

Metallic Systems

S Conduit



Technical Characteristics

Conforms to BSI Kitemark KM-35161
Low voltage directive
Inherent Low Fire Hazard

Approvals and Standards



Degree of mechanical protection

Very high flexibility & fatigue life

Degree of protection

IP40 - with type S fittings

UV protection

Very High

Finish

Natural material

Application

Indoors / Outdoors - light industrial, buildings

Normal operating temperature range

Application	Min Temp	Max Temp
Static	- 50°C	+300°C
Dynamic	- 45°C	+250 °C

For use with - Fitting range

[Adaptasteel](#) - Type [A](#), [B](#), [E](#), and [F](#)

Fire performance

Test Standard

Performance Rating

EN45545	ILFH
NFF16-101	ILFH
LUL-1085	ILFH
BS6855	ILFH
DIN 5510-2	ILFH

(See Fire testing [data](#) for fire performance overview)



Testing data

Click or See pages [3](#) & [4](#)

Type of material

Galvanised steel

Image



Metallic Systems

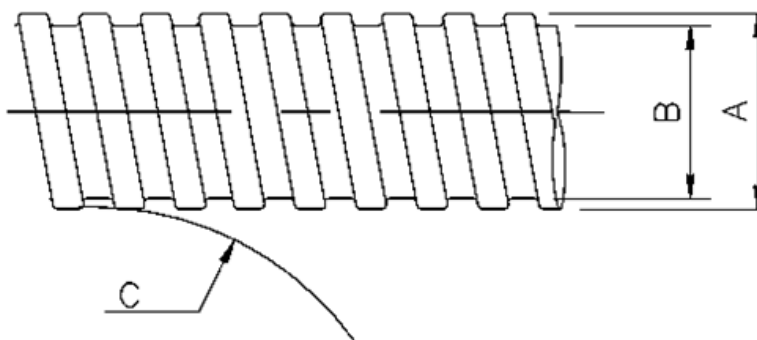
S Conduit



Technical & Dimensional Data

Conduit size metric (mm)	10	12	16	20	25	32	40	50	63	75
Conduit size US trade (inches)	1/4"	5/16"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
Part code	S	S	S	S	S	S	S	S	S	S
Coil length (m)	25/50	10/25/50	10/25/50	10/25/50	10/25/50	10/25	10/25	10/25	10	10
A - Outside diameter (mm)	9.0	13.0	16.0	20.5	25.0	32.0	42.5	53.0	62.5	77.0
B - Inside diameter (mm)	6.8	10.3	13.0	16.9	21.4	28.1	37.7	48.4	57.5	70.0
C - Static bend radius (mm)	25	30	35	45	55	60	80	90	115	150
Average weight (KG/100m)	10	11.6	18.2	23.6	28	46	74.9	93.9	-	152.5

For ordering code add coil length to part code - e.g S25/25M



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BS EN 61386 Clarification

	Fitting	Compression	Impact	Min temp	Max temp	bending	electrical	IP solids	IP water	Corrosion	Tensile	Non-flame Propogating	Suspended load
S	S	4	4	5	6	4	0	4	0	1	4	1	5

Mechanical Properties

Test Type	Methods / Standards	Requirements	Value
Crush Strength @ 23°C	IEC61386-1	<25% crush >90% recovery	>1500N
Crush Strength @ 23 °C	AFX norm C1989	10% Crush, Instantaneous Value	2200N
Impact Strength @ 23 °C	IEC61386-1	No Cracks <20% deformation	>20J
Impact Strength @-25 °C	IEC61386-1	No Cracks. <20% deformation	>6J
Tensile Strength	IEC61386-1	With S Type Fitting	>1000N
Tensile Strength	AFX norm T1987	Ultimate pull-out of S-Type Fitting	1450N
Dynamic Bend radius @ -45 °C	IEC61386-23	5000 cycles minimum	4xOD

Thermal Properties

Test Type	Methods / Standards	Requirements	Value
Minimum Temperature	IEC61386-23	Dynamic 5000 cycles	-45°C
Maximum Temperature	IEC61386-23	Dynamic 5000 cycles	250°C
Minimum Static		Permanent Use	-50°C
Maximum Static		Permanent Use	300°C

Chemical Resistance Chart

Key:

Suitable :

Limited Suitability :

Unsuitable :

