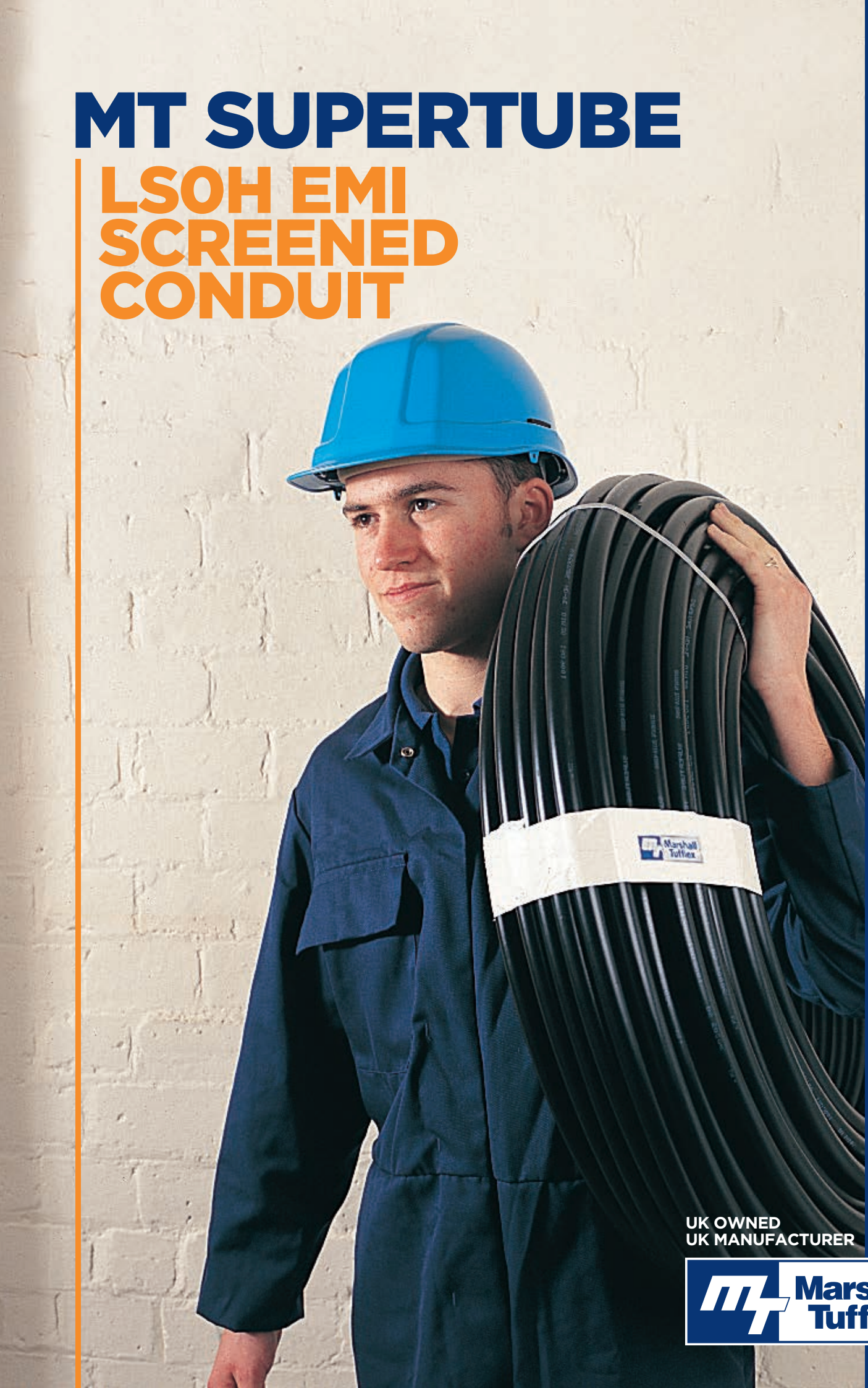
MT SUPERTUBE

LSOH EMI SCREENED CONDUIT



DELIVERING INNOVATION
www.marshall-tufflex.com

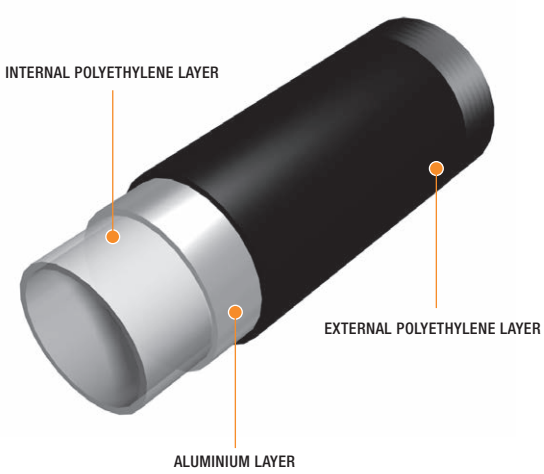
UK OWNED
UK MANUFACTURER

Marshall Tufflex

MT SUPERTUBE LS0H BOXES AND FITTINGS

MT Supertube is a strong, robust, lightweight, LS0H, three layer heavy gauge conduit which is pliable by hand. The three layers comprise of polyethylene internal and external layers over a continuous aluminium tube that provides additional mechanical strength. MT Supertube has excellent EMI screening performance and is a practical and cost saving alternative to standard galvanised conduits.

