Technical information

www.marshall-tufflex.com

This information is intended to provide the specifier or contractor with guidance on all aspects of Marshall-Tufflex cable management products, from specification to installation.

Marshall Tufflex

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PVC–U material data

Marshall-Tufflex cable management products are manufactured in Extra Super High Impact PVC-U grade material, capable of withstanding the most hazardous conditions on site and which exceeds the most stringent requirements of the British Standards.

Characteristics

Specific gravity		1.42
Co Efficient of Linear Expansion		7 x 10^{-5}/m/°C
Water Absorption		Negligible
Electric Strength		To the requirements of BS 4678, BS EN 50085
Fire Performance	BS 476 PT6 & PT7 BS 4678 BS EN 50085 UL94 BS EN 61386-1 BS 4607	PASS PASS PASS V-0 @1.6mm PASS PASS
Oxygen Index		42%
Tensile Strength		492/562 kg/cm^2
Insulation Resistance		To the requirements of BS 4678, BS 4607, BS EN 50085, BS EN 61386-1
Chemical Resistance		See below
Vicat Softening Point (conduit & trunking)		80°c BS EN ISO 306
Vicat Softening Point (moulded fittings)		76°c BS EN ISO 306

Chemical resistance

The material is virtually unaffected by solutions of inorganic acids, alkalis and salts and is resistant to many organic chemicals. It may be softened by some organic materials such as ketones and aromatic compounds. It will not corrode. See Chemical Resistance table on page 211 for further details.

Fire resistance

The material used in Marshall-Tufflex conduit and trunking are self-extinguishing and comply with the requirements of BS 476 Parts 6 and 7 and BS 4678. Non-flame propagating to BS EN 50085 and BS EN 61386-1. (See Characteristics table above)

Thermal properties

Marshall-Tufflex conduit and trunking is designed to accommodate variations of ambient temperature equating to 5.25mm/3m for a temperature rise of 25°C.

Operating temperatures: -5°C to +60°C.

Thermal conductivity: 0.19 w/m/°C.

Impact resistance

High impact resistance. The material is formulated to comply with the -5°C clause of BS 4678 Part 4 (1982) Cable Trunking Standard and the -5°C Heavy Gauge Requirements of BS EN 61386-1.

Standards

Trunking systems are manufactured to comply with the requirements of BS 4678 Part 4 (1982) where applicable. Conduit systems comply with the requirements of BS EN 61386-1 and BS 4607.

Polycarbonate material data

Chemical resistance

Polycarbonate is resistant to most mineral and organic acids, a number of fats and oils, saturated aliphatic and aromatic hydrocarbons and alcohols, with the exception of methyl alcohol. It is not resistant to alkalis, ammonia gas and its solution or to amines.

Vicat softening point – ISO 306	VST/B 145°C
Flammability to UL94 @ 1.5mm	94V-2
Flammability – oxygen index	35%
Density	1.2g/cm3
Water absorption (in water)	0.35%

ABS high impact FR material data

Fire Retardant (FR) ABS has a good chemical resistance to inorganic salt solutions, alkalis, mineral acids (except strong oxidising acids) and some mineral, vegetable and animal based oils. It is attacked by organic solvents such as alcohols, esters, ketones and ethers.

Characteristics

Vicat softening point	ISO 306	96˚C
Density	1.18g/cm^3	
Material		UL listed
Fire performance	BS 4678 BS EN 50085 UL94	PASS PASS V-O @ 1.6mm
Water absorption (in water)	DIN53495/L	0.3%

Aluminium material data

Grade HE9TF: Screen Insert.
Grade 6060T5: Series 2 PowerPole and PowerPost, Bench Trunking Aluminium, Sterling Profile Aluminium, XL Aluminium, Twin Plus Aluminium.
Tensile strength: 190n/mm^2
Co Efficient of linear expansion:
24 x 10^{-6}/m/˚C.
Themal conductivity: 120w/m/˚C.

PVC–U chemical resistance table

The resistance of unplasticised PVC–U to a wide range of chemicals is listed in the following table.

The symbols used to denote performance are as follows:

√ Satisfactory

Some attack or absorption: the material may be considered for use when alternative materials are unsatisfactory and where limited life is acceptable. When PVC is to be used with such chemicals, full scale trials under realistic conditions are necessary.

≈ Unsatisfactory: so rated because of decomposition, solution, swelling loss of ductility etc, of the samples tested.

For clarification and for details of resistance to other chemicals please call our Technical Team on 01424 856688.

Note: To determine the suitability of PVC-U for external applications we strongly recommend you contact our Technical Team on 01424 856688.

Chemical	Concentration	Unplasticised PVC	
		20˚C	60˚C
acetaldehyde	40% aq. solution	√	≈
acetic acid	60% aq. solution	√	√
acetic anhydride		≈	≈
acetone	Traces	≈	≈
alcohol, ethyl	40% w/w water	√	#
alcohol, isopropyl		√	√
alcohol, menthyl	6% aq. solution	√	√
	100%	√	#
aliphatic hydrocarbons		√	√
aluminium chloride		√	√
aluminium hydroxide		√	√
ammonia	0,88S.G., aq solution	√	√
	Anhydrous gas	≈	≈
	Anhydrous liquid	≈	≈
ammonium chloride		√	√
ammonium hydroxide		√	√
aniline		≈	≈
animal oils		√	√
aqua regia	Dilute	√	√
	Concentrated	√	≈
barium sulphate		√	√
beer		√	
benzene		≈	≈
benzoyl chloride		≈	≈
borax		√	√
boric acid		√	√
brine		√	√
bromide	Traces, gas	#	≈
	100% (dry gas)	≈	≈
	Liquid	≈	≈
calcium chloride	Aq. solution	√	√
	20% in methyl alcohol	√	
calcium hydroxide		√	√
calcium hypochlorite		√	√
carbon dioxide		√	√
carbonic acid		√	√
carbon monoxide		√	√
carbon tetrachloride		#	≈
castor oil		√	
chloric acid		√	
chlorine	100% (dry gas)	√	#
	10% (moist gas)	#	
chlorine water	Sat. solution	#	#
chloroform		≈	≈
chrome alum		√	√
chromic acid	Plating solution	√	√

Chemical	Concentration	Unplasticised PVC	
		20°C	60°C
cider		√	
citric acid		√	√
copper chloride		√	√
copper cyanide		√	√
copper nitrate		√	√
copper sulphate		√	√
cyclohexanone		≈	≈
detergent, synthetic	All concentrations	√	√
developers, photographic		√	√
dextrin		√	√
dextrose		√	√
diazo salts		√	√
dichlorodifluoromethane		√	
diethyl ether		≈	≈
emulsifiers	All concentrations	√	√
emulsions, photographic		√	√
ethyl acetate		≈	≈
ethylene glycol		√	√
ethylene oxide		≈	≈
fatty acids		√	√
ferric chloride		√	√
ferric nitrate		√	√
ferric sulphate		√	√
ferric ammonium citrate		√	√
ferrous chloride		√	√
ferrous sulphate		√	√
fixing solution, photographic		√	√
fluorine		#	#
formaldehyde	40% w/w water	√	√
formic acid	50% solution	√	#
	100% solution	√	≈
fructose		√	√
fruit pulp		√	√
glucose		√	√
glycerol		√	√
grape sugar		√	√
heptane		√	√
hydrobromic acid	100%	√	√
hydrochloric acid	22% aq. solution	√	√
	concentrated	√	√
hydrochloric acid	40% aq. solution	√	#
	60% aq. solution	#	≈
	concentrated	≈	≈
hydrogen bromide	anhydrous	√	√
hydrogen chloride	anhydrous	√	√
hydrogen flouride	anhydrous	√	√
hydrogen peroxide	3% (10vol)	√	√
	12% (40 vol)	√	√
	30% (100 vol)	√	√
	90% and above	√	√
hydrogen sulphide		√	√
iodine	solution in		
	otassium iodide	≈	≈
lactic acid	10% aq. solution	√	√
	100%	≈	≈
lanoline		√	√

Chemical	Concentration	Unplasticised PVC	
		20°C	60°C
linolectic acid		√	√
linseed oil		√	√
magnesium hydroxide		√	√
maleric acid	50% aq. solution	√	
	concentrated	√	#
metallic soaps (water soluble)		√	√
methyl bromide		≈	≈
methyl chloride		≈	≈
methyl cyclohexanone		≈	≈
methyl ethyl ketone		≈	≈
methyl isobutyl ketone		≈	≈
methylated spirit		√	
methylene chloride		≈	≈
milk		√	√
mineral oil		√	√
mixed acids	(sulphic/nitric		
	various proportions)	#	≈
molasses		√	√
naptha		√	√
napthalene		≈	≈
nicotine		√	√
nitric acid	5% aq. solution	√	
	50% aq. solution	√	#
nitrobenzene		≈	≈
oleic acid		√	√
oxalic acid		√	√
oxygen		√	√
ozone		√	√
paraffin		√	√
pentane		√	
petrol		√	√
phosphoric acid	30% aq. solution	√	√
	95% aq. solution	√	√
photographic developers		√	√
potassium bromide		√	√
potassium carbonate		√	√
potassium cyanide		√	√
potassium ferricyanide		√	√
potassium			
hydroxide	10% aq. solution	√	√
	concentrated	√	√
potassium hypochlorite		√	√
potassium permanganate		√	√
propane		√	
propylene glycol		√	√
propylene oxide		≈	≈
saccharose		√	√
sea water		√	√
silver nitrate		√	√
soap solution		√	√
sodium bicarbonate		√	√
sodium bisulphite		√	√
sodium borate		√	√
sodium bromide		√	√
sodium carbonate		√	√

