPR insulation, a helically-applied copper tape shield, and an LSZH SOLONON® or PVC jacket. A metallic armor covered with an extruded jacket is frequently specified when more robust physical protection is desired. The Aluminum Interlocked Armor (AIA) with a yellow and a red PVC jacket is rated 8 kV and 15 kV respectively.



## POWER AND CONTROL CABLE

The 600V/1kV rated control cables are highly customizable. Conductors can be made of uncoated bare or tinned copper, compressed or flexible stranding, and various color-coded flame-retardant crosslinked polyethylene (FR-XLPE) insulations. Shielding per UL-1277 and armoring per UL-1569 can be paired with an LSZH SOLONON® overall jacket. The sunlight resistance (SUN RES) and the direct burial (DIR BUR) optional markings allow the cables to be installed above ground or below grade.



## SIMpull® CABLE-IN-CONDUIT

Southwire's SIMpull® Cable-in-Conduit (CIC) solutions raise crew efficiency, improves safety, and cut project cost. Southwire is the only North American supplier that manufactures a full line of wire and cable products pre-assembled in an HDPE duct and equipped with couplers and fittings if required. For example, the HDPE conduit can be extruded over an MV-105 power cable as an all-in-one assembly and shipped to the job site without handling two separate reels and pulling the cable into the conduit.



## TENSOREX C+™ AND INSULATORS

Southwire's partnership with Mosdorfer provides North America with its TENSOREX C+™ spring-loaded tensioning system for overhead lines on electric railways. This device replaces the dangerous and high maintenance requirements of conventional balance weight systems (BWA's) and exerts constant tension on the contact and/or messenger wire via spring tension, which eliminates the use of concrete and steel weights. As a result, cables and wires remain at a safe constant height and clearance regardless of the ambient temperature swings. Mosdorfer polymer composite insulators are another key component of the overhead contact systems that are supplied for applications from 750V DC light rail and streetcar systems to 25 kV AC high-speed lines.



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## TOOLS & ASSEMBLED PRODUCT SOLUTIONS



In addition to the wire and cable products, numerous cable handling tools, equipment, and assembled products are offered by Southwire to enhance contractor productivity. For example, Maxis® feeders, Cable Pullers, Pro-Jacks, Maxis® Grips, and QWIKrope™

products significantly shorten set-up time, reduce labor, and boost worker safety. With these purposefully designed application tools, pulling time is reduced by nearly half the time of conventional means.



## ONLINE CALCULATOR SOLUTIONS

Southwire offers many free engineering tools online for end users to perform calculations such as cable pulling and voltage drop. We recommend conducting the full

pull calculations in advance to evaluate the entire route, the coefficient of friction for different jacket materials, the number of bends, and the angle of each bend to prevent cable damage. It is also important to size the conductor accordingly to meet the maximum voltage drop limit per the National Electrical Code® (NEC®) or compute the voltage drop for a unique circuit design. Scan the QR code to access all calculators.



ACCESS CALCULATORS



Southwire

## CABLETECH SUPPORT™

Services

## CABLETECHSUPPORT™ SERVICES

Southwire's CableTechSupport™ Services team's qualifications include Ph.D., MBA, Master of Science degrees, and Professional Engineer (PE) certifications. The group handles more than 15,000 technical requests with over 100 signed engineering letters submitted each year. We help to gain approvals from inspectors or Authorities Having Jurisdiction (AHJ) to avoid project delays. Our Re3™ publication is based on sustainability: to Respond, Rectify, and Restore with the Reinforced, Resilient, and Reliable solutions. Scan the QR code to access our full library of whitepapers and reference documents.



ACCESS DOCUMENTS



Southwire™

## SPEED™

Services

## AGILE MANUFACTURING AND SPEED™ SERVICES

Southwire has invested heavily in manufacturing facilities where we make wire and cable products for transit systems from underground to overhead. Older machines are upgraded with new equipment to improve the Overall Equipment Effectiveness (OEE), production quality, and worker safety. The expanded capacity in different states boosts agility and business continuity, enabling us to service more mass transit customers in North America under all circumstances. The minimum order quantities (MOQ) can be eliminated, lead time is reduced, and a concierge service is delivered on all transit products including Traction Power Cables and Hard-Drawn Contact Wires.



## ISO-ACCREDITED LABORATORY SERVICES

Southwire's Cofer Technology Center is an ISO-17025 accredited R&D facility and a UL and CSA-recognized laboratory,

specializing in electrical, mechanical, thermal, and accelerated testing. Southwire holds more than 500 U.S. and international patents in our comprehensive intellectual property portfolio, which allows us to stay competitive in the electrical industry. Many products were invented and qualified here, including the patented SIMpull® technology and the SOLONON® formulation, commonly specified for industrial and commercial applications. We also offer complimentary forensics and customer-specific evaluations as a value-added service to our existing customers.



Southwire®