- LS0H conduit with excellent screening performance
- Combines the strength of metal with the flexibility of PVC-U conduit
- Quick to install when compared to galvanised steel conduit
- Supplied in coils up to 100m for easy movement around site without the need for hoists
- Less in-line fittings required and minimal wastage
- Withstands temperatures from –40°C to +120°C
- Maintenance free
- Suitable for rail, tunnel and marine applications



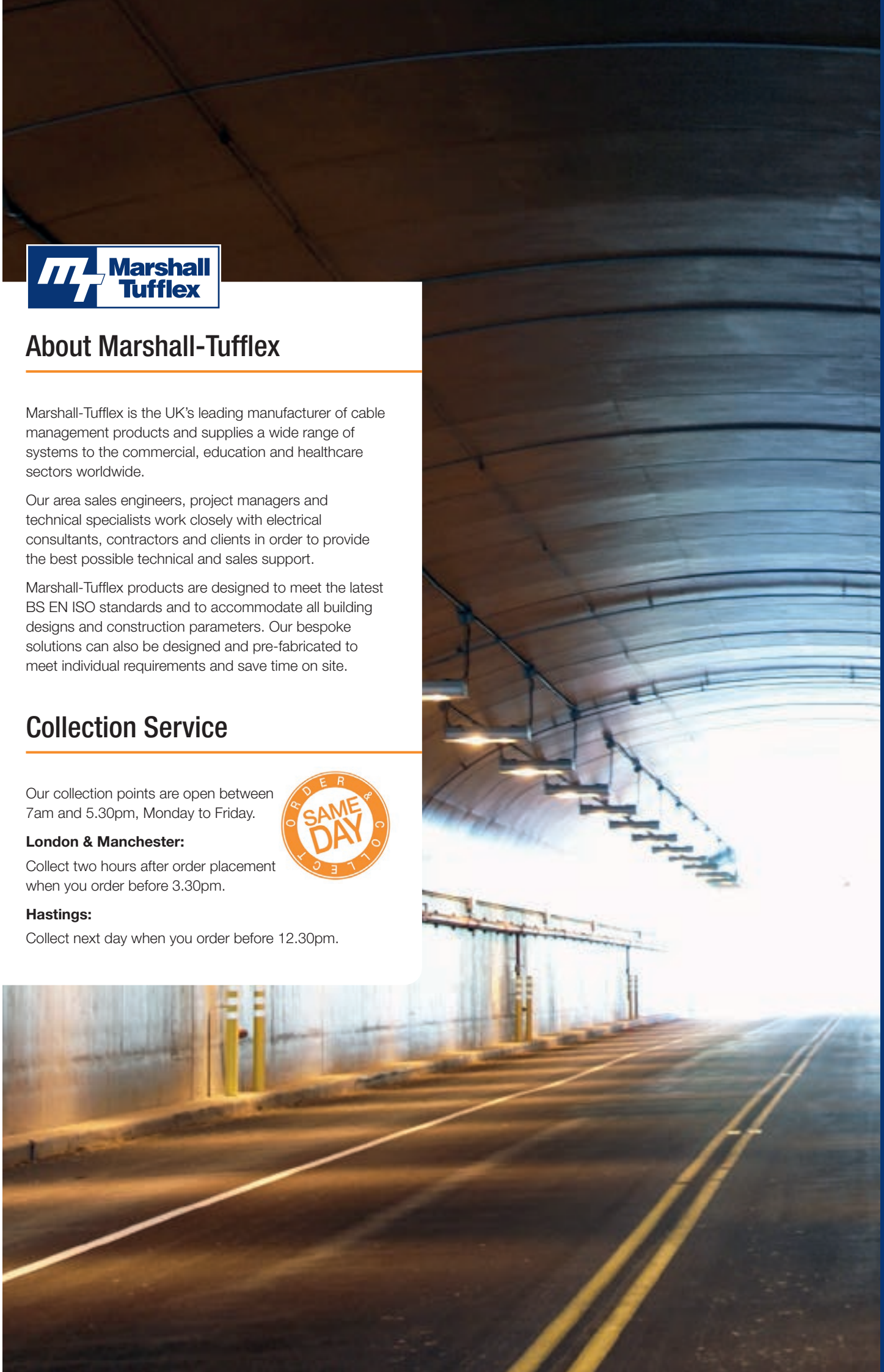
MT SUPERTUBE is a time saving alternative to galvanised steel conduit.