Chemical	Concentration	Unplasticised PVC	
		20˚C	60˚C
sodium chlorate		√	√
sodium chloride		√	√
sodium cyanide		√	√
sodium ferricyanide		√	√
sodium ferrocyanide		√	√
sodium fluoride		√	√
sodium hydroxide	40% aq. solution	√	√
	concentrated	√	√
sodium hypochlorite	15%Cl	√	√
sodium hyposulphate		√	√
sodium nitrate		√	√
sodium peroxide		√	√
sodium silicate		√	√
sodium sulphate		√	√
sodium sulphide	25% aq. solution	√	√
	concentration	√	√
sodium sulphite		√	√
soft soap		√	√
surface active agents (emulsifiers, synthetic detergents and wetting agents)	All concentrations	√	√
starch		√	√
stearic acid		√	√
sucrose		√	√
sulphur	Colloidal	√	√
sulphur dioxide	Dry	√	√
	Liquid	#	≈
sulphuric acid	80% aq. solution	√	√
	90% aq. solution	√	#
	Fuming	≈	≈
sulphurous acid	10% aq. solution	√	√
tallow		√	√
tanning extracts		√	√
tartaric acid		√	√
transformer oil		√	√
trichloroethane		≈	≈
trichloroethylene		≈	≈
turpentine		√	√
vegetable oils		√	√
vinegar		√	√
water		√	√
wetting agents	All concentrations	√	√
wines and spirits		√	
xylene		≈	≈
zinc carbonate		√	√
zinc chloride		√	√
zinc sulphide		√	√

MT32 Pre-wired underfloor power distribution

Singles Cabling System

Extension, Connection, Adaptor and Terminal Cables

Cable Type	6491B (HO1Z-R) to BS 7211 (LSOH)
Size	4.0mm^2 x 3 (PE) or 4.00m^2 x 4 (CE)
Connector Self Lock Retention	> 80N
Male/Female Connector Diameter	19.2mm
Terminal Block	6 x 4.0mm^2
Adaptor (4.0mm^2)	20mm

Underfloor Distribution System

Conduit Assembly, Tap Off and Adaptor

Cable Type	6491X (BASEC BS6004 H07V-R)
Protective Earth (P.E)	4.0mm^2 x 3 (Grey Plug)
Clean Earth (C.E)	4.0mm^2 x 4 (Red Plug)
Protection: Conduit Assembly	25mm Steel flexible conduit (>1KN Tensile Load to BS EN 61386-23)
Protection: Tap Off	20mm Steel flexible conduit (>1KN Tensile Load to BS EN 61386-23)

General Specification

Approvals: System	Designed to comply with BS 7671:2008 IEE Wiring Regulations
Approvals: Connector	Designed to comply with EN 61535:2009 (Fixed installation couplers for permanent connection)
Normal Voltage	250 volts
Frequency	50/60 Hertz
Volt Drop Line & Neutral Connector	1.0 mV/A/M
Volt Drop Line & Neutral	
(Flexible Cabling System) 2.5mm	19.0 mV/A/M
Volt Drop Line & Neutral (Underfloor) 4.0mm	12.0 mV/A/M
Connector Impedance	1.0m Ω/connector
Connector, Body Material	PA66 – GF25
Connector Colour Female	Black
Connector Colour Male	White
Compatibility	Keyed against incorrect insertion
Operating Temperature (Ambient)	-5˚C to + 40˚C
Safety	PE contact engages first
Degree of Protection	Engaged IP2XC

Earthing requirements for the installation of equipment having High Protective/Conductor currents. BS 7671: 2008 Reg. 543.7

The scope of Reg. 543.7.1.203 requires that every final circuit intended to supply one or more items of equipment, where the total protective conductor current is likely to exceed 10mA. in normal use, shall have a high integrity protective connection.

Singles Cabling System 4.0mm^2

Final Circuit

MT32 singles systems conform to the high integrity protective requirement by virtue of having a single copper protective conductor of 4mm^2, (Reg 543.7.1.203) with the protective conductor being enclosed throughout in trunking or flexible conduit to provide additional protection against mechanical damage.

Note: Different key ways apply between 2.5mm^2 and 4.0mm^2

Powertrack

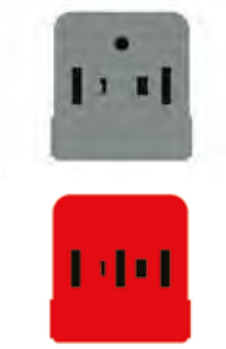
Powertrack is an underfloor busbar system rated at 63Amp maximum. It is available in Standard or CE (Clean Earth) versions.

Lengths

- Powertrack lengths of 1.2m, 1.8m , 2.4m and 3.6m with tap-off outlets at 300mm

Safety

- Snap-fit feed units, couplers and tap-offs are key and colour-coded to avoid assembly errors.



Standard = grey

CE = red

- A shutter is operated on insertion to prevent accidental contact.
- Avoid exceeding the maximum power rating of the track. This is ascertained by the maximum power requirement for each floor outlet box

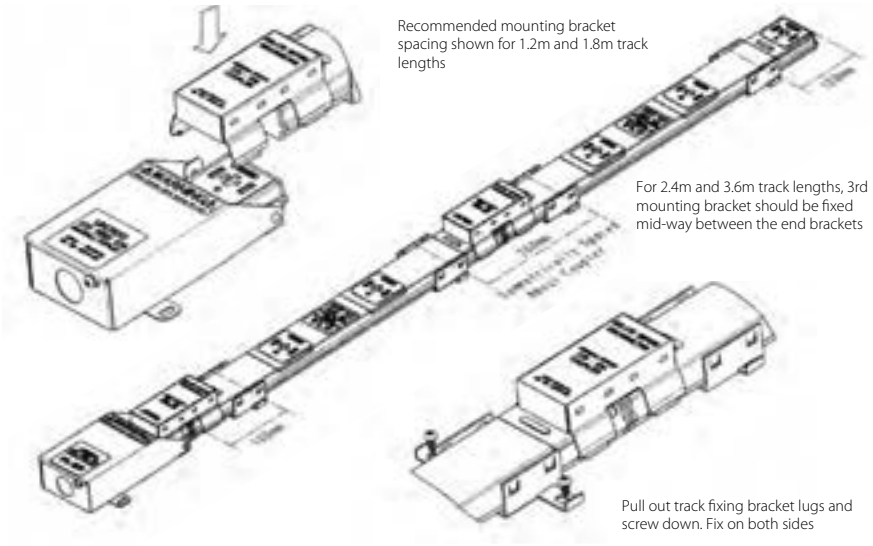
Positioning

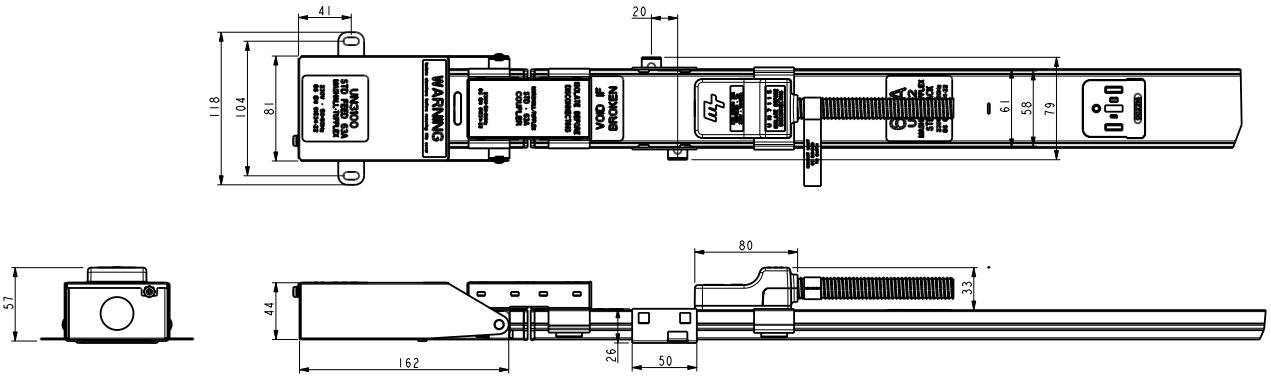
- For the most economic format, it is advised that Powertrack is arranged in parallel runs with powertrack feed units orientated to the incoming supply.
- For optimum layout flexibility, spacing should be a maximum of 5.5m between each length of track and 2.5m from the perimeter when using a standard 3m tap-off to a floor box.

Installation

- Lay out track lengths and feed unit as required to suit final assembly
- Position and secure the feed unit in place
- Carefully engage the first track length on to the feed unit socket
- Ensure the clip action is secure at the coupler and unit feed also that alignment is correct in laying the track length to the floor
- Secure the track length in place along its length at recommended spacing shown below using the brackets provided
- Additional track lengths can now be placed as below.
- Ensure the assembly is secure and prepare to make electrical connections

Please refer to the full installation instructions, EL182 available at www.marshall-tufflex.com or by contacting the Technical Team on 01424 856688.





Electrical Characteristics			
Rated Current		63	Amps
Rated Voltage		230	Volts
Frequency		50/60	Hz
Conditional Short Circuit Rating	(Protection device:BS1361 fuse)	16	KA
Conductor Resistance Line & Neutral		4.4	mΩ/m
Volt Drops Line & Neutral	Powertrack	4.4	mV/A/m
	Feed Unit + Coupler	2.2	mv/A
	Tap-Off	0.73	mV/A
	4mm² Cable	11.0	mV/A/m
	Coupler	1.5	mV/A
	Interlink Unit	4.5	mV/A
	16mm² Cable (1.2m)	3.9	mV/A/m
Earth Fault Loop Impedance:	Line to Earth (Casing)	2.8	mΩ/m
	Line to Earth (Conductor)	3.2	mΩ/m
	Line to Earth (Conductor + Casing)	2.8	mΩ/m
	Feed Unit + Coupler	2.2	mΩ
	Tap-Off	0.73	mΩ
	4mm² Cable	11.0	mΩ/m
	Coupler	1.5	mΩ
	Interlink Unit	4.5	mΩ
	16mm² Cable	3.9	mΩ/m
Mechanical Data			
Number of Copper Conductors		2 or 3	
Conductor Cross-section Area	Nominal	20	mm²
Powertrack Casing Copper Equivalent	(Where casing is protective Earth)	12	mm²
Cable Termination Capacity		16	mm²
Tap-Off Cable 32A		4.0	mm²
Tap-Off Cable 13A or 16A		4.0	mm²
Tap-Off Conduit Sizes	Rating: Heavy duty conduit <1KN Tensile Load to BS EN 61386-23	Ø20	mm
Flexible Interlink Cable		16	mm²
Flexible Interlink Conduit	Rating: Heavy duty conduit <1KN Tensile Load to BS EN 61386-23	Ø25	mm
Feed Conduit Entry		1 x Ø25	mm
IP Rating		40	
Minimum void depth (track + tap-off)		59	mm
Materials specification			
Powertrack Casing	Galvanised Steel		
Conductors	High Conductivity Copper/brass		
Powertrack Insulators	PBT		
Sockets/Tap-Off Plug/Joint Mouldings	Polycarbonate		
Shutter	PBT		
Tap-Off/Interlink Flexible Conduit	Galvanised Steel		
Tap-Off Cable	BASEC BS6004 H07V-R		
Tap-Off/Coupler Blade	Copper		
Feed Unit Case	Galvanised Steel		
Flexible Interlink Cable	BASEC BS6004 H07V-R		
Feed/Flexible Interlink Housing	Galvanised Steel		

Technical Specifications

Third party certified and tested to comply with:
BS EN 61534-1: 2011
BS EN 61534-22: 2009
BS 5733: 1995 where applicable.
Marshall-Tufflex is registered by BSI to BS EN ISO9001: 2008
MT Powertrack is designed to comply with the requirements of BS 7671: 2008 (IEE Wiring Regulations).

