



**SHIELD-FLEX™**

EMI/RFI Shielded Conduit



Type SLA™



Type EMS™



Type EMCS™



**electri-flex company**



### **Wire without interference.**

Shielded conduit provides exceptional shielding effectiveness from electromagnetic and radio frequency interference (EMI/RFI). Use it to protect sensitive electronic circuits from outside noise in such applications as communications, radar and data transmission. But shielded conduit doesn't just keep interference out; it also keeps emissions in, which is vital to meeting European CE standards — an important issue for OEMs. Fortunately, there's SHIELD-FLEX. With three easy-to-install types, SHIELD-FLEX is simply a better way to wire.

# SHIELD-FLEX

## Keep the Noise Out

SHIELD-FLEX conduit allows for greater versatility than shielded cable in wiring configurations and retrofitting projects. With three levels of effectiveness to choose from, SHIELD-FLEX meets your needs.



### Versatile

SHIELD-FLEX is a liquidtight conduit that goes places other wiring can't. It can contain an unlimited combination of conductors for versatile circuit wiring. Plus, it protects wiring from crushing, impact, abrasion and the elements, and uses off-the-shelf (OTS) standard connectors intended for liquidtight flexible metal conduit.

### Efficient

SHIELD-FLEX offers a cost-efficient solution compared to other wiring types. Its flexibility and simple assembly means it takes less time to install, shortening schedules and project budgets. And the OTS connectors are less expensive than high-end, mil spec shielded conduit or cable that require costly custom fittings.

### Effective

SHIELD-FLEX shields sensitive equipment and circuits from EMI/RFI emissions, both ingress and egress. Connector assemblies include a grounding ferrule that contacts the conduit's internal metallic material with the connector body, producing a direct shield-to-drain (ground) simply by tightening the connector.

# TYPE SLA™



Type SLA is identical to standard UL listed liquidtight flexible steel conduit, but is augmented with a tinned copper shielding braid located over the inner steel core and under its protective PVC jacket. The braid offers a minimum of 90% coverage. Please see the Shielding Effectiveness chart on page 6.

## APPLICATION:

This conduit is intended for installation in accordance with Article 350 of the NEC® (ANSI/NFPA-70).

- Suitable as an equipment grounding conductor per Article 250.118(7).
- Suitable for use in hazardous locations: Class I, Div. 2 and Classes II and III.
- PVC jacket is resistant to a wide variety of oils, acids, alkaline and ultraviolet light.

- Accepts standard metallic liquidtight fittings.

UL Listed File #E29278. Conforms to UL360 for liquidtight flexible steel conduit.

RoHS and WEEE Compliant.

## STANDARD COLORS:

Black. Other colors and jacketing materials available upon request.

## WORKING TEMPERATURES:

-20°C to 60°C

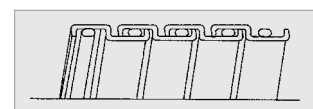
**METAL USED:** Steel

**PLASTIC USED:** PVC

See the Chemical Resistance Guide on our website.

For a low-smoke, low-flame spread, zero-halogen version, ask for **HFSLA™**.

**Squarelock with Filler** (Sizes 3/8" – 1-1/4")



| TRADE<br>SIZE (IN.) | TYPE   | INSIDE BEND<br>RADIUS (IN.) | WEIGHT<br>(LBS.)/100 FT. | CARTON FOOTAGE |        | REEL FOOTAGE |        |        |        |
|---------------------|--------|-----------------------------|--------------------------|----------------|--------|--------------|--------|--------|--------|
|                     |        |                             |                          | LENGTH         | PART # | LENGTH       | PART # | LENGTH | PART # |
| SLA                 |        |                             |                          |                |        |              |        |        |        |
| 3/8                 | SLA-10 | 2.0                         | 29                       | 100            | 78901  | 500          | 78903  | 1000   | 78904  |
| 1/2                 | SLA-11 | 3.0                         | 32                       | 100            | 78911  | 500          | 78913  | 1000   | 78914  |
| 3/4                 | SLA-12 | 4.2                         | 53                       | 100            | 78921  | 500          | 78924  | -      | -      |
| 1                   | SLA-13 | 5.5                         | 82                       | 100            | 78932  | 400          | 78934  | -      | -      |
| 1-1/4               | SLA-14 | 7.0                         | 102                      | 50             | 78942  | 200          | 78944  | -      | -      |
| 1-1/2               | SLA-15 | 4.5                         | 124                      | 50             | 78952  | 150          | 78954  | -      | -      |
| 2                   | SLA-16 | 6.0                         | 145                      | 50             | 78962  | 100          | 78964  | -      | -      |

