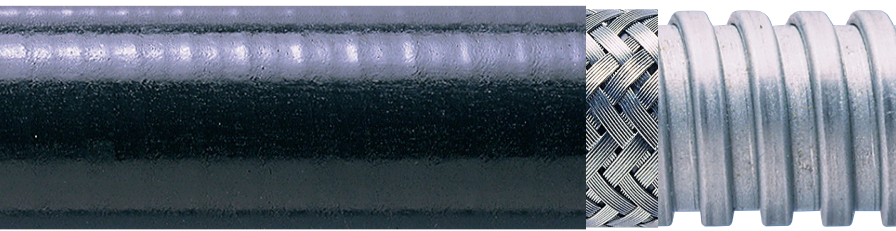


Type EMILFH-SPL

Low Fire Hazard - Under-braided liquid tight conduit



Liquid tight, low fire hazard, under-braided, covered galvanised steel flexible conduit. Suitable for rail and buildings where low smoke & toxicity is a primary concern.

Certifications / Standards:
(Refer to tables for certifications details)



EN45545-2

Fire performance / EMC:



Features & benefits:

- Low fire hazard jacket covered galvanised steel braid over galvanised steel core
- Medium flexibility and fatigue life
- Medium chemical resistance levels
- High UV resistance
- Available in black only

Applications:

- OEM - assembly
- Underground rail and any train vehicle/infrastructure
- Construction - commercial and institutional buildings
- MOD
- Indoor & outdoor applications
- Any buildings & infrastructure where low smoke, low toxicity and EMI screening is required

Temperature range:

- Static applications: -20°C to +90°C (-4°F to +194°F)
- Moving applications: -5°C to +105°C (+23°F to +221°F)

UV Resistance:

- High

Material / Materials / Finishes:

- Galvanised steel core, string packing up to 32mm, interlocked core 40mm and above with galvanised steel overbraid
- Low fire hazard jacket

Ingress protection:

- For use with Adaptasteel Type SPL & SSPL - Type A, B, E, M C90 and C45 fittings
- IP66 - with SPL & SSPL Type M, C45 & C90 fittings
 - IP67 - with SPL & SSPL Type A, B, M, C45 & C90 fittings
 - IP68 - with SPL & SSPL Type M, C45 & C90 fittings (10 bar 30 mins)
 - IP69 - with SPL & SSPL Type M, C45 & C90 fittings

Conforms to:

- CE marked to Low Voltage Directive 2014/35/EU
- BSI Kitemark KM35161 to BS EN 61386
- London Underground 1-085
- EN45545-2 HL3 (R22, R23)
- NFPA130 / ASTM E 162, ASTM E 662 and Bombardier SMP 800-C

Fire performance:

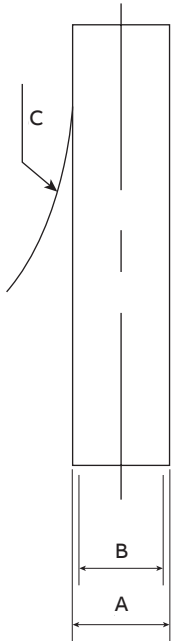
Test standard	Performance rating
EN 45545-2	HL3 R22 & R23
NF F16-101	I3 F1
LUL 1-085	Grouped and Extensive
BS 6853	Class 1 A
NFPA130	Compliant

Degree of mechanical protection:

- Medium flexibility and fatigue life

Chemical resistance:

- Medium chemical resistance levels



Type EMILFH-SPL Conduit – Part numbers and dimensions

Part No.	Conduit size			Dimensions (mm)		
	IEC/EN (mm)	US / CAN		Outside Dia. (A)	Inside Dia. (B)	Bend radi (C)
		in	mm			
EMILFH-SPL16	16	3/8"	12	17.9	12.3	110
EMILFH-SPL20	20	1/2"	16	21.3	15.8	130
EMILFH-SPL25	25	3/4"	21	26.5	20.8	160
EMILFH-SPL32	32	1"	27	33.2	26.5	200
EMILFH-SPL40	40	1 1/4"	35	42.0	35.0	250
EMILFH-SPL50	50	1 1/2"	41	48.0	40.0	290
EMILFH-SPL63	63	2"	53	60.5	51.3	360

Part number example: To order quote part number, colour & conduit coil length, e.g. EMILFH-SPL16/BL/25m.

BS EN 61386 Classification

Type	Fitting	Compression	Impact	Min. Temp	Max. Temp	Bending	Electrical
EMILFH-SPL	SPL (M)	4	4	2	3	4	2

Type	Fitting	IP Solids	IP Water	Corrosion	Tensile	Non-flame propgating	Suspended load
EMILFH-SPL	SPL (M)	6	9	-	4	1	5

Tensile tests to IEC 61386 gives the minimum classification value only. Actual values will depend on the type and size of the fittings used and will always be greater than the minimum. Impact strength is the minimum classification value at the minimum temperature. Actual values will depend on size and temperature. Specific values available on request.