See page 7 for the MT Supertube cost and labour saving comparison.

Standards & Environmental

Marshall-Tufflex is committed to excellence and is recognised by the BSI as a firm of Assessed Capability for Quality Management Systems to BS EN ISO 9001:2008, Environmental Management Systems to BS EN ISO 14001:2004, Energy Management Systems to BS EN ISO 50001:2011 and Occupational Health and Safety Systems to BS OHSAS 18001:2007.

ISO 9001 Quality Management	ISO 14001 Environmental Management	OHSAS 18001 Occupational Health & Safety Management	ISO 50001 Energy Management
Q05393	EMS 539245	OHS 622466	ENMS 602935



About Marshall-Tufflex

Marshall-Tufflex is the UK's leading manufacturer of cable management products and supplies a wide range of systems to the commercial, education and healthcare sectors worldwide.

Our area sales engineers, project managers and technical specialists work closely with electrical consultants, contractors and clients in order to provide the best possible technical and sales support.

Marshall-Tufflex products are designed to meet the latest BS EN ISO standards and to accommodate all building designs and construction parameters. Our bespoke solutions can also be designed and pre-fabricated to meet individual requirements and save time on site.

Collection Service

Our collection points are open between 7am and 5.30pm, Monday to Friday.

London & Manchester:

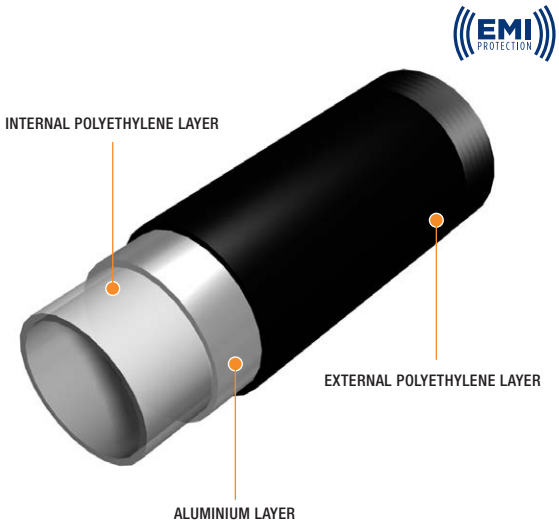
Collect two hours after order placement when you order before 3.30pm.

Hastings:

Collect next day when you order before 12.30pm.