## Halogen-Free (HF) Series

For a low-smoke, low-flame spread, zero-halogen version, ask for HFSLA, HFEMS™ or HFEMCS™. It's ideal for field installation in confined, public areas such as subways, tunnels, etc.

There are many situations and areas where PVC is not allowed for electrical construction. The jacketing material used in the Halogen-Free series virtually eliminates the release of acidic gases found in PVC products.

| COMBUSTION & FLAMMABILITY PROPERTIES | TEST                 | VALUE                         |
|--------------------------------------|----------------------|-------------------------------|
| <b>HFSLA/HFEMS/HFEMCS</b>            |                      |                               |
| Vertical Burn (Material)             | UL94                 | V-O rating; no flaming drips  |
| Vertical Burn (Conduit)              | UL360                | Pass; no flaming drips        |
| Oxygen Index %                       | D2863                | 28.5                          |
| Flame Spread Index                   | ASTM E162            | 4.0; no flaming drips         |
| Flame Propagation                    | ASTM C542 (NFPA-130) | Pass; no flaming drips        |
| Smoke Generation (Flaming)           | ASTM E662 (NFPA-258) | DS 41@1.5 min / DS 94@4.0 min |
| Smoke Generation (Non-flaming)       | ASTM E662 (NFPA-258) | DS 7@1.5 min / DS 45@4.0 min  |
| Toxic Gas Generation                 | Bombardier SMP 800-C | Pass                          |
| Toxicity Index                       | NES 713              | 3.9                           |

Test data is based on controlled laboratory conditions and does not necessarily reflect performance in actual fire conditions. Additional product information available upon request.

# TYPE EMS™



Type EMS has an inner core made from a fully interlocked bronze strip and does not contain a braided shield. Please see the Shielding Effectiveness chart on page 6.

Accepts standard metallic liquidtight fittings.

RoHS and WEEE Compliant.

## STANDARD COLORS:

Gray. Other colors and jacketing materials are available upon request.

For UL and CSA version, consult factory.

## WORKING TEMPERATURES:

-55°C to 105°C

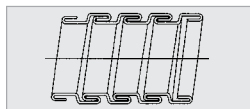
**METAL USED:** Bronze

**PLASTIC USED:** PVC

See the Chemical Resistance Guide on our website.

For a low-smoke, low-flame spread, zero-halogen version, ask for **HFEMS™**.

## Interlock



# TYPE EMCS™



Type EMCS is a hybrid of SLA and EMS. It utilizes the same bronze core and PVC jacket as EMS, but gets further screening protection from a tinned copper braid, as found in the SLA product. Please see the Shielding Effectiveness chart on page 6.

Accepts standard metallic liquidtight fittings.

RoHS and WEEE Compliant.

## STANDARD COLORS:

Black. Other colors and jacketing materials available.

For UL and CSA version, consult factory.

## WORKING TEMPERATURES:

-55°C to 105°C

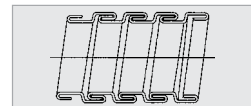
**METAL USED:** Bronze

**PLASTIC USED:** PVC

See the Chemical Resistance Guide on our website.

For a low-smoke, low-flame spread, zero-halogen version, ask for **HFEMCS™**.

