

Marshall-Tufflex

MT Supertube

LSOH EMI Screened Conduit

CI/SfB
| (62) | In6 |



www.marshall-tufflex.com



MT Supertube LSOH EMI Screening Conduit

MT Supertube has a unique three layer LSOH polyethylene and aluminium construction offering extremely good EMI cable protection and resistance to extremes of temperature. Lightweight and easy to use, MT Supertube is as strong as steel but sufficiently pliable to hand form to installation requirements.

MT Supertube is installed in a similar way to traditional conduit and the product offers many advantages, such as:

- Lightness
- Flexibility
- Speed of installation
- Supplied in coils or straight lengths
- Durability
- Halogen Free
- Choice of colours*
- Range of fittings
Complies to EN50086



**Various colours of MT Supertube are available in production quantities but may have longer lead times.*

Environmental



Marshall-Tufflex actively pursues a comprehensive programme to develop formulations based on environmentally acceptable materials, whilst still maintaining and, where possible, improving on long-term performance properties.

Jim Fletcher, Managing Director

Sustainability

- **Aluminium:** is a LSOH (Low Smoke Zero Halogen) material with excellent EMC/EMI properties, especially at higher frequencies. Aluminium can be recycled many times without loss of quality.
- **Steel:** is an LSOH material with excellent EMC/EMI properties. Steel can be recycled many times without loss of quality.
- **Polyethylene:** used in the manufacture of MT Supertube and MT Supertube FR Plus LSOH conduit with an integral internal aluminium sleeve. FR Plus meets the requirements of LUL Engineering Standard 2-01001-002:Issue A1. The polyethylene used in MT Supertube is non-polluting and recyclable though the inner aluminium layer needs to be stripped.
- **Polycarbonate:** is used for the manufacture of specialised fittings. This LSOH material is flame retardant and does not emit toxic substances, which is why it is so often incorporated in public buildings where the most stringent safety regulations apply. The environmental impact of polycarbonate is neutral.

Carbon assessment

The Carbon Trust was set up by Government in 2001 as an independent company. Their mission is to accelerate the move to a low carbon economy by working with organisations to reduce carbon emissions and develop commercial low carbon technologies.

Marshall-Tufflex was assessed by the Carbon Trust in 2007 and received an excellent report.



Certificate No. Q05393
Registration
BS EN ISO 9001:2008

Quality Management Systems:

Marshall-Tufflex is totally committed to quality and customer satisfaction and the Company is recognised by the British Standards Institution as a firm of Assessed Capability to BS EN ISO 9001:2008.



Certificate No. EMS 539245
Registration
BS EN ISO 14001:2004

Environmental Management Systems:

Marshall-Tufflex is totally committed to achieving high environmental standards. The Company is recognised by the British Standards Institution as a firm of Assessed Capability to BS EN ISO 14001:2004.

Marshall-Tufflex and Vinyl 2010

The company is dedicated to meeting the requirements of Vinyl 2010 and its ongoing programme til 2020 of Voluntary Commitment to the European Commission.



Recycling

Marshall-Tufflex is active in and supports the use and control of PVC-U based materials, with the aim of increasing awareness and use of recycled material.



EMC Protection

MT Supertube provides the very latest method of screening power, data, signal and telecommunication cables from Electro-Magnetic Interference (EMI). To assist in conforming to the EMC directive MT Supertube has a totally enclosed aluminium section.

Installation

An alternative to steel conduit, MT Supertube offers all the flexibility of PVC-U. The smooth internal bore makes the pulling of cables easier and reduces the possibility of damage to sensitive data cables. Supplied as continuous lengths it is quick and simple to install as the number of in line fittings required is reduced. No waste and no mess, MT Supertube offers a significant labour cost saving.

Security

Manufactured in lengths of 3.0 meters and supplied in coils of 50 or 100 metres, MT Supertube gives the advantage of being secure with no access via joints. This provides the ultimate security for cable protection and also enhances screening for data/signal protection.