MT Supertube

MT Supertube is a unique, LS0H, 3-layer heavy gauge conduit comprising polyethylene internal and external layers over a continuous aluminium tube that provides additional mechanical strength. MT Supertube has excellent EMI screening performance and is a practical and cost-saving alternative to standard galvanised conduits.



Product information

- Ø20mm and Ø25mm
- LS0H conduit
- Excellent screening performance
- Suitable for rail, marine and tunnel applications
- ZERO WASTE: available in continuous lengths of up to 100 metres, meaning fewer fittings per installation
- Longer lengths also prevent ingress of water
- Extra security from data interference
- Suitable for in-screed applications
- Withstands temperatures from –40°C to +120°C
- Nail penetration: MT Supertube complies with requirements for BS 7671, BS EN61386-1:2008
- BS 8436 is specification for 300/500V screened electric cable

Standard Colours	
WH	BK
WH: White BK: Black	

Colour code suffix: to indicate the finish you require, add the required colour code to the end of the product code. Other colour options are available but may be subject to longer lead times and minimum order quantities. For further information contact the Technical Team on +44 (0)1424 856688.

MT SUPERTUBE is a time saving alternative to galvanised steel conduit.

See page 7 for the MT Supertube cost and labour saving comparison.

FIRE SECURITY

MT Supertube FR Plus

MT Supertube is available to meet the requirements of LUL (London Underground Ltd) engineering standard 2-01001-002:issue A1, material classification EQ/1 (equipment/limited and dispersed).

*Please note MT Supertube FR Plus is not a standard stock item and therefore lead times will apply.

Coils and lengths

MT Supertube conduit

code	size	pack
22003WH	20mm	30 x 3m
22503WH	25mm	30 x 3m

MT Supertube coils

code	size	pack
22010BK	20mm	1 x 100m
22505BK	25mm	1 x 50m

MT Supertube FR Plus conduit

code	size	pack
220FR03WH*	20mm	30 x 3m
225FR03WH*	25mm	30 x 3m

MT Supertube FR Plus coils

code	size	pack
220FR10BK*	20mm	1 x 100m
225FR05BK*	25mm	1 x 50m

Tools

Tube cutter

code	size	pack
20001	20-25mm	1

Stripping tool (pre-set)

code	size	pack
20002	20-25mm	1

Compact tube bender

code	size	pack
20003	20-25mm	1

Female adaptor with brass bush

code	size	pack
22077BK	20mm	10
22577BK	25mm	10

Male adaptor thread insert

code	size	pack
22078MF	20mm	10
22578MF	25mm	10

Coupler

code	size	pack
22079BK	20mm	10
22579BK	25mm	10

Spacer bar snap saddle LS0H

code	size	pack
22051BK	20mm	100

Spacer bar saddle LS0H

code	size	pack
22552BK	25mm	100

U-clip LS0H

code	size	pack
22053BK	20mm	100
22553BK	25mm	50

Terminal box

code	size	pack
22072BK	20mm	10
22572BK	25mm	10

Tee box

code	size	pack
22075BK	20mm	10
22575BK	25mm	10

MT Supertube EMI protection boxes and fittings

- Provision to accept a 4mm earthing screw
- All boxes supplied with conduit retaining screw
- All boxes are designed to comply with the requirements of BS 7671
- Taper push-fit conduit entry
- Fittings are available in black and white

Through box

code	size	pack
22073BK	20mm	10
22573BK	25mm	10

Angle box

code	size	pack
22074BK	20mm	10
22574BK	25mm	10

Flush lid

code	pack
20007BK	1

MT Supertube LS0H boxes and fittings

Fittings (polycarbonate)

Male adaptor

code	size	pack
22042BK	20mm	25
22542BK	25mm	25

Clip–in–spout

code	size	pack
22043BK	20mm	25
22543BK	25mm	25

Coupler

code	size	pack
22044BK	20mm	100
22544BK	25mm	50

Spacer bar snap saddle

code	size	pack
22051BK	20mm	100

Spacer bar saddle

code	size	pack
22552BK	25mm	100

U–clip

code	size	pack
22053BK	20mm	100
22553BK	25mm	50

Inspection elbow

code	size	pack
22045BK	20mm	20

Inspection bend

code	size	pack
22546BK	25mm	20

Inspection tee

code	size	pack
22047BK	20mm	20
22547BK	25mm	20

Boxes (polycarbonate)

