

# liquatite®

## 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.



### Good

Tinned copper shielding braid over steel strip inner core

### Better

Fully interlocked bronze strip inner core

### Best

Tinned copper shielding braid over fully interlocked bronze strip inner core

## 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

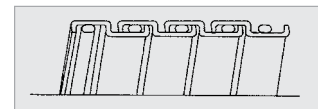
**METAL USED:** Steel

**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 SIZE (IN.)	TYPE	INSIDE BEND RADIUS (IN.)	WEIGHT (LBS.)/100 FT.	CARTON FOOTAGE		REEL FOOTAGE			
				LENGTH	PART #	LENGTH	PART #	LENGTH	PART #
<b>SLA</b>									
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

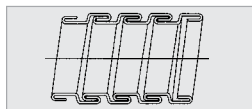
**METAL USED:** Bronze

**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

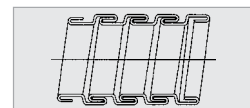
**METAL USED:** Bronze

**PLASTIC USED:** PVC

See the Chemical Resistance Guide on our website.

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

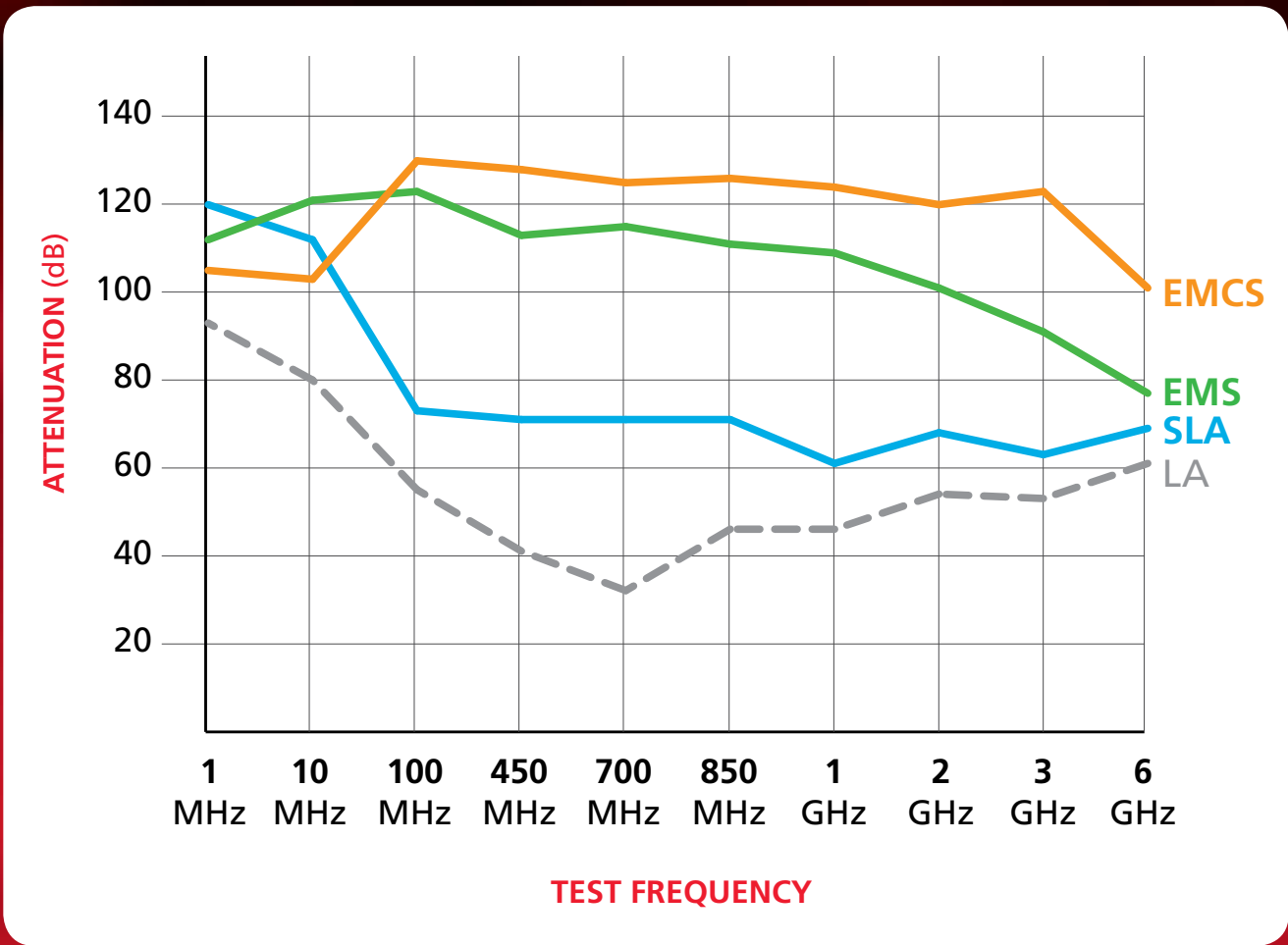
**Interlock**



TRADE SIZE (IN.)	TYPE	INSIDE BEND RADIUS (IN.)	WEIGHT (LBS.)/100 FT.	CARTON FOOTAGE		REEL FOOTAGE	
				LENGTH	PART #	LENGTH	PART #
<b>EMS</b>							
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	-	-
<b>EMCS</b>							
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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