Hazardous Areas

MT Supertube's unique 3 layer construction and chemical resistant properties mean it is suitable for installation into hazardous areas. It is resistant to extremes of temperature and the FR Plus version has been specifically formulated for the most arduous of fire safety requirements.



Advantages

- Low Smoke Zero Halogen (LSOH)
- Manufactured to comply with EN50086
- Assists in conforming to the EMC directive in regard to EMI shielding
- Resistant to extremes of temperature (-40 to +120°C)
- Combines the strength of metal with the flexibility of PVC-U Conduit
- Forms easily to required radius when utilising the tube bender
- Less in line fittings required and minimal wastage
- Single coil lengths in 50 or 100 metres
- Offers significant labour cost savings
- Maintenance free
- Can be buried in concrete
- Can be detected by a metal detector
- Available in black or white. Other colours are available but may be subject to minimum order quantities and longer lead times
- 20mm and 25mm fittings available in steel and polycarbonate

MT Supertube FR Plus

With all the benefits of MT Supertube, the FR Plus version has been specifically formulated for the most arduous of fire safety requirements. Suitable for installation into:

- Tunnels
- Road and rail
- Ships and submarines
- Process plant facilities
- Oil rigs



MT Supertube Systems

MT Supertube is a three layer LSOH heavy gauge impact resistant conduit (EN50086). Manufactured in continuous lengths, up to 100 metres. Available in black or white.



Prod Code	Size	Pack
22010BK	20mm	1 x 100m



Prod Code	Size	Pack
22505BK	25mm	1 x 50m



Prod Code	Size	Pack
22003WH	20mm	30 x 3m



Prod Code	Size	Pack
22503WH	25mm	30 x 3m

MT Supertube FR Plus

MT Supertube FR Plus is a three layer LSOH Conduit specifically formulated for the most arduous of fire safety requirements. Available in black or white.



Prod Code	Size	Pack
220FR10BK	20mm	100m



Prod Code	Size	Pack
225FR05BK	25mm	50m

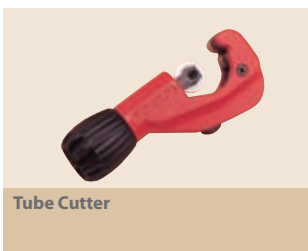


Prod Code	Size	Pack
220FR03WH	20mm	30 x 3m



Prod Code	Description	Pack
225FR03WH	25mm	30 x 3m

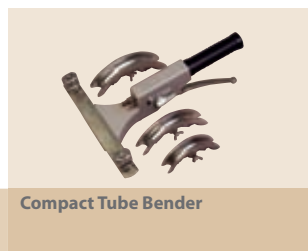
Tools



Prod Code	Size	Pack
20001	16-25mm	1



Prod Code	Size	Pack
20002	16-25mm	1



Prod Code	Size	Pack
20003	20-25mm	1

COLOUR CODE SUFFIX	
Please replace the last two letters with those detailed below.	
Code	Colour
BK	Black
WH	White

MT Supertube Fittings and Boxes (Metal)

Boxes are supplied with conduit retention screws and have provision for an earthing screw. All boxes meet requirements of the BS7671 Wiring Regulations.



Prod Code	Size	Pack	Prod Code	Size	Pack	Prod Code	Size	Pack	Prod Code	Size	Pack
22072BK	20mm	10	22073BK	20mm	10	22074BK	20mm	10	22075BK	20mm	10
22572BK	25mm	10	22573BK	25mm	10	22574BK	25mm	10	22575BK	25mm	10



Prod Code	Pack	Prod Code	Size	Pack	Prod Code	Size	Pack	Prod Code	Size	Pack
20007BK	10	20077BK	20mm	10	22078BK	20mm	10	22079BK	20mm	10
		20577BK	25mm	10	22578BK	25mm	10	22579BK	25mm	10

Non-Metal Supports

Halogen free.