ASTA Type Test Certification
Powertrack is independently tested by Intertek to BS EN 61534-22:2009 clauses 15.4,18.4.3.2, & 18.4.3.3

Regulation 543.7 Installations to BS 7671:2008 Earthing requirements for the installation of equipment having high protective/ conductor currents.

The scope of Reg. 543.7.1.203 requires that every final circuit intended to supply one or more items of equipment, where the total protective conductor current is likely to exceed 10mA. in normal use, shall have a high protective connection.
All MT Powertrack tap-off units conform to the high integrity protective requirement by virtue of using a protective conductor of 4mm² enclosed within a flexible conduit, thus providing additional protection against mechanical damage.
Regulation 543.7.1.203.

32Amp 3 metre tap-off unit

The 32Amp tap-off unit comprises of an unfused tap-off* a flexible metal conduit with integral 4mm² conductors. These units are designed to comply with regulation 434.2.1(i) of BS 7671:2008 by virtue of the following:

1 Maximum length of cable is <3 metres.
2 Minimum risk of faults as the item is factory assembled and fully tested.
3 Fully protected by flexible steel conduit located within raised access floor that offers further protection.

*Fused 3 metre tap-offs are available if required.

5 metre tap-off unit

Tap-off units in excess of 3 metres should only be used if they contain a fuse or the powertrack is protected by a 32Amp rated protective device.

Raised floor boxes

Three and four compartment boxes and a range of grommets that can be configured to meet client requirements for accessing multiple services concealed below a raised floor system.

Technical Specifications

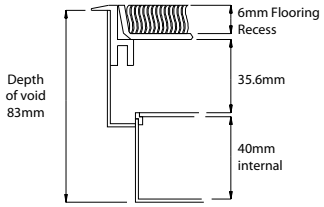
Raised floor boxes are third party tested to comply with:
BS EN 61534-22:2009
BS EN 60670-1:2005
BS EN 60670-23:2008
BS EN 50085-1:2005
BS EN 50085-2-2:2008

Material

- Lid/trim: flame retardent polypropylene grey RAL 7011
- Box assembly: galvanised steel
- Load plate: 3mm zinc plated steel
- Accessory plate: galvanised steel

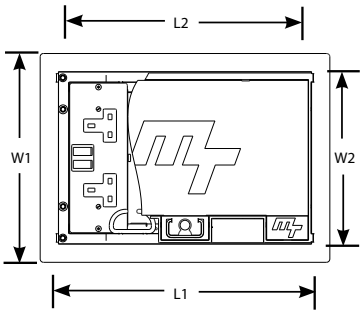
Installation

- Box module has 20 and 25mm knockouts (pre-wired options available).
- Mounting plates:
  3 compartment = 185 x 95mm
  4 compartment = 185 x 71mm
- Standard accessory mounting plates available depending on suitability of floor box configuration.
- Cable covers protect cables when lid is closed.
- Detailed installation instructions are supplied in box.



Dimensions

- For dimensions of non standard boxes and trims, contact Technical Hotline on 01424 856688.



Dimensions

No of compartments	Nominal trim size (L1 x W1)	Cut out dimensions (L2 x W2)	Accessory Plate Dimensions
3	357 x 257mm	322 x 222mm	185 x 95mm
4	357 x 257mm	322 x 222mm	185 x 71mm
		General tolerance +3mm	

Care should be taken to ensure that box edges are smoothed and free from burrs.
Carpet tile cut size for lid is 303 x 166mm

Load Testing

Load testing of floor boxes to:
BS EN 61534-22:2009
BS EN 50085-2-2:2008

The floor boxes have been tested to and comply with the loading requirements of the formentioned standards.

There are two loading criteria for the floor boxes:

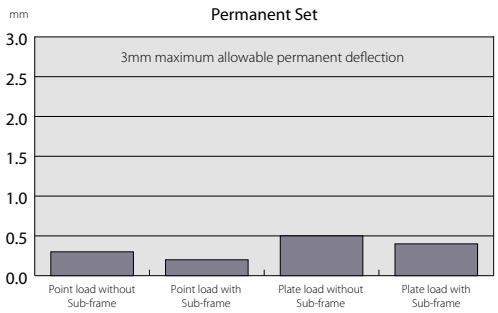
1. A point loading; to simulate foot traffic or light furniture like a chair leg / caster sitting on the lid. The maximum permissible deflection is 6mm (BS EN 61534-22:2009 and BS EN 50085-2-2:2008)
2. A plate loading; to simulate heavy foot traffic or larger furniture loads. the maximum permissible deflection is 4mm (BS EN 61534-22:2009) or 6mm (BS EN 50085-2-2:2008)

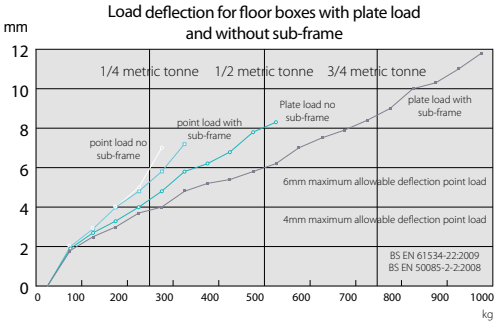
Note: The maximum permissible permanent deflection after the load has been removed is 3mm for both standards.

The loading graphs show the deflection based on floor boxes without and with a sub-frame. The point loading value is approaching ¼ of a metric tonne without sub-frame and reaching ¼ of a metric tonne with sub-frame. In both cases the permanent deflection is less than ¼ mm.

For plate loading without sub-frame the value is approaching ¼ of a metric tonne with 4mm deflection and ⅓ of a metric tonne with 6mm deflection. With the sub-frame fitted the loading reaches ¼ of a metric tonne with 4mm deflection and ½ a metric tonne with 6mm deflection. In both cases the permanent deflection is reaching 0.5mm.

Note: floor boxes fitted with sub-frame can exceed more than 1 metric tonne plate load before lid failure. In all tests (with and without sub-frame) the required loading was reached without damage to the plastic trim or compromised the lid.





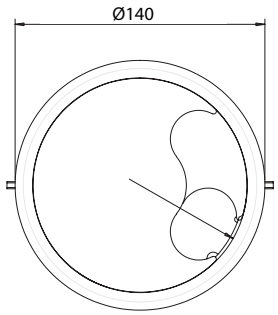
TECHNICAL INFORMATION

Grommets

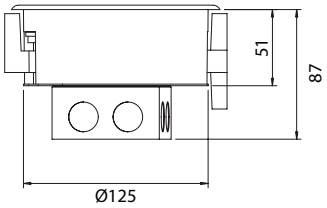
Material

- ABS Flame retardant
- Flammability: UL94 V-O at 2.0mm
- Colour: polypropylene grey RAL 7011
- Lid: captive screwdown
- Lid recess: 15mm for extra strength
- Through power/data options

Dimensions



Cut out dimensions



In-screed system

Three and four compartment boxes configured to meet client requirements for accessing multiple services concealed within an inscreed floor system.

Standard system is suitable for screed depths of 63mm to 85mm. For other screed depths please contact the Technical Team on 01424 856688.

Material

- Lid/trim: polypropylene grey RAL 7011
- Frame assembly: galvanised steel
- Modular boxes: galvanised steel
- Load plate: galvanised steel

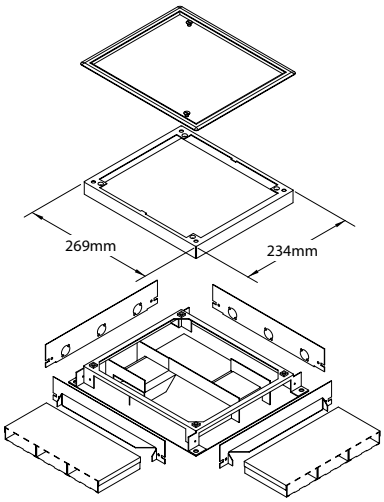
Installation

- Layout planning essential as alterations are not possible once screed is laid.
- Place floor boxes and junction boxes in position with top of boxes level and in line with expected finished floor level, with the sub-frame raised 10mm.
- Adjust boxes to screed depth by adjusting sub frame height.
- When boxes are in correct position, use PVC-U or steel duct to link between.
- To use conduit for linking boxes, utilize the Ø20mm knockout in the blank plate.
- Floor boxes can only be used as through boxes.
- Junction boxes have all round access with internal segregation.
- Duct adaptors and blank ends are not supplied for junction and service boxes. These must be ordered separately to individual requirements.
- Use a connector to join lengths of ducting.
- Flat and vertical bends or junction boxes are used where a change of direction is required.
- An optional steel screeding plate (USFSP1) is available to replace the box lid temporarily when screeding the floor.

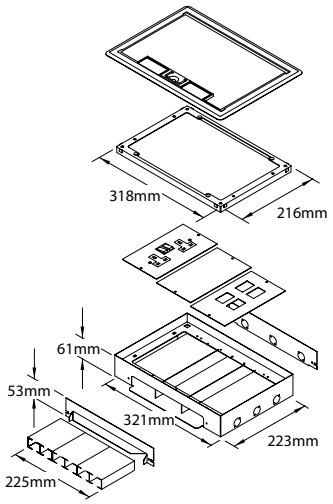
Wiring accessories and mounting plates

- 3 compartment box: 185 x 95mm
- 4 compartment box: 185 x 71mm
- For use with standard 60.3mm and 120.6mm accessories with blank or pre-punched plates for data/telecoms etc.

