PVC-U Conduit

Material

PVC-U is flame retardant and self-extinguishing. It provides a 100% recyclable material with good sustainability.

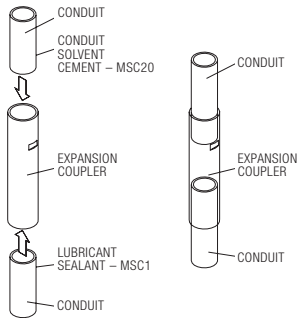
Installation

Fitting

- Secure horizontal runs of conduit at a maximum distance of 0.9m.
- Secure vertical runs of conduit at a maximum of 1.2m.
- In areas of high ambient temperature or where rapid changes in temperature are likely, these distances should be reduced.
- Where there are fittings or directional changes, the conduit should be secured approximately 150mm either side to maintain support.
- Avoid over-tightening to permit thermal movement.

Joints and couplers

- To accommodate thermal movement on surface installations, it is recommended that expansion couplers be used at a maximum distance of 6m intervals.
- In areas of high ambient temperature or where rapid changes in temperature are likely, this distance should be reduced.
- To install an expansion coupler, coat the inside of the short side with solvent cement (MSC) and push firmly over the conduit down to the stop point.
- Slide the next length of conduit into the long side of the coupler until mid-way to the stop point. DO NOT GLUE INTO PLACE. This will permit expansion or contraction of the conduit, providing it is free to move in the saddles.



Bends

Care should be taken not to make too tight a bend and attention is drawn to BS 7671:2001 (Wiring Regulations) 522-08-03. The radius of every bend in a wiring system shall be such that conductors and cables shall not suffer damage.

Cold bending 20-25mm conduit

Cold bending may be carried out on all conduit sizes up to 25mm in diameter using the correct size and gauge of bending spring.

- Heavy gauge spring is colour-banded green at the tip.
- Light gauge spring is colour-banded white at the tip. Springs are not interchangeable.
- Make sure springs are not damaged in any way as this can fracture or kink the conduit making removal of the spring difficult.
- In cold weather, warm the conduit by rubbing with a rag before bending.

To bend the conduit:

- Insert the spring to the desired position, grip the conduit on either side of bend and bring slowly together to form the bend.
- Cold bending of 20mm and 25mm conduit should be done with correct / undamaged spring inserted and bent over knee to initiate bend. Spring should remain inserted until the desired angle is achieved. (Under no circumstance should bends be increased or decreased without correct spring inserted)

  Failure to follow above procedure could increase possibility of product failure
- Make the bend more acute than necessary to allow for PVC-U to 'recover' after bending.
- To remove the spring, twist anti-clockwise (to reduce its diameter) whilst turning the conduit clockwise and gently pulling the conduit and the spring apart.
- If spring fails to release, do not pull too hard or damage to the spring may occur.
- Repeat the removal procedure until they come apart.
- The conduit should then be fastened into position to prevent further 'recovery' of the bend.

Hot bending

Hot bending should be carried out on all conduit sizes over 25mm in diameter using the correct size and gauge of bending spring.

To bend the conduit:

- Insert the spring to the desired position as described in 'cold bending', gently heating conduit with a hot air torch, hot water or by other suitable means.
- Avoid direct application of flame to the conduit. When the conduit is in a pliable state, slowly bend around a suitable former, holding in position for about 1 minute until set.
- Remove the spring, twist anti-clockwise (to reduce its diameter) whilst turning the conduit clockwise and gently pulling the conduit and the spring apart.
- If the conduit is bent too fast or, in the case of light gauge conduit, across the knee, there is a risk of damage to conduit and spring. Once the bend has been made, it should not be forced backwards but allowed to 'recover' naturally.

Earthing

The properties of PVC-U make it an all insulated system and the use of a separate earth cable is essential.

Joint sealant

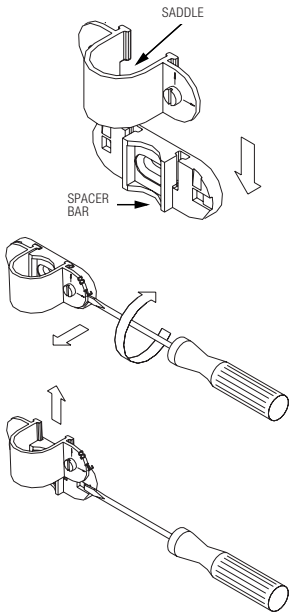
- Solvent cement MSC is a slow acting solvent cement especially formulated for watertight conduit fittings.

In accordance with COSHH Regulations, details of our solvents are entered in The National Poison Centre computer records. Health & Safety data sheets are available from our Technical Team or on the technical page of the Marshall-Tufflex website: **www.marshall-tufflex.com**

Spacer bar snap saddle

- Slide saddle into groove until it locks into the spacer bar.
- To dismantle, insert 4mm blade screwdriver into slot on side. Twist screwdriver to release the saddle in the spacer bar groove.

If conduit is installed in a corner, ensure that the spacer bar snap saddle is fitted with release mechanism facing away from corner.



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Product Information

MT Supertube

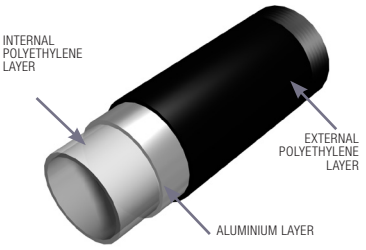
General information

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).

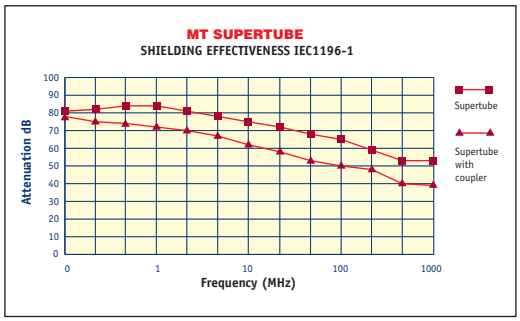


Shielding effectiveness

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	

Mechanical	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.

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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

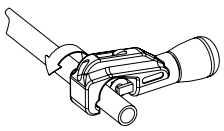
1. For EMC screening system

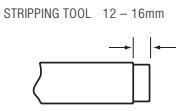
a. Cut the tube squarely to the required length (Tool No. 20001).

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.





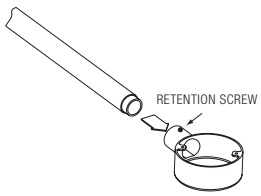
2. For halogen free system

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		289°C	
(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