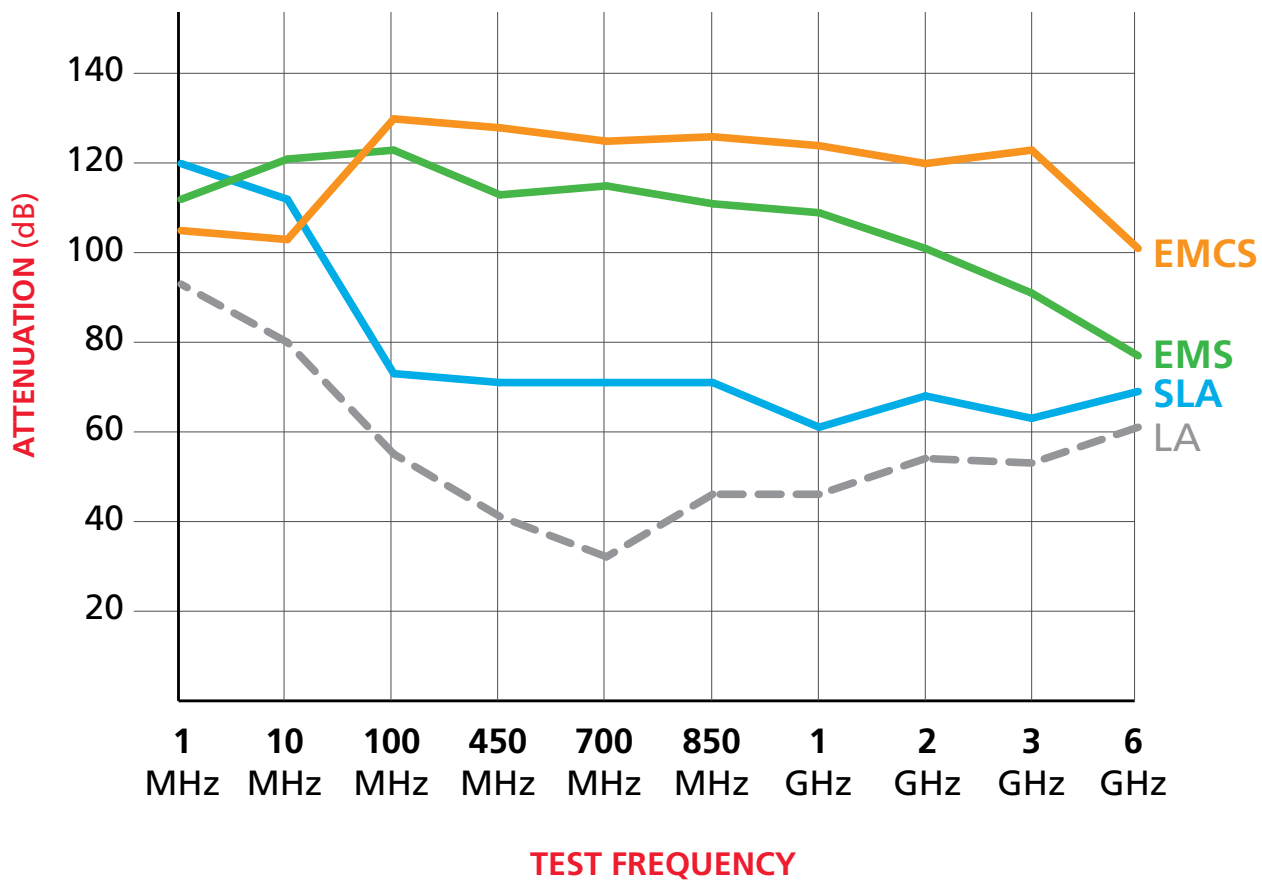
## Interlock



| TRADE<br>SIZE (IN.) | TYPE    | INSIDE BEND<br>RADIUS (IN.) | WEIGHT<br>(LBS.)/100 FT. | CARTON FOOTAGE |        | REEL FOOTAGE |        |
|---------------------|---------|-----------------------------|--------------------------|----------------|--------|--------------|--------|
|                     |         |                             |                          | LENGTH         | PART # | LENGTH       | PART # |
| EMS                 |         |                             |                          |                |        |              |        |
| 3/8                 | EMS-10  | 3.0                         | 27                       | 100            | 78801  | 1000         | 78804  |
| 1/2                 | EMS-11  | 3.0                         | 35                       | 100            | 78811  | 1000         | 78814  |
| 3/4                 | EMS-12  | 4.0                         | 43                       | 100            | 78822  | 500          | 78824  |
| 1                   | EMS-13  | 4.0                         | 85                       | 100            | 78832  | 400          | 78834  |
| 1-1/4               | EMS-14  | 4.5                         | 101                      | 50             | 78842  | 200          | 78844  |
| 1-1/2               | EMS-15  | 7.0                         | 140                      | 50             | 78852  | 150          | 78854  |
| 2                   | EMS-16  | 9.5                         | 180                      | 50             | 78862  | 100          | 78864  |
| 2-1/2               | EMS-17  | 12                          | 232                      | 25             | 78872  | -            | -      |
| 3                   | EMS-18  | 13.5                        | 320                      | 25             | 78882  | -            | -      |
| 4                   | EMS-19  | 17.0                        | 388                      | 25             | 78892  | -            | -      |
| EMCS                |         |                             |                          |                |        |              |        |
| 3/8                 | EMCS-10 | 3.0                         | 27                       | 100            | 78701  | 500          | 78703  |
| 1/2                 | EMCS-11 | 3.0                         | 35                       | 100            | 78711  | 500          | 78713  |
| 3/4                 | EMCS-12 | 4.0                         | 43                       | 100            | 78722  | 500          | 78724  |
| 1                   | EMCS-13 | 4.0                         | 85                       | 100            | 78732  | 400          | 78734  |