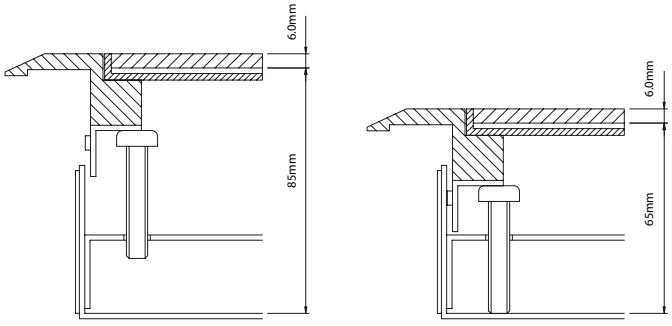
Junction box



Floor outlet box



Box screed depth adjustment



TECHNICAL INFORMATION

Desk units

Flip up units

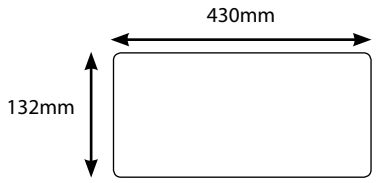
- Units have bi-directional access and are suitable for installation to BS 6396.
- Up to 4 x individually fused 3.15 sockets.
- Up to 4 x data outlets.

Fitting

- Simple, secure ratchet with hidden screw fixing.

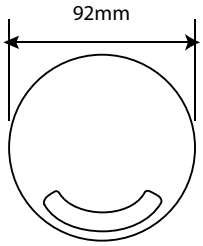
Desk cut out size

- 132 x 430mm.
- Unit casing depth 90mm from top surface of desk.
- It is recommended that at least 400mm is clear below the cut out to allow cables to move freely.
- Cut out width is constant (132mm).
- Cut out length (430mm) will vary according to order requirements.



Desk grommets

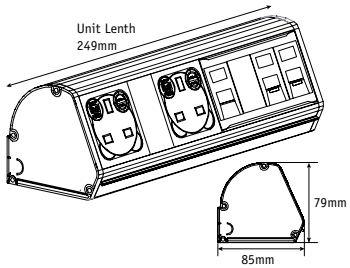
Dimensions



Cut out size

Box type	Diameter
DG1	80mm
General tolerance	2mm

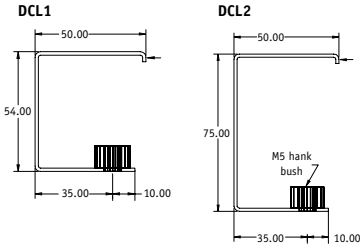
Curved surface unit



Adjustable desk clamp

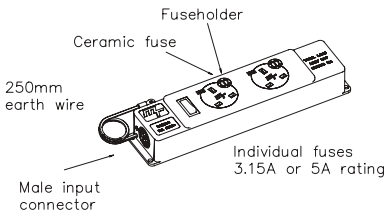
Adjustable clamps suit desks from 5mm – 48mm thick.

- For use with curved surface units only.



Moulded units

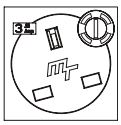
- Maximum of 4 sockets fused at 5Amps or 6 sockets fused at 3.15Amps fed from 13Amp supply plug.
- Through units with a female exit must be specified on order.



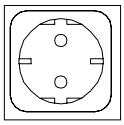
Socket type and orientation

Most European socket types can be accommodated, including Schuko.

All BS 1363 sockets are available individually fused.



UK Fused

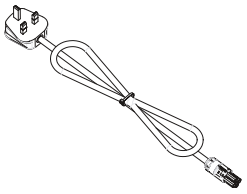


Schuko

Cable type

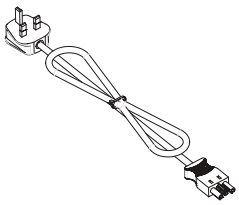
In-feed power cable shown with optional MT32 connector.

- 13Amp rating.
- Specification of cable length is necessary.



In-feed power cable shown with optional Wieland connector.

- 13Amp rating.
- Specification of cable length is necessary.



Power module earth lead

Size: 2.5mm^2

Length: 250mm with 5mm ring terminal.

Standards

- BS 6396 Electrical Systems in Office Furniture.
- BS 1363-1
- BS 1363-2 (where applicable).

Series 2 PowerPole

Double sided PowerPole

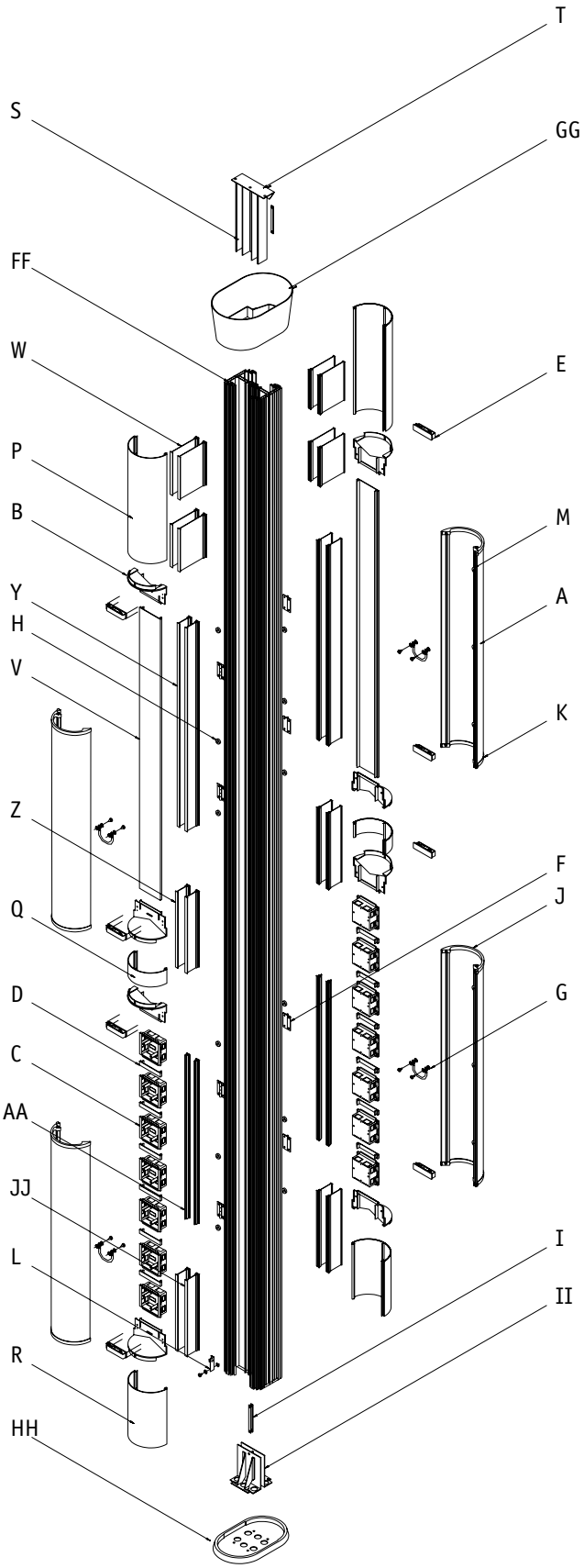
with 4 hinged lids and 14 ESSB1WH outlets (NPPE36001441)

Code		Description	Quantity
FF	NPPMB3600	Square PowerPole base 3600mm long	1
A	NPPHLA/W#	Hinged lid assembly	4
P	NPPCL1720	Clip on lid 1720mm long	2
Q	NPPCL50	Clip on lid 50mm long	2
R	NPPCL200	Clip on lid 200mm long	2
J	NPPUT	Hinged lid upper trim	4
K	NPPLT	Hinged lid lower trim	4
GG	NPPTC3	Oval top sliding cover	1
HH	NPPBF5	Oval base foot	1
B	NPPBH1	Bulkhead	8
II	PPBF3	Base foot (galvanised)2	
E	NPPCC1	Cable clip	8
C	ESSB1	Single gang box	14
D	ES1	Spacing cover	12
F	NPPH1	Stainless steel hinges	8
I	PPSN1	Sliding nut	3
H	NPPLH1	Disc latch	12
M	NPPMC1	Magnet catch	12
G	NPPLBS1	Hinged lid bonding strap	4
	LBS2	Clip on lid bonding strap	6
L	PPBT1	16mm bonding terminal assembly	1
S	*PHAS1	Top adjusting slide 250mm long	1
T	NPPFB2	Top fixing bracket	1
W	MDFS100W1630	100mm dividing fillet 1630mm long	4
Y	MDFS50W710	50mm dividing fillet 710mm long	4
Z	MDFS50W200	50mm dividing fillet 200mm long	4
AA	MDFS15W632	15mm dividing fillet 632mm long	4
JJ	MDFS50W175	50mm dividing fillet 175mm long	4
V	ETL1W633	Sterling lid 633mm long	2

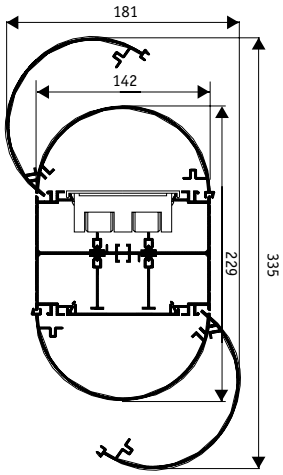
#Please use A or W to denote anodised or white

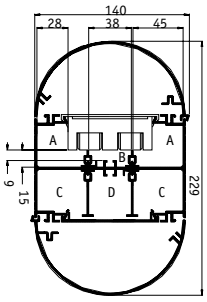
Note: The Sterling PowerPole is suitable for both solid and suspended ceilings up to 3.6 metres high. An alternative adjusting slide which can be extended to one metre is available for additional heights within the ceiling void (*PHAS2).

Full installation instructions are included within each pack.



Dimensions and cable capacities





A = 1313 sq mm total area
45% space factor = 591 sq mm.

B = 505 sq mm total area
45% space factor = 227 sq mm.

C = 1798 sq mm total area
45% space factor = 809 sq mm.

D = 1628 sq mm total area
45% space factor = 733 sq mm.