Prod Code	Size	Pack	Prod Code	Size	Pack	Prod Code	Size	Pack
22051BK	20mm	100	22552BK	25mm	100	22053BK	20mm	100
						22553BK	25mm	50

COLOUR CODE SUFFIX	
Please replace the last two letters with those detailed below.	
Code	Colour
BK	Black
WH	White

Contractor Cost & Labour Saving Example *(based on contractor purchase price)*

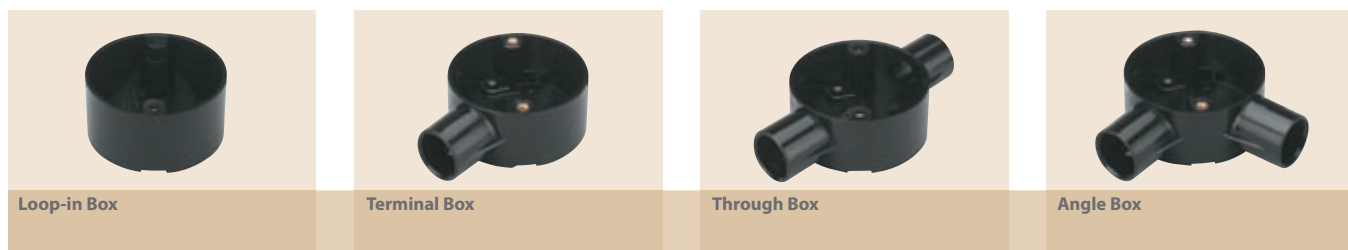
Costs calculated on installing 100m of 20mm conduit with 12 bends and 10 cut lengths. Estimated at manpower costs of £30 per hour.

Galvanised Steel Material cost @ £0.82 per metre + 20 couplers, 20 Spur conduit boxes & 100 saddles = £131.50	MT Supertube Material cost @ £1.73 per metre + 20 Spur conduit boxes & 100 saddles = £225.20
Labour @ 15mins per 3mtr Fitting 20 Couplers @ 5min each Fitting Boxes @ 10min each 12 Bends @ 15min each 10 cut/threaded lengths @ 20min each = £590	Labour @ 10mins per 3mtr Fitting Boxes @ 5min 12 bends @ 5min 10 cut lengths @ 5min = £305
GALVANISED STEEL OVERALL COST = £721.50	MT SUPERTUBE OVERALL COST = £560.20

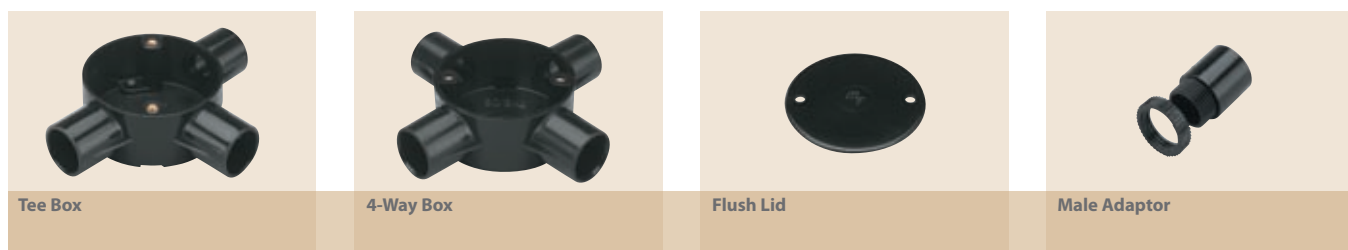
The SAVINGS amount to £161.30 – MORE THAN 20% - Plus substantial time savings

MT Supertube for Halogen Free Applications Fittings and Boxes (Polycarbonate)

Available in black, white or red. Fixing centres 50.8mm fitted with M4 brass inserts. Provision for brass earthing terminal. Boxes meet requirements of BS4607 where applicable and the requirements of the BS7671 Wiring Regulations. They are suitable for suspending a load of up to 10kg centrally at 60°C maximum.