| 1-1/4               | EMCS-14 | 4.5                         | 101                      | 50             | 78742  | 200          | 78744  |
| 1-1/2               | EMCS-15 | 7.0                         | 140                      | 50             | 78752  | 150          | 78754  |
| 2                   | EMCS-16 | 9.5                         | 180                      | 50             | 78762  | 100          | 78764  |

# Shielding Effectiveness

The graph below depicts a general comparative shielding effectiveness (attenuation in dBs) of all three types of SHIELD-FLEX conduit. The dotted line indicates a comparison to standard unshielded liquidtight flexible conduit Type LA. The spectrum of test frequency is from 1 MHz to 10 MHz Electric Field, to 100 MHz to 1 GHz Planewave Field and 2 GHz to 6 GHz Microwave Field. Tests were performed per MIL-STD-285 on 1" trade-sized conduit using standard liquidtight fittings from Thomas & Betts Series 5300. Results are based on controlled laboratory conditions and may vary in actual field-installed conditions.





# Our Expertise **Works for You**

For more than 55 years, Electri-Flex has been your single source for flexible conduit, and we bring that experience to each project. By providing reliable, insightful advice on every wiring issue you face — from fatigue concerns, grounding and environmental issues to product strength and chemical resistance — we help you meet your challenges.

We can help create the perfect solution for your

application, as well. Our skilled engineers

use advanced software to design and prototype custom wiring products that meet your specific needs.

And everything is manufactured in a vertically integrated system that provides complete quality control through the entire production process.



## MARKETS WE SERVE

- Medical
- Military
- Industrial
- Government/Defense
- Commercial
- Telecommunications
- Aerospace
- Public transit
- Utilities

## APPLICATIONS

- Air Handling Equipment (HVAC)
- Test & Measurement Equipment
- Data Centers
- Variable Speed Drives
- Commercial-off-the-shelf (COTS)
- CE — European Standard
- Radio Broadband /Antenna
- Solar/Wind Energy
- Ship Building
- Medical Diagnostics Equipment
- Wireless Communication



Family owned and operated since its inception and incorporation in 1955, Electri-Flex remains focused on the quality, service and partnership values that have resulted in its leadership position in the electrical industry. The company's innovations have included its premier Liquatite® line and other manufacturing patents, as well as numerous packaging improvements.

If you are seeking cost-effective, high-quality flexible conduit for any application, give us a call. Whatever your design challenge, we can provide a solution.



**SHIELD-FLEX™**

**electri-flex company**

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