TECHNICAL INFORMATION

Series 2 PowerPole – continued

Single sided PowerPole

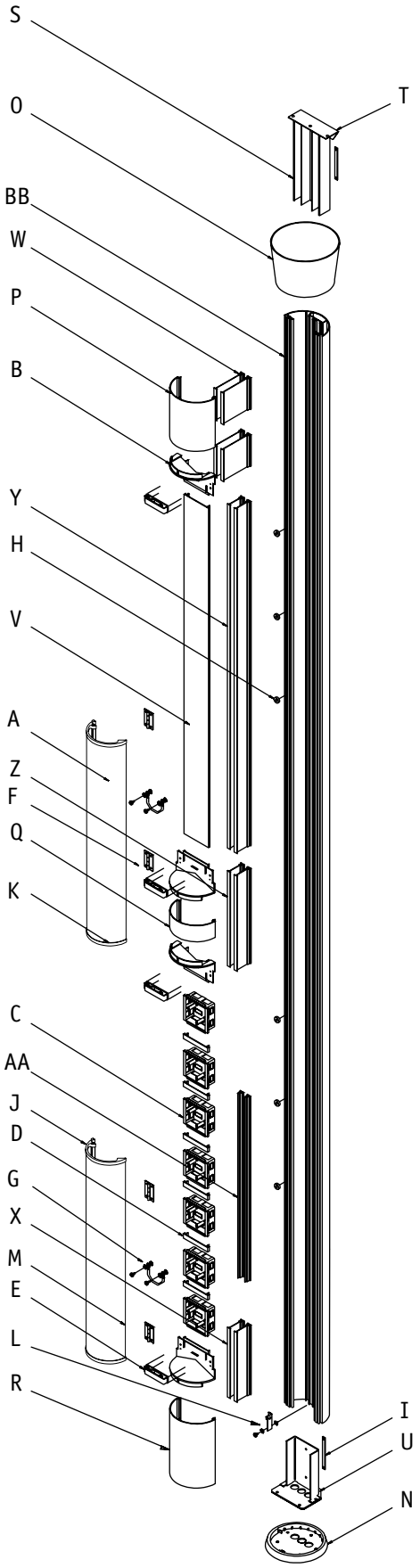
with 2 hinged lids and 7 ESSB1 outlets (NPPC3600721)

Code		Description	Quantity
BB	NPPB3600	Semi-circular PowerPole base 3600mm	1
A	NPPHLA/W#	Hinged lid assembly	2
P	NPPCL1730	Clip on lid 1730mm long	1
Q	NPPCL50	Clip on lid 50mm long	1
R	NPPCL200	Clip on lid 200mm long	1
J	NPPUT	Hinged lid upper trim	2
K	NPPLT	Hinged lid lower trim	2
O	NPPTC2	Top sliding cover	1
N	NPPBF4	Circular base foot	1
B	NPPBH1	Bulkhead	4
U	PPBF6	Base foot (galvanised)	1
E	NPPCC1	Cable clip	4
C	ESSB1	Single gang box	7
D	ES1	Spacing cover	6
F	NPPH1	Stainless steel hinges	4
I	PPSN1	Sliding nut	2
H	NPPLH1	Disc latch	5
M	NPPMC1	Magnet catch	6
G	NPPLBS1	Hinged lid bonding strap	2
	LBS2	Clip on lid bonding strap	3
L	PPBT1	16mm bonding terminal assembly	1
S	*PHAS1	Top adjusting slide 250mm long	1
T	NPPFB2	Top fixing bracket	1
AA	MDFS15W632	15mm dividing fillet 632mm long	2
Z	MDFS50W200	50mm dividing fillet 200mm long	2
Y	MDFS50W710	50mm dividing fillet 710mm long	2
X	MDFS50W145	50mm dividing fillet 145mm long	2
W	MDFS100W1630	100mm dividing fillet 1630mm long	2
V	ETL1W633	Sterling lid 633mm long	1

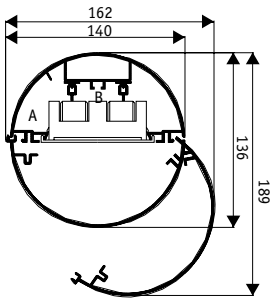
#Please use A or W to denote anodised or white

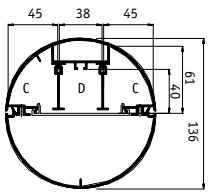
Note: The Sterling PowerPole is suitable for both solid and suspended ceilings up to 3.6 metres high. An alternative adjusting slide which can be extended to one metre is available for additional heights within the ceiling void (*PHAS2).

Full installation instructions are included within each pack.



Dimensions and cable capacities





A = 1238 sq mm total area
45% space factor = 557 sq mm.

B = 505 sq mm total area
45% space factor = 227 sq mm.

C = 1798 sq mm total area
45% space factor = 809 sq mm.

D= 1628 sq mm total area
45% space factor = 733 sq mm.

Double sided PowerPole

Code		Description	Quantity
	PP36001	250mm adj. slide incl	1 pack
	PP36002	1150mm adj. slide incl	1 pack
A	PPFB2	Fixing Bracket	1
B	PHAS1/2	*Adjusting Slide	1
C	PPSN1	Sliding Nut	3
D	PPTC1	Top Cover (white only)	1
E	PL1	Lid 3600mm	2
F	PPMB1	Pole 3600mm	1
G	ESSB1	Single Gang Box	6
I	PPBF3	Base Foot (Metal)	1 pair
J	PPBF1	Base Foot (white only)	1
K	ES1	Spacing Cover	5
L	PPBT1	16mm Bonding Terminal Ass.	1
	PPF1	Fixing Kit	1

*The Sterling PowerPole is suitable for both solid and suspended ceilings up to 3.6 metres high. An alternative adjusting slide which can be extended to one metre is available for additional heights within the ceiling void.

1400mm Extension Pole body kits available to increase Pole height to 5.0m.

Full installation instructions are included within each pack.

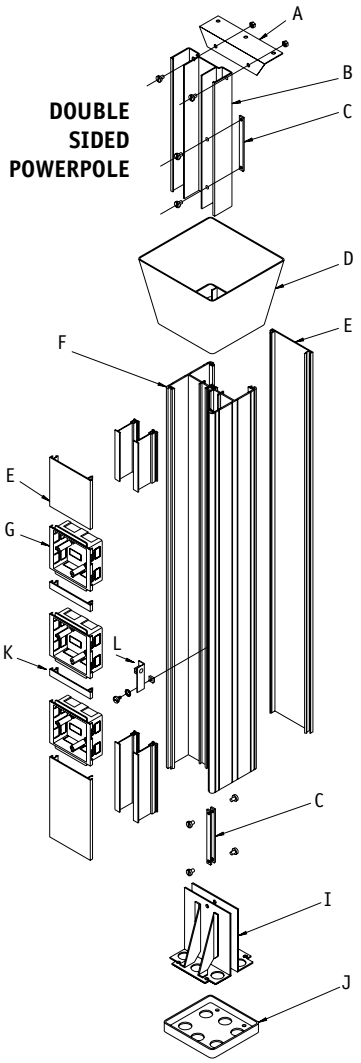
Single sided PowerPole

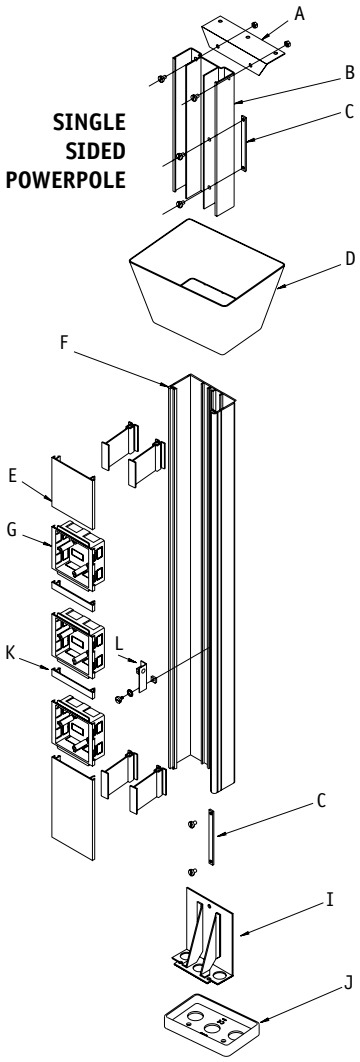
Code		Description	Quantity
	PPS36001	250mm adj. slide	1 pack
	PPS36002	1150mm adj. slide	1 pack
A	PPFB2	Fixing Bracket	1
B	PHAS1/2	*Adjusting Slide	1
C	PPSN1	Sliding Nut	3
D	PPTC2	Top Cover (white only)	1
E	PL1	Lid 3600mm	1
F	PPSS1	Single Sided Pole 3600mm	1
G	ESSB1	Single Gang Box	6
I	PPBF3	Base Foot (Metal)	1
J	PPBF4	Base Foot (white only)	1
K	ES1	Spacing Cover	5
L	PPBT1	16mm Bonding Terminal Ass.	1
	PPF1	Fixing Kit	1

*The Sterling PowerPole is suitable for both solid and suspended ceilings up to 3.6 metres high. An alternative adjusting slide which can be extended to one metre is available for additional heights within the ceiling void.

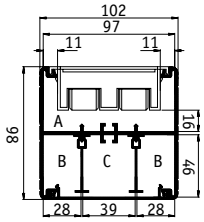
1400mm Extension Pole body kits available to increase Pole height to 5.0m.

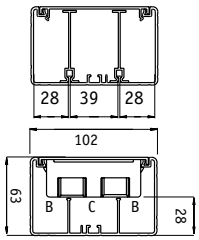
Full installation instructions are included within each pack.





Dimensions and cable capacities





Double sided PowerPole
A = 2017 sq mm total area 45% space factor = 907 sq mm.
Without Accessory Box
A = 4284 sq mm total area 45% space factor = 1927 sq mm.
B = 1148 sq mm total area 45% space factor = 516 sq mm.
C = 1547 sq mm total area 45% space factor = 696 sq mm.