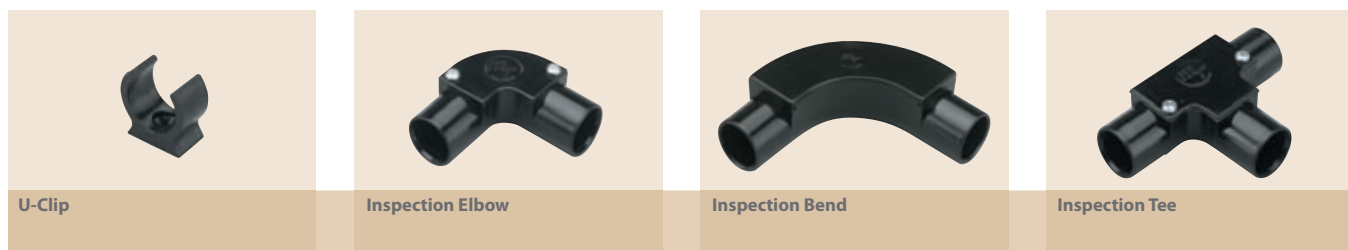
Prod Code	Size	Pack	Prod Code	Size	Pack	Prod Code	Size	Pack	Prod Code	Size	Pack
22011BK	2 x ø20mmKO	20	22012BK	20mm	20	22013BK	20mm	20	22014BK	20mm	20
22511BK	2 x ø25mmKO	2	22512BK	25mm	20	22513BK	25mm	20	22514BK	25mm	20



Prod Code	Size	Pack	Prod Code	Size	Pack	Prod Code	Size	Pack	Prod Code	Size	Pack
22015BK	20mm	20	22016BK	20mm	20	20005BK		100	22042BK	20mm	25
22515BK	25mm	20	22516BK	25mm	20				22542BK	25mm	25



Prod Code	Size	Pack	Prod Code	Size	Pack	Prod Code	Size	Pack	Prod Code	Size	Pack
22043BK	20mm	25	22044BK	20mm	100	22051BK	20mm	100	22552BK	25mm	100
22543BK	25mm	25	22544BK	25mm	50						



Prod Code	Size	Pack	Prod Code	Size	Pack	Prod Code	Size	Pack	Prod Code	Size	Pack
22053BK	20mm	100	22045BK	20mm	20	22546BK	25mm	20	22047BK	20mm	20
22553BK	25mm	50							22547BK	25mm	20



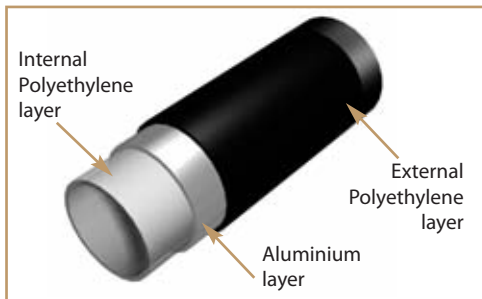
Sealant		
Prod Code	Size	Pack
20006	30ml	10

COLOUR CODE SUFFIX		
Please replace the last two letters with those detailed right.		
Code	Colour	
BK	Black	
WH	White	

MT Supertube – LSOH Conduit Technical Information

MT SUPERTUBE is a simple tubing product which can be installed with no mess, minimal wastage and in a fraction of the time taken for conventional systems, for cable protection, screening, fire protection and halogen free applications.

With MT SUPERTUBE, its unique construction and smooth internal bore makes the stripping of cable insulation a thing of the past, compared to steel conduit. Add to this the greater lengths through more bends which can be achieved without stretching the cables, the pulling of cable could not be easier.



Shielding effectiveness (attenuation in dB) is a measurement of the ratio between the external environment field strength and the field strength measured after passing through any material.

This is recorded in a logarithmic scale.

MT SUPERTUBE multi layer conduit systems are designed to absorb and reflect emitted radiation from sources of interference, whereby with an attenuation of 80dB would reduce the resultant field within the Supertube by a factor of 10,000 (See tables).