Loop–in box

code	size	pack
22011BK	2 x ø20mm KO	20
22511BK	2 x ø25mm KO	20

Terminal box

code	size	pack
22012BK	20mm	20
22512BK	25mm	20

Through box

code	size	pack
22013BK	20mm	20
22513BK	25mm	20

Angle box

code	size	pack
22014BK	20mm	20
22514BK	25mm	20

Tee box

code	size	pack
22015BK	20mm	20
22515BK	25mm	20

4–way box

code	size	pack
22016BK	20mm	20
22516BK	25mm	10

Flush lid

code	pack
20005BK	100

Sealant

code	size	pack
20006	30ml	1x30ml

HEALTH & SAFETY DATA SHEETS ARE AVAILABLE FROM

www.marshall-tufflex.com

AND IN THE INTEREST OF SAFETY, THE SOLVENT CEMENTS ARE REGISTERED WITH THE NATIONAL POISON INFORMATION SERVICE

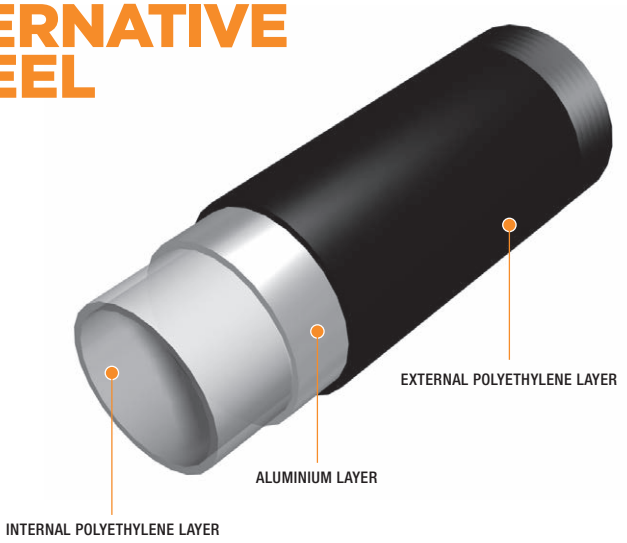
MT Supertube LS0H boxes and fittings

- Suitable for suspending a load of up to 3kg centrally at 60°C maximum
- Fixing centres 50.8mm fitted with M4 brass inserts
- Provision for brass earthing terminals
- Boxes comply with the requirements of BS 7671 Wiring Regulations and BS 4607 where applicable.
- Fittings are available in black & white

MT SUPERTUBE

A TIME SAVING ALTERNATIVE TO GALVANISED STEEL CONDUIT

MT Supertube has a three layer Low Smoke Zero Halogen (LS0H) polyethylene and aluminium construction offering extremely good EMI cable protection and resistance to extremes of temperature and chemicals. It is lightweight yet has the strength of metal meaning it's quick to install and simple to store and carry on site.



- Combines the strength of metal with the flexibility of PVC-U conduit
- Fast installation
- Supplied in coils for easy movement around site without the need for hoists
- Assists in conforming to the EMC directive in regard to EMI shielding
- Less in line fittings required and minimal wastage
- Forms easily by hand and to a required radius when utilising the tube bender
- Can be buried in concrete and detected by a cat detector
- Useful as vacuum tube for 'aspirated' smoke detection (Heathrow)
- Maintenance free

Contractor cost & labour saving example *(based on contractor purchase price)*

Costs calculated on using 100m of 20mm conduit with 8 off 90° bends and estimated manpower costs of £30 per hour.