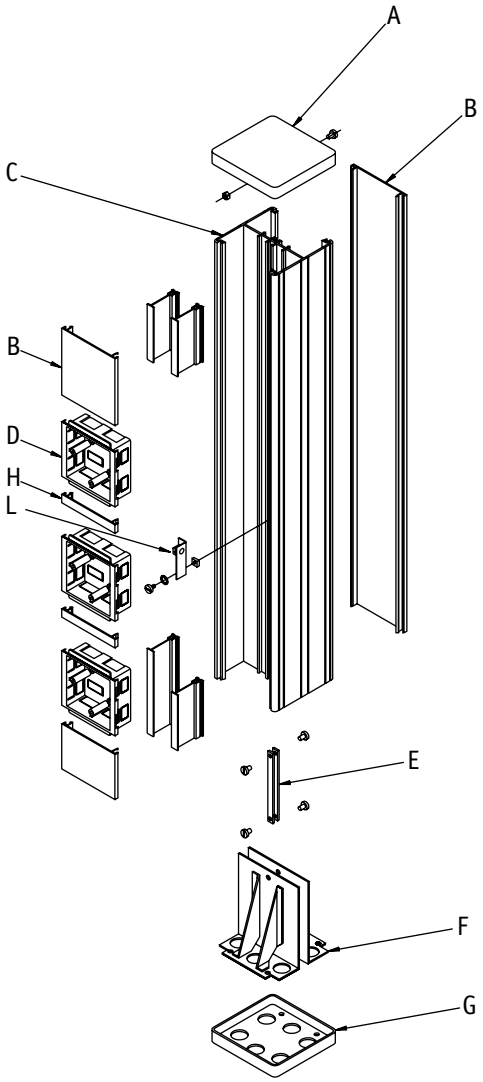
Single sided PowerPole
B = 1115 sq mm total area 45% space factor = 502 sq mm.
C = 1119 sq mm total area 45% space factor = 504 sq mm.

Double sided PowerPost

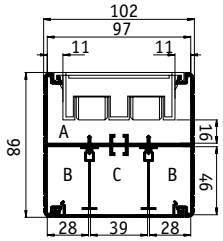
Code		Description	Quantity
	PP685		1 pack
A	PPC1	Cap	1
B	PL2	Lid	2
C	PPMB2	Post	1
D	ESSB1	Single Gang Box	6
E	PPSN1	Sliding Nut	2
F	PPBF3	Base Foot (Metal)	1 pair
G	PPBF1	Base Foot (white only)	1
H	ES1	Spacing Cover	5
L	PPBT1	16mm Bonding Terminal Ass.	1
	PPF2	Fixing Kit	1

The standard height of the PowerPost is 685mm and the overall height, including cap and base, is 692mm.

Full installation instructions are included within each pack.



Dimensions and cable capacities



A = 2017 sq mm total area
45% space factor = 907 sq mm.
Without Accessory Box
A = 4284 sq mm total area
45% space factor = 1927 sq mm.
B = 1148 sq mm total area
45% space factor = 516 sq mm.
C = 1547 sq mm total area
45% space factor = 696 sq mm.

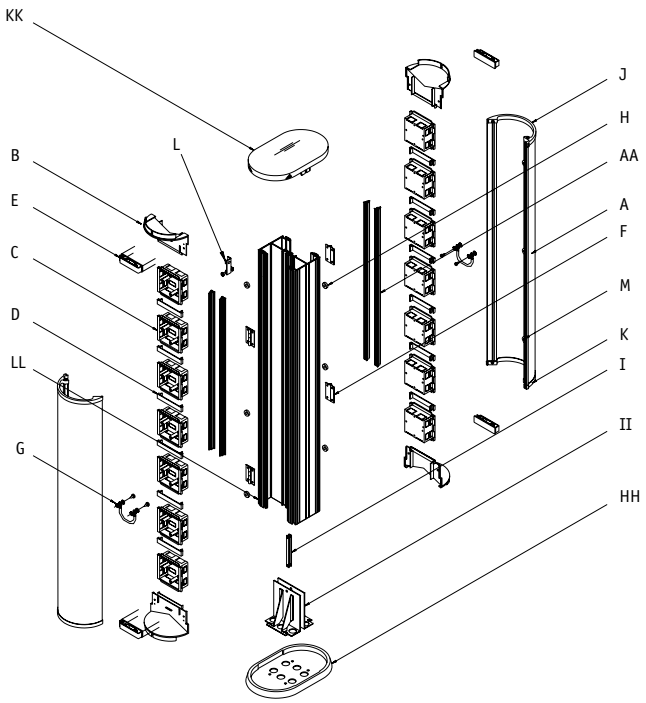
Double sided PowerPost

with 2 hinged lids and 14 ESSB1 outlets (NPPE811142)

Code		Description	Quantity
LL	NPPMB811	Square PowerPost base 811mm long	1
A	NPPHLA/W#	Hinged lid assembly	2
J	NPPUT	Hinged lid upper trim	2
K	NPPLT	Hinged lid lower trim	2
KK	NPPC3	Oval Top cap	1
HH	NPPBF5	Oval base	1
B	NPPBH1	Bulkhead	4
C	ESSB1	Single gang box	14
D	ES1	Spacing cover	12
II	PPBF3	Base foot (galvanised)	2
E	NPPCC1	Cable clip	4
AA	MDFS15W632	Dividing fillet 632mm long	4
F	NPPLH1	Stainless steel hinges	4
L	PPBT1	16mm bonding terminal assembly	1
G	NPPLBS1	Hinged lid bonding strap	2
H	NPPLH1	Disc latch	6
M	NPPMC1	Magnet catch	6
I	PPSN1	Sliding nut	2

#Please use A or W to denote anodised or white

Overall height 838mm.
Full installation instructions are included within each pack.



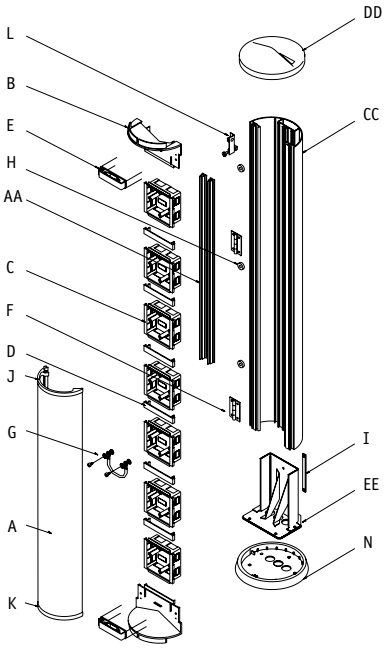
Single sided PowerPost

with 1 hinged lid and 7 ESSB1 outlets (NPPC80671)

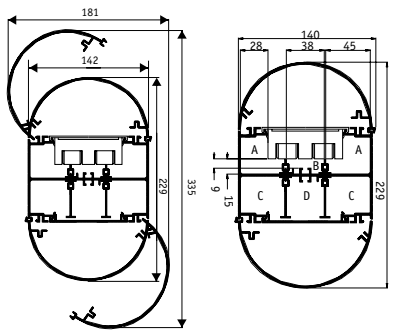
Code		Description	Quantity
CC	NPPB806	Semi-circular PowerPost base 806mm	1
A	NPPHLA/W#	Hinged lid assembly	1
J	NPPUT	Hinged lid upper trim	1
K	NPPLT	Hinged lid lower trim	1
DD	NPPC2	Top cap	1
EE	NPPBF7	Circular post base foot (galvanised)	1
N	NPPBF4	Circular base foot	1
B	NPPBH1	Bulkhead	2
E	NPPCC1	Cable clip	2
D	ES1	Spacing cover	6
C	ESSB1	Single gang box	7
AA	MDFS15W632	Dividing fillet 632mm	2
H	NPPLH1	Disc latch	3
M	NPPMC1	Magnet catch	3
F	NPPH1	Stainless steel hinges	2
G	NPPLBS1	Hinged lid bonding strap	1
L	PPBT1	16mm bonding terminal assembly	1
I	PPSN1	Sliding nut	1

#Please use A or W to denote anodised or white

Overall height 838mm.
Full installation instructions are included within each pack.



Dimensions and cable capacities



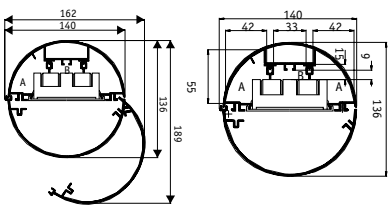
Double sided PowerPost

A = 1313 sq mm total area 45% space factor = 591 sq mm.

B = 505 sq mm total area 45% space factor = 227 sq mm.

C = 1798 sq mm total area 45% space factor = 809 sq mm.

D= 1628 sq mm total area 45% space factor = 733 sq mm.



Single sided PowerPost

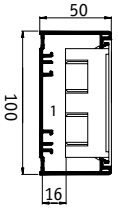
A = 1238 sq mm total area 45% space factor = 557 sq mm.

B = 505 sq mm total area 45% space factor = 227 sq mm.

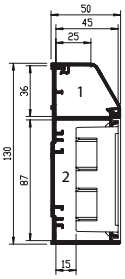
TECHNICAL INFORMATION

PVC–U perimeter trunking capacity guide

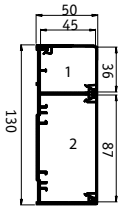
Trunking sizes up to 150mm



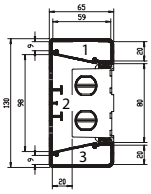
Mono 10 no box
1 = 4141mm² total area
1 = 1863mm² 45% space factor
with box in comp 1
1 = 1874mm² total area
1 = 843mm² 45% space factor



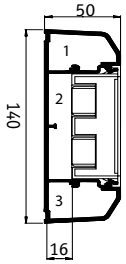
Compact 1 no box
1 = 1280mm² total area
1 = 576mm² 45% space factor
2 = 3763mm² total area
2 = 1693mm² 45% space factor
With box in comp 2
2 = 1497mm² total area
2 = 673mm² 45% space factor



Compact 2 no box
1 = 1534mm² total area
1 = 690mm² 45% space factor
2 = 3763mm² total area
2 = 1693mm² 45% space factor
With box in comp 2
2 = 1497mm² total area
2 = 673mm² total area



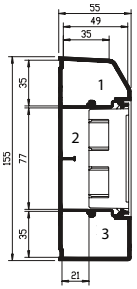
Series R 130
with box and segregators
1 & 3 = 957mm² total area
1 & 3 = 431mm² 45% space factor
2 = 2210mm² total area
2 = 995mm² 45% space factor
without segregators
1 = 4272mm² total area
1 = 1922mm² 45% space factor



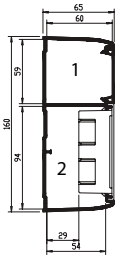
Mono Plus 20 – no box
1 & 3 = 1024mm² total area
1 & 3 = 461mm² 45% space factor
2 = 3451mm² total area
2 = 1552mm² 45% space factor
With box in comp 2
2 = 1185mm² total area
2 = 533mm² 45% total area

