A joint venture between Southwire and nkt in the field of superconductor cables and systems, as well as high voltage cable accessories for underground transmission, has already proven to be advantageous to our customers.

Other customer advantages for OCS include an enhanced breadth of products, the availability of insulated cables with zero lead, and overhead catenary wires that contain zero cadmium.

From contact wires, messenger wires, dropper wires, and jumper wires, you can put the power of these two highly innovative and quality brands, Southwire and nkt, to work on your next project.

There is A Solution for Every Speed.

The establishment of high-speed rail in the United States has recently emerged as a national priority. And Southwire and nkt are proud to be a part of its expansion. And, as a member of both the U.S. High Speed Rail Association and the IEEE OCS standards committee, Southwire is positioned to bring its technological expertise and manufacturing innovation to the industry.

The goal: A completely electrified 17,000-mile rail system (including high speed and local metropolitan rail) by the year 2030 in the U.S.

The plan consists of four stages that span over a period of 20 years, as outlined in the image above.

Phase I consists of several different corridors, which have been deemed as the most populated parts of the United States. The destinations include the following cities:

- New York City to Washington, DC
- Charlotte, NC to Birmingham, AL
- Orlando, FL to both Miami and Tampa
- Dallas, TX to San Antonio, and Dallas to Houston
- San Diego, CA to San Francisco and Sacramento
- Portland, OR to Seattle, WA
- Chicago, IL to Saint Louis, Minneapolis, Detroit, Cleveland, Indianapolis and Pittsburgh
When it comes to feeding power to trolley wire, Southwire and nkt are there to meet your needs. Whether you are looking for messenger wire, dropper wires or jumper cables, we can fill your order in any of the following alloys: pure copper, copper silver, copper tin or copper magnesium. Our cable meets ASTM Standard 847.

Southwire and nkt support a wide offering of trolley wire in materials ranging from pure copper alloy for speeds of up to 100 mph to magnesium for high velocity speeds of up to 250 mph. And, as a leading manufacturer of products for OCS, we have the ability to customize your contact wire. See the charts below for alloy speeds and identification markings.

### Survey of Materials

<table>
<thead>
<tr>
<th>Material</th>
<th>Max Speed MPH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure Cu</td>
<td>100</td>
</tr>
<tr>
<td>Cu Silver</td>
<td>155</td>
</tr>
<tr>
<td>Cu Tin</td>
<td>220</td>
</tr>
<tr>
<td>Copper Magnesium 0.2</td>
<td>220</td>
</tr>
<tr>
<td>Copper Magnesium 0.5</td>
<td>250</td>
</tr>
</tbody>
</table>

### Identification Marks According to EN 50149

- Contact wires made of pure copper (Cu-EFP) do not have identification grooves. Specially in UK, contact wire made of copper-cadmium alloy are not allowed to have identification grooves.
- Contact wires made of copper-cadmium alloy have one identification groove on the top of the wire. Specially in UK, contact wire made of pure copper have one identification groove on the top of the wire.
- Contact wires made of copper-silver alloy have two identification grooves on the top of the wire.
- Contact wires made of copper-tin alloy have three identification grooves on the top of the wire at an angle of 24° from the vertical.
EPR/SOLONON®
TRACTION POWER CABLE 2kV

APPLICATIONS
Southwire® 2kV EPR/SOLONON® Traction Power Cable Type RHH or RHW-2, is
suitable for use in mass transit and general industry applications where flexibility,
fire resistance, and low smoke generation are concerns. May be installed in wet
or dry locations in cable trays, raceways or underground ducts. These cables are
capable of operating continuously at a conductor temperature not in excess of 90°C
for normal service conditions, 130°C for emergency overload conditions, and 250°C for
circuit conditions.

SPECIFICATIONS
Southwire® 2kV EPR/SOLONON® Traction Power Cable conductors meet
or exceed the applicable requirements of the following standards and
specifications:
- ASTM-B3
- ASTM-B8
- NEMA-VC8
- ICEA-T-33-655
- UL-44 Thermoplastic Insulated Wires and Cables
- UL 1581 - Electrical Wires, Cables and Flexible Cords
- UL-1685 - Vertical-Tray Fire-Propagation and Smoke-Release Test
  for Electrical and Optical-Fiber Cords
- IEEE 1202 - Flame Test (70,000 BTU/hr Vertical Tray Test)

CONSTRUCTION
Southwire® 2kV EPR/SOLONON® Traction Power Cable Type RHH or
RHW-2 conductors offer flexible, easy bending EPR insulation, easy cable
preparation, 90°C continuous operating temperature, resistance to moisture
and most oils, acids, and alkalies. This product is manufactured with a flame retardant, heat,
motor, and sunlight resistant, SOLONON® crosslinked non-halogen jacket. SOLONON® is a term used to apply to all
Southwire thermoplastic and thermoset low smoke non-halogen insulation
and jacket materials.

OPTIONS
- Flex Strand Conductor (“Class B - Class I”)
- Tinned/Bare Conductor
- Jacket Thickness
- Insulation Thickness
- Unique Print Legend

CT1-13ET-S

APPLICATIONS
Southwire® CT1-13ET-S Type MV-105 Cable is for use in aerial, direct burial,
cable trays, conduit, and underground duct installations permitted by the National
Electrical Code. These cables are capable of operating continuously at a conductor
temperature not in excess of 105°C for normal operation, 140°C for emergency
overload conditions, and 250°C for short circuit conditions, and are rated at
15,000V, 133% insulation level (ungrounded system).

SPECIFICATIONS
Southwire® CT1-13ET-S Type MV-105 Cable is manufactured and tested in accord-
ance with the latest revisions of the following standards and specification:
- UL 1072 - Medium Voltage Power Cables
- IEEE S-93:639 (NEMA WC-74) - 5-46 kV Shielded Power Cable for Use in the
  Transmission & Distribution of Electric Energy
- IEEE S-97:682 (when requested) 5-46 kV Standard for Utility Shielded
  Power Cable
- UL 1685 - (11kV 1/0 and larger) - UL Flame Exposure Test
- IEEE 1202 - Flame Test (70,000 BTU/hr Vertical Tray Test)
Certified qualification tests were performed in accordance with the requirements
of AEIC CS-8. Cable has fully met the qualification testing requirements of AEIC CS-8.

CONSTRUCTION
Southwire® CT1-13ET-S Type MV-105 Cable offers flexible, easy bending insulation, easy cable
preparation, stranded EPR insulation, easy cable stripping, 105°C continuous operating
temperature, 100% shield coverage, and is triple extruded. Jacket is Southwire's low-smoke, halogen-free (LSHF) SOLUTION. Cable is sunlight resistant, suitable for direct burial, and listed for
cable tray use in sizes AWG 1/0 and larger.

- Scope:
  This specification covers single conductor EPR (ethylene propylene rubber) insulated, shield-
ed, thermoplastic jacketed power cable for use in aerial, direct burial, cable trays, conduit,
and underground duct installations. This cable is capable of operating continuously at a
conductor temperature not in excess of 105°C for normal operation, 140°C for emergency
overload conditions, and 250°C for short circuit conditions, and is rated at 15,000 V, 133% insula-
tion level (ungrounded system).

- Standards:
The following standards shall form a part of this specification - UL Standard 1072 for
Medium Voltage Power Cable and ICEA S-93:639 (NEMA WC-74) 5-46 kV Shielded Power
Cable for Use in the Transmission & Distribution of Electric Energy.

- Conductor:
The conductor shall be Class B compressed soft or annealed copper in accordance with ASTM
specs B3 and B8 and ICEA Part 2, Section 2.1 and 2.5.