Mechanical properties

Test type	Standard	Requirement	Status
Crush strength @ 23°C	IEC61386-1	<25% crush >90% recovery	>1250N
Crush strength @ 23°C	-	10% crush, instantaneous value	1800N
Tensile strength	IEC61386-1	With Type M fitting	>1000N
Tensile strength	-	Ultimate pullout of Type M fitting	1600N
Impact strength @ 23°C	IEC61386-1	No cracks <20% deformation	>20J
Impact strength @ -5°C	IEC61386-1	No cracks <20% deformation	>6J
Dynamic bend radius @ -5°C	IEC61386-23	5,000 cycles minimum	6xOD

Thermal properties

Test type	Standard	Requirement	Value
Min / Max temperature	IEC 61386-23	Dynamic 5000 cycles	-5°C to +105°C
Min / Max static	-	Permanent use	-20°C to +90°C

Flammability

Test type	Standard	Requirement	Result	Value
Oxygen index	ISO 4589-2	% Oxygen to support combustion	52.1	%
Glow wire	IEC 60695	No ignition to extinguish within 30s	960	°C
Flammability	UL94	Vertical (V0, V2) or Horizontal (HB)	V0	-
Flammability	IEC 61386-1	1Kw Burner @ 45°	Pass	Pass/Fail





Smoke

Test type	Standard	Requirement	Result	Value
Smoke density	NF X 10-702	Vos ₄	166.3	None
Smoke density	NF X 10.702	D Max	206	None
Smoke density	BS6853	A ₀ <0.02	0.00101	A ₀
Smoke density	ISO - 5659-2	D _s Max <100	27	None

Toxicity

Test type	Standard	Requirement	Result	Value
Halogen free	LUL	<0.5%	Yes	Yes/No
Phosphorous free	LUL	<0.5%	Yes	Yes/No
Sulphur free	LUL	<0.5%	Yes	Yes/No
Toxicity	EN45545-2 CIT NLP	<100	0.05	N/A
Toxicity	BS6853 Annex B.1 R Value	<1.0	0.25	Compliant

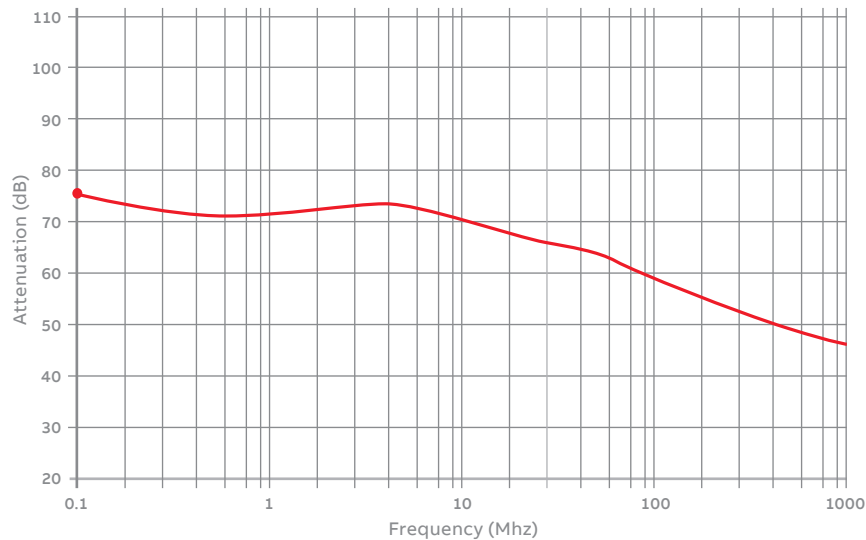
Fire performance overview

Property	Low Fire Hazard	Enhanced Low Fire Hazard	Super Low Fire Hazard	Inherent Low Fire Hazard
				
Property	LFH	EFLH	SLFH	ILFH
Oxygen Index ISO4589	32% ≥ OI ≥ 28%	OI ≥ 32%	OI ≥ 32%	
BS6853 Smoke Density 3m ³	0.02 ≤ A. ≤ 0.03	0.0005 ± A. ≤ 0.02	A. ≤ 0.005	
Zero Halogen	✓	✓	✓	Inherent Low Fire Hazard, i.e Type S, SS Metallic conduit & fittings
Zero Phosphorus	✓	✓	✓	
Zero Sulphur	✓	✓	✓	
NFF16-102	I3F2	I2F2	I2F1	
EN45545-2	HL2	HL3	HL3	

Pre-test conditions

Duration	Standard	Temperature	Relative humidity
168 (hrs)	IEC 61386	23°C	50%

EMC Screen level - EMI Screening effectiveness of EMILFH-SPL conduit



The graph shows the results of EMILFH-SPL screened conduit, with its appropriate fittings.

The conduit is tested by ERA technology, to IEC 1196-1 Transfer Impedance.

Tests measured attenuation in decibels (dB) over the frequency range covered by the EMC directive, 100 kHz to 1 GHz.

Transfer Impedance was extrapolated to per metre transfer impedance and converted to give a shielding effectiveness, demonstrated by the graph.