Conductor type	Size	Cable factor
Stranded PVC power	1.5mm²	8.6
Stranded PVC power	2.5mm²	12.6
Stranded PVC power	4.0mm²	16.6
*Data cable	Ø5.5mm	30.2
*Data cable	Ø6.0mm	36.0
*Data cable	Ø6.5mm	42.2
*Data cable	Ø7.0mm	49.0
*Data cable	Ø8.4mm	58.0

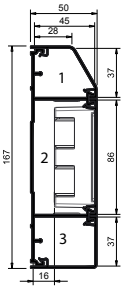
Trunking sizes from 150mm to 200mm



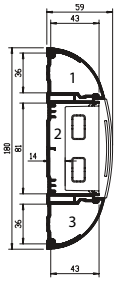
Mono Plus 30 no box
1 = 1450mm² total area
1 = 652mm² 45% space factor
2 = 3829mm² total area
2 = 1723mm² 45% space factor
3 = 1646mm² total area
3 = 741mm² 45% space factor
With box in comp 2
2 =1563mm² total area
2 =703mm² 45% space factor



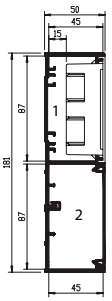
Twin165 no box
1 = 3272mm² total area
1 = 1463mm² 45% space factor
2 = 5404mm² total area
2 = 2431mm² 45% space factor
With box in comp 2
2 = 3100mm² total area
2 = 1395mm² 45% space factor



Sterling Profile 2 no box
1 = 1266mm² total area
1 = 570mm² 45% space factor
2 = 3858mm² total area
2 = 1736mm² 45% space factor
3 = 1542mm² total area
3 = 694mm² 45% space factor
With box in comp 2
2 = 1376mm² total area
2 = 619mm² 45% space factor

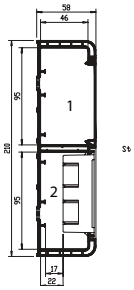


Odyssey no box
1 & 3 = 1256mm² total area
1 & 3 = 565mm² 45% space factor
2 = 4022mm² 45% total area
2 = 1809mm² 45% space factor
With box in comp 2
2 = 1230mm² total area
2 = 553mm² 45% space factor

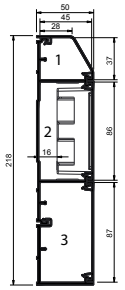


Compact 3 – no box
1 = 3763mm² total area
1 = 1693mm² 45% space factor
2 = 3700mm² total area
2 = 1665mm² 45% space factor
With box in comps 1 and 2
1 = 1503mm² total area
1 = 676mm² 45% space factor
2 = 1440mm² total area
2 = 648mm² 45% space factor

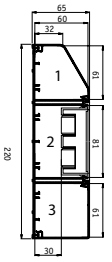
Trunking sizes over 200mm



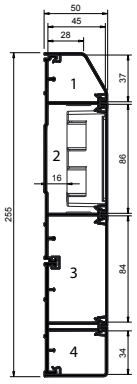
Twin Plus – no box
1 & 2 = 4755mm² total area
1 & 2 = 2140mm² 45% space factor
With box in comps 1 or 2
1 & 2 = 2431mm² total area
1 & 2 = 1094mm² 45% space factor



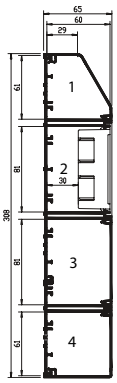
Sterling Profile 4 no box
1 = 1266mm² total area
1 = 570mm² 45% space factor
2 = 3858mm² total area
2 = 1736mm² 45% space factor
3 = 3716mm² total area
3 = 1672mm² 45% space factor
With box in comp 2 or 3
2 = 1376mm² total area
2 = 619mm² 45% space factor
3 = 1234mm² total area
3 = 555mm² 45% space factor



XL 202
XL 202 – no box
1 = 2824mm² total area
1 = 1271mm² 45% space factor
2 = 4771mm² total area
2 = 2147mm² 45% space factor
3 = 3531mm² total area
3 = 1589mm² 45% space factor
With box in comp 2
2 = 2504mm² total area
2 = 1127mm² 45% space factor



Sterling Profile 12 no box
1 = 1266mm² total area
1 = 570mm² 45% space factor
2 = 3858mm² total area
2 = 1736mm² 45% space factor
3 = 3566mm² total area
3 = 1605mm² 45% space factor
4 = 1430mm² total area
4 = 644mm² 45% space factor
With box in comp 2 or 3
2 = 1376mm² total area
2 = 619mm² 45% space factor
3 = 1084mm² total area
3 = 488mm² 45% space factor



XL 212 – no box
1 = 2824mm² total area
1 = 1271mm² 45% space factor
2 = 4771mm² total area
2 = 2147mm² 45% space factor
3 = 4732mm² total area
3 = 2130mm² 45% space factor
4 = 3531mm² total area
4 = 1589mm² 45% space factor
With box in comps 2 or 3
2 = 2511mm² total area
2 = 1130mm² 45% space factor
3 = 2466mm² total area
3 = 1109mm² 45% space factor

Compact trunking

Material

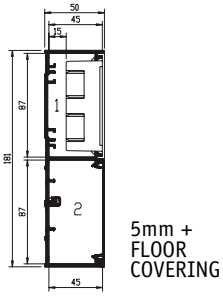
PVC-U is flame retardant and self-extinguishing. PVC-U is 100% recyclable.

Installation

Positioning

Compact 1, 2 & 3 suitable for dado. Should Compact 3 be used as skirting system, a clearance of 5mm is recommended above the floor covering to allow the profile fittings to clip over the cover.

If Compact 2 is installed close to desk/bench top – invert so small compartment is on bottom.



Expansion/contraction

PVC-U expands and contracts at a uniform rate of approx 5.25mm in a 3 metre length for a temperature change of 25°C. Therefore, a 3mm gap between each length of trunking base is recommended.Fittings have a 10mm overlap on each side to allow for thermal movement of the covers.

Fitting

- The base is supplied with pre-cut elongated holes at 250mm centres.
- To fasten base, use No 8 round head screws and washers.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine-toothed panel or power jig-saw.
- External moulded fittings overlap the joints by up to 10mm to cover cutting inaccuracies.
- A variable angle jig-saw or chop saw is recommended for cutting 45 degree mitres.

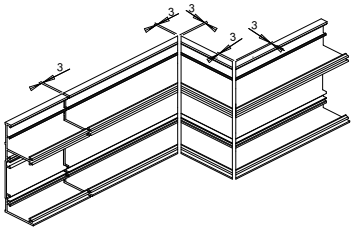
Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the cover.

Joints and bends

Base joints should have a 3mm gap to allow for expansion.

- Internal, external bends and flat angles, the base must be mitred 45 degrees to ensure total enclosure of trunking, including any internal fitted segregator.
- External moulded fittings overlap the joints by up to 10mm to cover cutting inaccuracies.
- Flat angles, tees and crossovers are also available pre-fabricated.

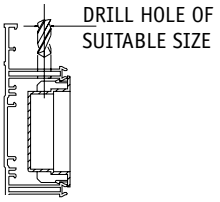


Bend radius control

The data internal and external bend radius control fittings for Compact Trunking provide a bend radius of 50mm.

Accessory boxes

- For mounting an accessory box in the alternative compartment to supply, drill the main web adjacent to the box position.
- Remove the appropriate knock out and clip the box into the trunking base.
- For boxes in the same compartment as the supply, remove the appropriate box knock-outs and clip the box into trunking base.
- When boxes are installed consecutively, a 14mm wide spacer (ES1) is required to cover the space between the boxes.
- Part M box assemblies with contrasting coloured faceplates are available to meet the requirements of DDA regulations for Visual Impairment.
- If Compact 3 is used as a skirting system. All power accessories should be installed in the top compartment.



Covers

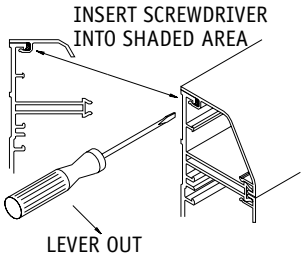
Covers are designed to limit unauthorised removal and to remain in position during normal conditions irrespective of impact and minor undulations of the mounting surface.

Covers – fitting

Covers are clipped into place from front. If accessory boxes are installed, the ETL1 cover is butt-joined to the edge of the box. Cut edges of the cover are subsequently concealed by the accessory. For fittings, a gap of 25mm is left between the two cover ends to permit the fitting to clip to base.

Covers – removal

To remove a cover, first detach a coupler, internal or external bend component to gain access. The main cover can then be gently eased off the base. To remove the outer cover, firstly ease from the base by inserting



the blade of a terminal screwdriver between the captive legs of the cover and the base and then peel off.

Screening

Special conductive spray coating can be applied to one compartment, the cover, accessory boxes and fittings, to screen data cables against EMI interference.

- **For data/voice circuits only:** Warning: Owing to its relatively high surface resistance, CS coating SHOULD NOT be in contact with low voltage circuits BS7671 (1992) 50 V.A.C. – 1000 V.A.C. unless additional measures are undertaken.

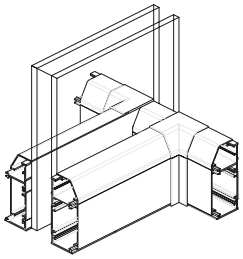
Antimicrobial

For technical details of antimicrobial Bio Compact trunking, please refer to Laboratory and Healthcare section.

Compact trunking – continued

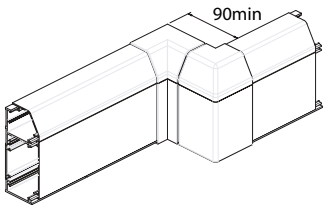
Method of continuation through a partition wall

Continue the main lateral run of base through the partition wall.Fit short lengths of cover where the trunking passes through the partition. The partition wall trunking is then butted up to the main run and the joint covered by an internal bend fitting.

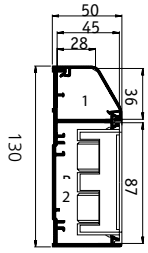


Offset dimensions

The minimum set that can be accommodated in the same plane (from internal to external bend), is shown below.