Not Tested :

● Astm No.1	● Diesel oil	● Methyl Bromide	● Sulphur Dioxide (Gas)
● Astm No.2	● Diethylamine	● MEK	● Sulphuric Acid (10%)
● Astm No.3	● Ethanol	● Nitric Acid (10%)	● Sulphuric Acid (70%)
● Acetic Acid (10%)	● Ether	● Nitric Acid (70%)	● Toluene
● Acetone	● Ethylamine	● Oxalic Acid	● Transformer Oil
● Aluminium Chloride	● Ethylene Glycol	● Ozone (Gas)	● 1,1,1-Trichloroethane
● Aniline	● Ethyl Ethanoate	● Paraffin oil	● Trichloroethylene
● Benzaldehyde	● Freon 32	● Petrol	● Turpentine
● Benzene	● Hydrochloric Acid (10%)	● Phenol	● Vegetable Oil
● Carbon tetrachloride	● Hydrochloric Acid (36%)	● Sea Water	● Vinyl Acetate
● Chlorine water	● Hydrogen Peroxide (35%)	● Silver Nitrate	● Water
● Chloroform	● Hydrogen Peroxide (87%)	● Skydrol	● White Spirit
● Citric Acid	● Lactic Acid	● Sodium Chloride	● Zinc Chloride
● Copper Sulphate	● Lubricating oil	● Sodium Hydroxide (10%)	
● Cresol	● Methanol	● Sodium Hydroxide (60%)	

The information above is given as a guide only and is based on published technical data and experience. The chemical resistance of the above products is dependant on factors such as chemical exposure, concentration of the chemical and temperature. The above chemicals are valid for a temperature of 23°C. Use of the above table is at the users own discretion and risk. Those using it must satisfy themselves that their application presents no health and safety risks. The end user should assess compatibility with their application and contact Thomas & Betts for further information.

ADHERENCE TO THE CURRENT WIRING REGULATIONS BS7671 OR NEC WIRING REGULATIONS (FOR USA) IS STRONGLY ADVISED.
 MINIMUM BEND RADIUS FOR FLEXING IS DEPENDANT UPON MINIMUM TEMPERATURE, BENDING FREQUENCY AND CHEMICAL ENVIRONMENT.

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Flammability

Test Type	Method / Standard	Requirement	Result	Unit
Oxygen Index	ISO 4589-2	% Oxygen to support combustion	ILFH	%
Glow Wire Rating	IEC 60695	No Ignition to Extinguish with 30s	ILFH	°C
Flammability	UL94	Vertical (V0, V2) or Horizontal (HB)	ILFH	
Flammability	IEC 61386-1	1Kw Burner @ 45°	ILFH	Pass/Fail
FTI	ISO 4589-3		ILFH	





Smoke

Test Type	Method / Standard	Requirement	Result	Unit
Smoke Density	ATS1000	In flaming mode <100 @ 4 mins	ILFH	
Smoke Density	ATS1000	In non flaming mode <100 @ 4 mins	ILFH	
Smoke Density	BS6853	A <0.02	ILFH	
Smoke Density	ASTM E-662	Flaming mode Ds Max	ILFH	
Smoke Density	ISO - 5659-2	Ds Max	ILFH	

Toxicity

Test Type	Method / Standard	Requirement	Result	Unit
Halogen Free	LUL	<0.5%	ILFH	Yes/No
Phosphorous Free	LUL	<0.5%	ILFH	Yes/No
Sulphur Free	LUL	<0.5%	ILFH	Yes/No
NFX 70-100	NFX70 - 100 1 / 2	CIT _{NLP}	ILFH	N/A

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%	Inherent Low Fire Hazard i.e
BS6853 Smoke Density 3m³	0.02 ≤ A _s ≤ 0.03	0.0005 ± A _s ≤ 0.02	A _s ≤ 0.005	Hazard i.e
Zero Halogen	✓	✓	✓	Type , S, SS
Zero Phosphorus	✓	✓	✓	Metallic Conduit & Fit-
Zero Sulphur	✓	✓	✓	tings
NFF16-102	I3F2	I2F2	I2F1	
EN45545-2	HL2	HL3	HL3	

Pre Test Conditions

Duration	Standard	Temperature	Relative Humidity
168 (Hours)	EN50086/IEC61386	23 (°C)	50 (%)