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

It can be clearly seen from the graph that the shielding effectiveness of MT SUPERTUBE System is highly effective throughout the entire frequency range, and will provide protection from interference for data, telecommunication and signal cables and is far superior in comparison to any other similar product currently available.

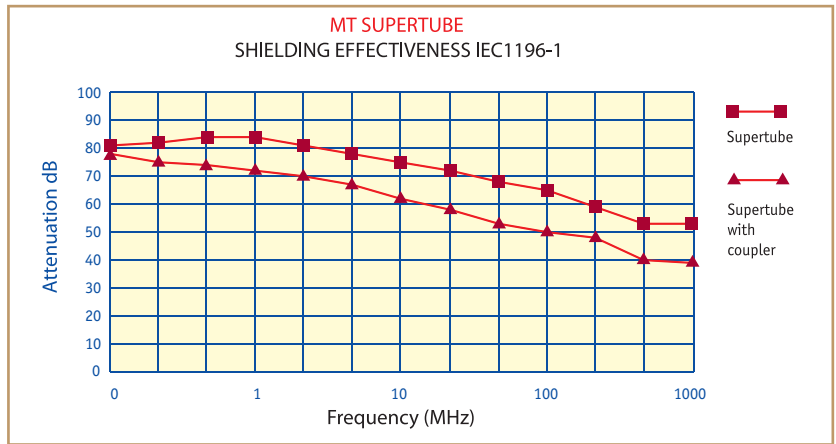
This is supplemented by the cost savings that can be made during installation and the greater flexibility of the range.

FORMING/BENDING OF MT SUPERTUBE



MT SUPERTUBE can be formed by hand, although care needs to be taken to avoid kinking.

A tighter radius (90°) can be achieved using the MT SUPERTUBE compact hand held bender.



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

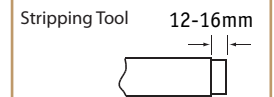
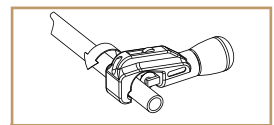
Suspension distance (maximum)	Horizontal (mm) 1000 Vertical (mm) 1200
Electrical breakdown resistance	20,000 V
Temperature range °C	-45 +120
Thermal expansion coefficient	2.0 x 10 ⁻⁶ mm/m/K
Thermal conductivity	0.45 W (mK)
Earth bonding/continuity test results (per fitting)	< 0.05 Ω (0.00256 Ω)
Standards	DIN EN 50086-2-1 1995 IEC 61196-1

WARNING The aluminium tube is not suitable to be used as a protective conductor (CPC).

INSTRUCTIONS FOR JOINTING MT SUPERTUBE

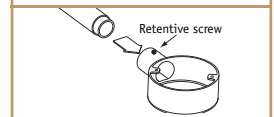
1. FOR EMC SCREENING SYSTEM

- Cut the tube squarely to the required length. Tool No.20001.
- Remove 12-16mm of insulation taking care not to cut the aluminium layer. Tool No.20002.
- Push the conduit firmly into the fitting and secure using the screw located in the spout.
- Fasten the tube within 150mm of the spout.



2. FOR HALOGEN FREE SYSTEM

- Cut the tube squarely to the required length. Tool no. 20001.
- Apply sealant (20006) to the end of the tube.
- Push the tube firmly into the fitting spout.
- Fasten the tube within 150mm of the spout.



MT SUPERTUBE FR PLUS CHARACTERISTICS

Fire Performance

Oxygen Index	BS EN ISO 4589-2	46.5%	
Flammability Temperature (Temperature Index)	BS EN ISO 4589-3 Annex A	289° C	
Elemental composition	Lassaigne Sodium	Negative	
	Fusion	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

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In pursuance of our policy of continued product improvement Marshall-Tufflex reserve the right to change the design or specification of its products without notification.

EL115/11006

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