Galvanised steel
Material cost @ £2.20 per metre + fittings = £230
Labour @ 30mins per metre = 2 metres per hour
50 hours @ £30 = £1500
Galvanised steel overall costs = £1730

MT Supertube
Material cost @ £2.75 per metre + fittings = £288.71
Labour @ 10mins per metre = 6 metres per hour
16.67 hours @ £30 = £500
MT Supertube overall costs = £788.71

The savings on this job amount to £941.29.

54% cheaper than galvanised steel

It is also possible to reduce overall project costs by using MT Supertube as it can be bent into position by hand therefore reducing the need for as many fittings.

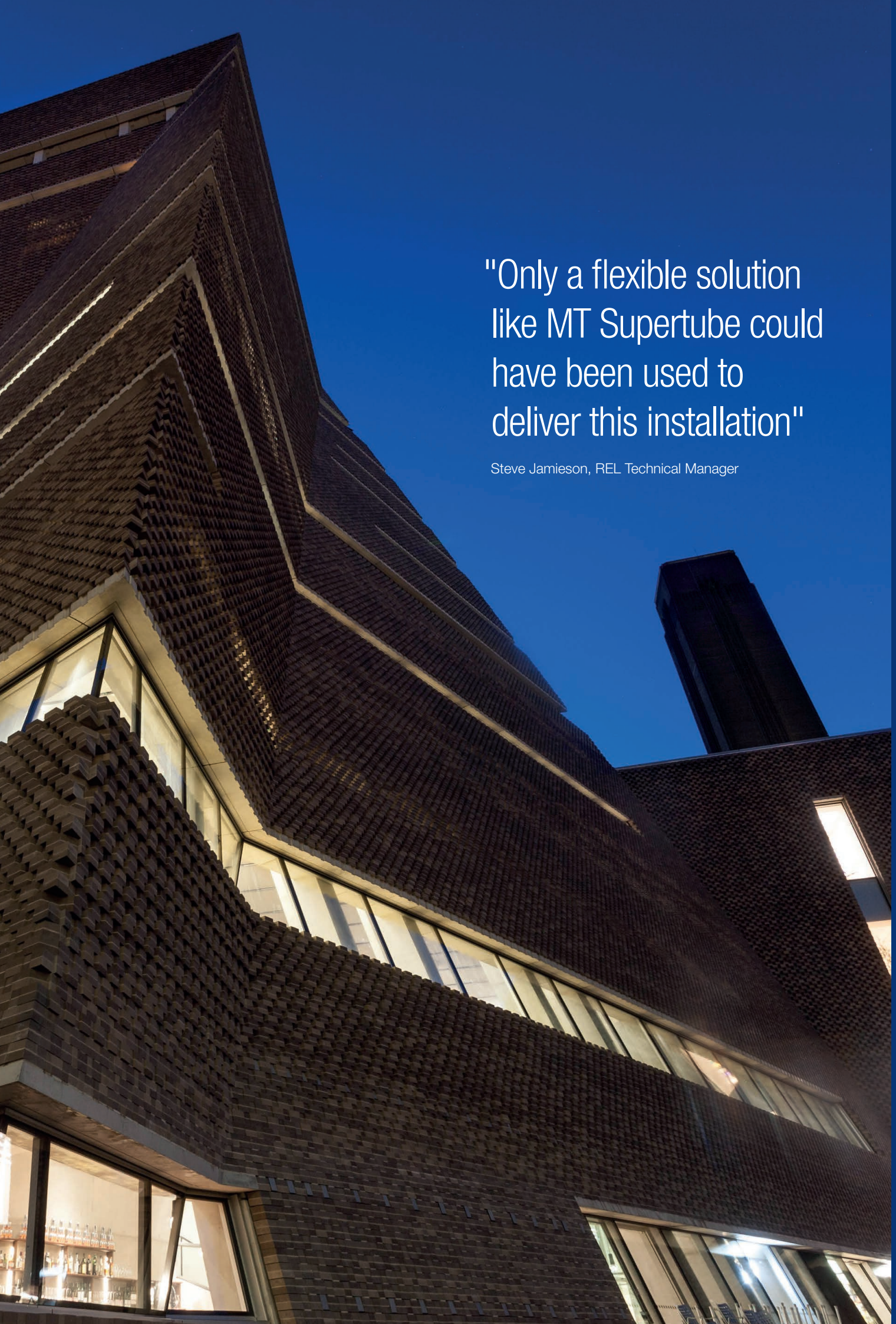
MT SUPERTUBE INSTALLED WITHIN TATE MODERN EXTENSION

MT Supertube is at the heart of an iconic London development being hailed as Britain's most important new cultural building for almost 20 years.

