MAGNETIC SHIELDING FOR WIRING APPLICATIONS

AA CABLE SHIELD® Flexible Conduit  Cable & Wire

SPIRA-SHIELD Flexible Conduit

INTER-8® Weave Cable & Wire

MAGNETIC SHIELD CORPORATION
Perfection Mica Company
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DESCRIPTION

Flexible conduit that provides high permeability magnetic shielding for sensitive cables and conductors. Inter-lock construction, made with our most popular .010" thick CO-NETIC® AA perfection annealed foil, provides maximum attenuation, greater than braided sleeving. Construction is consistent with commercially available flex-conduit and is corrosion resistant to furnish physical protection. Three stock diameters are available.

Spira-Shield flexible conduit meets military specification MIL-N-14411, Comp 1.

APPLICATIONS

Typical applications for SPIRA-SHIELD include power feeds, power distribution, commercial and industrial electrical, communication equipment, shipboard control systems, audio-level interconnections, laboratory benches, sensitive instrumentation, and aerospace apparatus.

SPIRA-SHIELD PRODUCT LIST

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>NOMINAL I.D.</th>
<th>NOMINAL O.D.</th>
<th>INSIDE BEND RADIUS</th>
<th>THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSC250</td>
<td>1/4&quot; [6.3mm]</td>
<td>3/8&quot; [9.5mm]</td>
<td>2-1/2&quot; [64mm]</td>
<td>.010&quot; [0.25mm]</td>
</tr>
<tr>
<td>SSC375</td>
<td>3/8&quot; [9.5mm]</td>
<td>1/2&quot; [12.7mm]</td>
<td>3&quot; [76mm]</td>
<td>.010&quot; [0.25mm]</td>
</tr>
<tr>
<td>SSC750</td>
<td>3/4&quot; [19.0mm]</td>
<td>7/8&quot; [22.2mm]</td>
<td>7&quot; [178mm]</td>
<td>.010&quot; [0.25mm]</td>
</tr>
</tbody>
</table>

Priced per linear foot. Cut to length as needed. Special orders: other diameters & configurations available.

AA CABLE SHIELD®

DESCRIPTION

Tubular and continuous lengths of AA CABLE SHIELD® are made from 36AWG CO-NETIC® AA high permeability wire. Three stock diameters are available.

AA CABLE SHIELD® provides a flexible, braided, continuously enclosed shielding barrier with distinct advantages over foil wrapping or rigid channeling, and is used to avoid pickup of unwanted external H-fields (O.C. to 100 Khz), or to mitigate radiation from cable and conductors.

Our proprietary braided sleeving remains flexible, uses less overall material, is corrosion resistant and performs better than foil wraps. Braid is tightly weaved, so shield coverage is 90% at nominal linear state. Diameter, flexibility, and shielding coverage can be improved by expanding or compressing overall length. It is recommended to add 5% length so braid can be compressed, resulting in a tight fit at both ends for optimal shielding performance. AA CABLE SHIELD® complies with A-A-59569 (QQ-B-575). Wire meets military specification MIL-N-14411, Comp 1.

APPLICATIONS

Developed by magnetic shield corporation using our proprietary CO-NETIC® AA high permeability wire to provide effective magnetic shielding for cable and conductors such as twisted-pair. Today, AA CABLE SHIELD® is used in many applications where a flexible, continuously enclosed shielding barrier is needed to avoid pickup of external fields or radiation of interfering, unwanted fields. AA CABLE SHIELD® has been proven effective in reducing electromagnetic interference in aerospace systems, vehicle controls, equipment power systems, test & measurement devices, and sensitive electronic circuits.

AA CABLE SHIELD® PRODUCT LIST

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>NOMINAL I.D.</th>
<th>EXPANDS TO</th>
<th>COVERAGE</th>
<th>ENDS</th>
<th>CARRIERS</th>
<th>AWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>wBS-250</td>
<td>1/4&quot; [6.3mm]</td>
<td>5/16&quot; [7.9mm]</td>
<td>85-90%</td>
<td>16</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td>wBS-375</td>
<td>3/8&quot; [9.5mm]</td>
<td>7/16&quot; [11.1mm]</td>
<td>85-90%</td>
<td>8</td>
<td>48</td>
<td>36</td>
</tr>
<tr>
<td>wBS-500</td>
<td>1/2&quot; [12.7mm]</td>
<td>5/8&quot; [15.8mm]</td>
<td>85-90%</td>
<td>11</td>
<td>48</td>
<td>36</td>
</tr>
<tr>
<td>wBS-750</td>
<td>3/4&quot; [19.0mm]</td>
<td>7/8&quot; [22.2mm]</td>
<td>85-90%</td>
<td>11</td>
<td>48</td>
<td>36</td>
</tr>
</tbody>
</table>

Priced per linear foot. Cut to length as needed. Special orders: other diameters & configurations available.
CHOOSE INTER-8® PRODUCT LIST

DESCRIPTION
Current-carrying conductors can be the cause, or be affected by, electromagnetic interference. Twisted pair cable has been widely used and is superior to parallel conductors, but is of limited effectiveness in reducing electromagnetic radiation. Radiating unwanted fields can cause EMI compliance issues in today's complex circuits. Correspondingly, twisted pair cable is limited in application because the INTER-8® WEAVE design incorporates parallel conductors, the cable provides double the current carrying capacity of a two wire cable of the same AWG size. In contrast to conventional twisted pair, INTER-8® WEAVE does not kink or untwist when left free.

INTER-8® WEAVE cable provides substantial improvement over the performance of a conventional twisted pair. INTER-8® WEAVE cable consists of four separate conductors braided into interlocking loops and is a field-proven design of Magnetic Shield Corporation.

Because the INTER-8® WEAVE design incorporates parallel conductors, the cable provides double the current carrying capacity of a two wire cable of the same AWG size. In contrast to conventional twisted pair, INTER-8® WEAVE does not kink or untwist when left free.

APPLICATIONS
INTER-8® WEAVE cable can be used to help solve many interference problems. Current-carrying conductors generating interference fields can be replaced with INTER-8® WEAVE cable to substantially reduce radiation. In low impedance circuits where external interference results in disturbing signals, INTER-8® WEAVE cable will reduce the circuit sensitivity to the external fields.

Among typical applications are cable connections to strain gages, thermocouples, photoelectric detectors, audio coils and transformers, piezoelectric transducers and preamplifiers.

FOUR TYPES OF CABLE
The basic INTER-8® weave cable is unshielded. It is available with PVC insulation, or ETFE(1) high temperature insulation. For additional shielding, both are also available with an outer braided shield, made of Magnetic Shield Corporation's proprietary CO-NETIC® AA high permeability wire, to provide ultimate magnetic shielding. Shielded options are covered with an outer jacket.

INTER-8® USE & COLOR CODES
GREEN/BROWN - Connect green and brown wires at both ends to form one cable termination.
ORANGE/BLUE - Connect orange and blue wires at both ends for the other termination.
NOTE: PVC insulations are color coded in solid colors. ETFE(1) insulations are color coded with stripes.

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>CONDUCTORS</th>
<th>COATING</th>
<th>INSULATION</th>
<th>SHIELD</th>
<th>JACKET</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT-24</td>
<td>7 strands 32</td>
<td>tinned</td>
<td>PVC</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>MT-24T</td>
<td>19 strands 36</td>
<td>tinned</td>
<td>ETFE(1)</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>MTH-24</td>
<td>7 strands 32</td>
<td>tinned</td>
<td>PVC</td>
<td>CO-NETIC®</td>
<td>Black</td>
</tr>
<tr>
<td>MTH-24T</td>
<td>19 strands 36</td>
<td>tinned</td>
<td>ETFE(1)</td>
<td>CO-NETIC®</td>
<td>Red</td>
</tr>
</tbody>
</table>

Priced per linear foot. Cut to length as needed. Special orders: Other diameters & configurations available.

INTER-8® SPECIFICATIONS

**PVC INSULATED WIRE**
- **Wire Gauge**: 24Awg QQ-W-343
- **Stranding**: 7X32 Tinned Copper
- **Insulation**: 105°C MIL-W-16878/1
- **Colors**: PVC insulation is solid colors: Green, Brown, Orange, Blue
- **Binding**: Mylar Tape MIL-I-631
- **AA CABLE SHIELD®**: 36Awg CO-NETIC® AA Wire, MIL-N-14411 Comp 1, 90% Coverage
- **Jacket**: .20" [0.51mm] Thick, MIL-C-13777 Polyurethane, Color Is Black
- **Outside Diameter**: .230" [5.84mm] Maximum Dimension

**ETFE(1) INSULATED WIRE**
- **Wire Gauge**: 24Awg QQ-W-343
- **Stranding**: 19X36 Tinned Copper
- **Insulation**: 150°C MIL-W-22759/16
- **Colors**: ETFE(1) insulation is white with stripes: Green, Brown, Orange, Blue
- **Binding**: Mylar Tape MIL-I-631
- **AA CABLE SHIELD®**: 36Awg CO-NETIC® AA Wire, MIL-N-14411 Comp 1, 90% Coverage
- **Jacket**: .010" [0.25mm] Thick, MIL-C-27500G/14, Color Is Red
- **Outside Diameter**: .210" [5.33mm] Maximum Dimension

(1)Tefzel, E.I. DuPont Trade Mark
**DESCRIPTION**

CO-NETIC® AA wire in .005" diameter (36AWG) is widely used in fabrication of magnetic shielding braid to certain customer specifications where our stock AA CABLE SHIELD® may not be specified. Two stock diameters are available.

Wire meets military specification MIL-N-14411, Comp 1.

**APPLICATIONS**

Both gauges have applications where high permeability, low coercive force and ferromagnetic properties are required. CO-NETIC® AA wire is corrosion resistant and has an affinity for solder.

**CO-NETIC® AA WIRE PRODUCT LIST**

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DIAMETER</th>
<th>AWG</th>
<th>PACKAGING</th>
</tr>
</thead>
<tbody>
<tr>
<td>wc-005</td>
<td>.005&quot; [0,127mm]</td>
<td>36</td>
<td>spools</td>
</tr>
<tr>
<td>wc-025</td>
<td>.025&quot; [0,635mm]</td>
<td>22</td>
<td>spools</td>
</tr>
</tbody>
</table>

Priced per pound, net weight. Spools vary by net weight.

WC-005 CO-NETIC® AA wire used in fabrication of magnetic shielding braid.

**HISTORY**

Magnetic Shield Corporation originated in 1941 as the Perfection Mica Company. From its beginnings in the mica business, the company evolved with the electronics industry to become a recognized authority. Always building on this knowledge and experience, we are able to quickly adapt to your custom requirements, solving complex problems of magnetic interference while saving design time and expense.

**SITE SURVEYS**

Magnetic Shield Corporation Engineers are available to perform site surveys under a consulting contract agreement. One of our engineers will travel to your site, perform a complete survey and write a detailed report giving you suggestions as to how to mitigate your EMI/EMF problem. This service has become increasingly important as offices, manufacturing environments, public buildings, high-rise apartments and other locations are subject to higher levels of EMF interference.

**TO PLACE AN ORDER, CONTACT:**

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