Tate Modern's new extension, the £260m Switch House, required a highly creative approach to the installation of electrical services in a concrete core that rises through the centre of the 10-storey building, designed by internationally-renowned architects Herzog & de Meuron.

London-based contractors REL Building Services ruled out the use of traditional galvanised conduit as too costly and unworkable, opting instead for Marshall-Tufflex's MT Supertube and in doing so breaking new ground in the application of the product. The cable management – carrying power, lighting, data, fire alarms, security, access control and CCTV services – was encased within the building's concrete core and delivered the architectural vision for flush-mounted electrical accessories without the use of voids for cable concealment in floors, walls or ceilings.

Steve Jamieson, REL Technical Manager, said: "*Only a flexible solution like MT Supertube could have been used to deliver this installation as it allowed the team to bend lengths of conduit to fit into position around the steelwork and maximised the lengths we could use without a termination.* →



"Only a flexible solution like MT Supertube could have been used to deliver this installation"

Steve Jamieson, REL Technical Manager

Case study continued

"MT Supertube's smooth inner surface also allows cables to be inserted using a traditional draw wire, enabling cable pulls of up to 50m in length through a tube with no fittings. This minimises the risk of cables snagging during the build or any future electrical refurbishment, which would not have been possible using a traditional galvanised conduit and fittings arrangement."

"*We allowed an excess of around two metres on each length to protrude beyond the concrete pour so that we could simply connect the next sections to the existing installation after each concrete pour had cured,"* said Mr Jamieson.

MT Supertube is a strong, robust, lightweight three-layer tube-style conduit pliable by hand. The system was fabricated on deck at site and laced through the steel rebar network. Cable ties secured it to the rebar. Insulation tape was applied to each conduit connection over a 50mm width each side to ensure moisture resistance.

Jon Chamberlain, Marshall-Tufflex National Sales Manager, praised the project for utilising MT Supertube in such an innovative manner: "*This is a stand-out application for our product and really showcases what can be achieved when interdisciplinary teams work closely together and think outside the box to solve specification dilemmas. It also shows just how beneficial considering the electrical specification very early in a project can be. MT Supertube matched the electrical infrastructure requirements of Switch House perfectly. It's a brilliant project."*

Technical Information

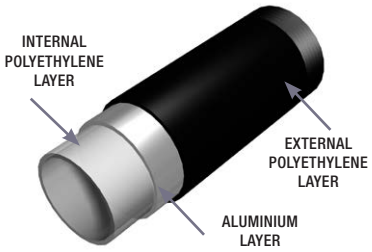
General information

MT Supertube provides LS0H polyethylene-coated aluminium cable protection for installation where halogen free products are a requirement.

Material

Conduit: A seamless aluminium tube sandwiched between two layers of extruded LS0H polyethylene.

Fittings: LS0H polycarbonate or cast metal with paint finish. (black or white).

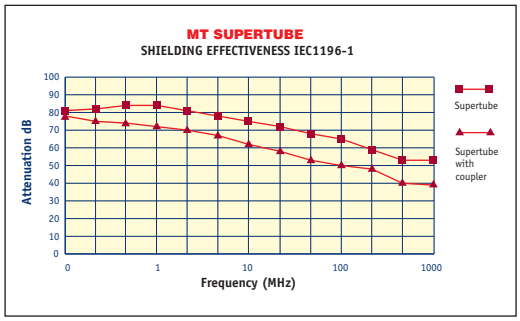


Shielding effectiveness

Shielding effectiveness (attenuation in dB) measures the ratio between the external environment field strength and the field strength after passing through any material. This is recorded in a logarithmic scale.

Shielding effectiveness	
Attenuation in dB	Field strength reduction
6	2
20	10
40	100
60	1000
80	10000

MT Supertube multi layer conduit systems absorbs and reflect emitted radiation from sources of interference, where an attenuation of 80dB would reduce the resultant field within MT Supertube by a factor of 10,000. (See tables.)



The graphs above show that the shielding effectiveness of MT Supertube is highly effective throughout the entire frequency range and will provide protection from interference for data, telecoms and signal cables.

Mechanical		MT Supertube & MT Supertube FR	MT Supertube & MT Supertube FR
Tube reference		22010/22003	22505/22503
Outside diameter	(mm) OD	20	25
Internal diameter	(mm) ID	15.5	20
Wall thickness	(mm) W	2.25	2.5
Minimum bend radius	(8 x dia)	160	200
Weight per metre	(g)	145	184
Lengths	(m)	100/3	50/3
Suspension distance (maximum)	Horizontal (mm)	1000	
	Vertical (mm)	1200	

Electrical	MT Supertube	MT Supertube FR
Electrical breakdown resistance	20,000 V	20,000 V
Temperature range °C	-45 +120	-45 +289
Thermal expansion coefficient	2.0 x 10-6mm/m/K	2.0 x 10-6mm/m/K
Thermal conductivity	0.45 W (mK)	0.45 W (mK)
Earth bonding/continuity test results	<0.05 Ω	<0.05 Ω
Standards	EN 61386-21	EN 61386-21
	IEC 601196-1	IEC 601196-1

WARNING NAIL PENETRATION: MT Supertube FR Plus complies with requirements for BS 7671, BS 8436 and BS EN 61386. Screening to ENIEC 1196-1.

Installation

Conduit

MT Supertube can be shaped and slow bends formed by hand but care needs to be taken to avoid kinking.

For tighter radius bends use compact hand bender or inspection elbows and bends.

Fittings

1. For EMC screening system

a. Cut the tube squarely to the required length (Tool No. 20001).

b. Remove 12-16mm of insulation, taking care not to cut the aluminium layer (Tool No. 20002).

c. Push conduit firmly into fitting and secure using screw located in spout.

d. Fasten tube with a saddle within 150mm of spout.

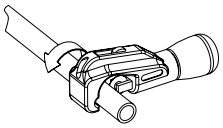
2. For halogen free system

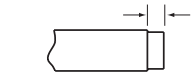
a. Cut the tube squarely to the required length. Tool no. 20001.

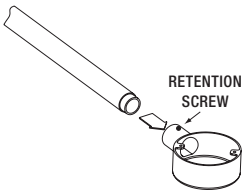
b. Apply sealant (20006) to the end of the tube.

c. Push the tube firmly into the fitting spout.

d. Fasten tube with a saddle within 150mm of spout.







MT Supertube FR Plus performance

Fire Performance				
Oxygen Index	BS EN ISO 4589-2		46.5%	
Flammability Temperature	BS EN ISO 4589-3		289ºC	
(Temperature Index)	Annex A			
Elemental composition	Lassaigne Sodium	Nitrogen	Negative	
		Fusion	Chloride	Negative
			Bromide	Negative
			Fluoride	Negative
			Sulphur	Negative
Smoke Density	Low Smoke			

Conduit Performance (BS EN 50086.1.2)	
Cold temperature impact test	Heavy gauge performance
Compression	Low compression
Resistance to flame propagation	Pass

Marshall-Tufflex Ltd

Churchfields Industrial Estate
Hastings
East Sussex
TN38 9PU
United Kingdom

T +44 (0)1424 856600
F +44 (0)1424 856611
E sales@marshall-tufflex.com
www.marshall-tufflex.com

Technical Hotline:
+44 (0)1424 856688

Republic of Ireland & Northern Ireland distributor

Core Electrical Ltd
17b Goldenbridge Industrial Estate
Tyrconnell Road, Inchicore
Dublin 8

T +353 (0)1453 7033
F +353 (0)1453 8911

UK OWNED
UK MANUFACTURER

Marshall Tufflex

EL115/16054