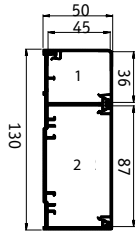


Dimensions



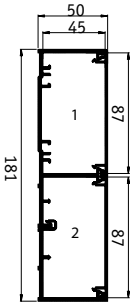
Compact 1 trunking – with box

Compartment 1 total area = 1280mm²
Compartment 2 total area = 1497mm²



Compact 2 trunking – no box

Compartment 1 total area = 1534mm²
Compartment 2 total area = 3763mm²



Compact 3 trunking – no box

Compartment 1 total area = 3763mm²
Compartment 2 total area = 3700mm ²

Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Compartment 1		Compartment 2	
	No box	With box	No box	With box
PVC power cable 1.5mm² stranded copper				
Compact 1	66	–	196	78
Compact 2	80	–	196	78
Compact 3	196	78	193	76
PVC power cable 2.5mm² stranded copper				
Compact 1	45		134	53
Compact 2	54		134	58
Compact 3	134	59	132	58
PVC power cable 4.0mm² stranded copper				
Compact 1	34	–	101	40
Compact 2	44	–	101	40
Compact 3	101	40	100	38
Data cable: Ø5.5mm				
Compact 1	19	–	56	22
Compact 2	22	–	56	22
Compact 3	56	22	55	21
Data cable: Ø6.0mm				
Compact 1	16	–	47	18
Compact 2	19	–	47	18
Compact 3	47	18	46	17
Data cable: Ø6.5mm				
Compact 1	13	–	40	15
Compact 2	16	–	40	15
Compact 3	40	15	39	14
Data cable: Ø7.0mm				
Compact 1	11	–	34	13
Compact 2	14	–	34	13
Compact 3	34	13	34	12
Data cable: Ø8.4mm				
Compact 1	9	–	29	11
Compact 2	11	–	29	11
Compact 3	29	11	28	10

Mono and Mono Plus trunking – PVC-U

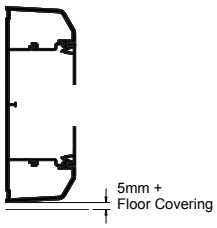
Material

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

Installation

Positioning

- Mono 10
  For dado application only.
- Mono Plus 20 and 30
  When used as a skirting system, sufficient clearance should be allowed between the floor covering and the profile fittings that clip over the cover i.e. 5mm + floor covering is recommended.



Expansion/contraction

PVC-U expands and contracts at a uniform rate of approx 5.25mm in a 3 metre length for a temperature change of 25°C. Therefore, a 3mm gap between each length of trunking base is recommended.Adequate allowance is made within the fittings for thermal movement of the covers, which have a 7mm overlap on each side.

Fitting

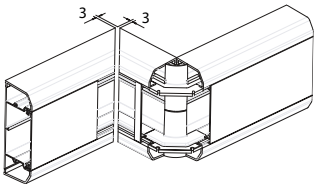
- The base is supplied with pre-cut elongated holes at 250mm centres.
- Internal couplers on base units are not required.
- To fasten base, use No 8 round head screws and washers.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine-toothed panel or power jig-saw.
- External moulded fittings overlap the joints by up to 10mm to cover cutting inaccuracies.
- A variable angle jig-saw or chop saw is recommended for cutting 45 degree mitres.
- Mono Plus 20 and 30
  Cut the compartment segregators (x 2 provided) to lengths to fit between accessory boxes and corners. Fit into position after wiring has been completed.

Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the cover.

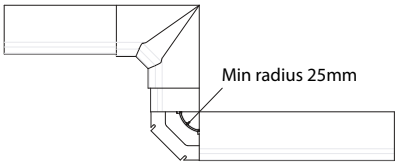
Joints and bends

- Base joints should have a 3mm gap to allow for expansion.
- External moulded fittings overlap the joints by up to 7mm to cover cutting inaccuracies.
- Mono 10
  For external bends and flat angles, the base must be mitred 45 degrees to ensure total enclosure of trunking, including any internal fitted segregator. Tees are fabricated.
- Mono Plus 20 and 30
  External bends should be cut square at the corner and in internal segregator inserted as shown below, to give additional retention to the clip-on fitting. Flat angles and tees are prefabricated.



Bend radius control

- Mono 10
  Not applicable
- Mono Plus 20 and 30
  The data bend radius control fittings for Mono Plus trunking provide a bend radius of 25mm.



Accessory boxes

- If the accessory box is to be fed from a supply in either of the outer compartments, remove the appropriate knock out (top or bottom) and clip the box into the trunking base.
- For boxes supplied from the main compartment, remove the appropriate box knock-outs and clip the box into trunking base.
- When boxes are installed consecutively, a 14mm wide spacer (ES1) is required to cover the space between the boxes.
- Part M box assemblies with contrasting coloured faceplates are available to meet the requirements of DDA regulations for Visual Impairment.

Covers

The cover has been designed to limit unauthorised removal and to remain in position during normal conditions, irrespective of impact and minor undulations of the mounting surface.

Covers – fitting

The cover is clipped into place from the front. If accessory boxes are installed, the cover is butt-joined to the edge of the box and the cut edges of the cover is subsequently concealed by the accessory. For fittings, a gap of 25mm is left between the two cover ends to permit the fitting to clip to the base.

Covers – removal

To remove the cover, first detach a coupler, internal or external bend component to gain access. The main cover can then be gently eased off the base.

Screening

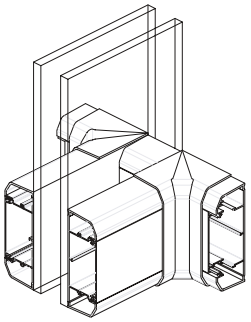
Refer to the Technical Team on 01424 856688.

Antimicrobial

For technical details of antimicrobial Mono 10 and Mono Plus 20 Bio trunking, please refer to Laboratory and Healthcare section.

Method of continuation through a partition wall

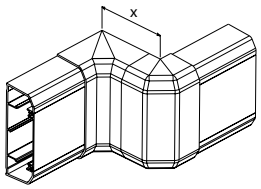
Continue the main lateral run of base through the partition wall with a short length of cover fitted where the trunking passes through the partition. The partition wall trunking is then butted up to the main run and the joint covered by an Internal bend.
(as shown below)



Mono and Mono Plus trunking – PVC-U – continued

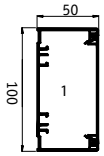
Offset dimensions

The minimum set that can be accommodated in the same plane (from internal to external bend), is shown below.

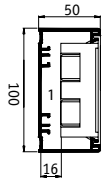


x =
100mm min (Mono 10)
105mm min (Mono Plus 20)
110mm min (Mono Plus 30)

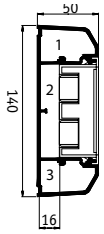
Dimensions



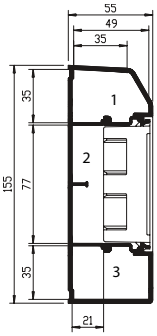
Mono 10 trunking – no box
Compartment 1 total area = 4141mm²



Mono 10 trunking – with box
Compartment 1 total area =1874mm²



Mono Plus 20 trunking – with box
Compartment 1 total area = 1024mm²
Compartment 2 total area = 1185mm²
Compartment 3 total area = 1024mm²



Mono Plus 30 trunking – with box
Compartment 1 total area = 1450mm²
Compartment 2 total area = 1563mm²
Compartment 3 total area = 1646mm²

Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between data cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Compartment 1		Compartment 2		Compartment 3	
	No box	With box	No box	With box	No box	With box
PVC power cable 1.5mm² stranded copper						
Mono 10	216	98	–	–	–	–
Mono Plus 20	53	–	134	61	53	–
Mono Plus 30	75	–	158	81	86	–
PVC power cable 2.5mm² stranded copper						
Mono 10	66	147	–	–	–	–
Mono 20	36	–	–	42	36	–
Mono 30	51	–	123	55	58	–
PVC power cable 4.0mm² stranded copper						
Mono 10	112	50	–	–	–	–
Mono Plus 20	27	–	67	32	27	–
Mono Plus 30	39	–	79	42	44	–
Data cable: Ø5.5mm						
Mono 10	61	27	–	–	–	–
Mono Plus 20	15	–	47	17	15	–
Mono Plus 30	21	–	49	23	24	–
Data cable: Ø6.5mm						
Mono 10	44	19	–	–	–	–
Mono Plus 20	10	–	43	12	10	–
Mono Plus 30	15	–	45	16	17	–
Data cable: Ø7.0mm						
Mono 10	38	17	–	–	–	–
Mono Plus 20	9	–	31	10	9	–
Mono Plus 30	13	–	35	14	15	–

Odyssey trunking

Material

Odyssey accessory boxes and fittings are flame retardant ABS which is 100% recyclable.

Installation

Positioning

For dado, horizontal or vertical installation.

Expansion/contraction

PVC-U expands and contracts at a uniform rate of approx 5.25mm in a 3 metre length for a temperature change of 25°C. Therefore, a 3mm gap between each length of trunking base is recommended.
Adequate allowance is made within the fittings for thermal movement of the covers, which have a 10mm overlap on each side.

Fitting

- The base is supplied with pre-cut elongated holes at 250mm centres.
- Internal couplers on base units are not required.
- To fasten base, use No 8 round head screws and washers.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine-toothed panel or power jig-saw.
- External moulded fittings overlap the joints by up to 10mm to cover cutting inaccuracies.
- A variable angle jig-saw or chop saw is recommended for cutting 45 degree mitres.

Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the covers.

Joints and bends

All base joints should have a 3mm gap to allow for expansion.

- **Internal bends:** the two base sections should be cut square and butt joined at the corner. The internal end cap component should be fitted to the open end to maintain trunking integrity.
- **External bends:** the base must be cut square with the corner and the internal radius control segregator fitted into the two base sections.
  Adjustable bends: these allow 85° to 95° to accommodate building tolerances.
- **Flat bends and tees:** have moulded and segregated base units. These are fitted into position and the trunking base then cut to butt up to mouldings.

Cutting is not critical as the external moulded clip-on fittings cover the joints and overlap the trunking covers by 10mm each side, thus covering any inaccuracies.

Bend radius control

The bend radius control fittings for Odyssey provide a bend radius of 25mm

Accessory boxes

Accessory boxes are mounted in the centre compartment. If supplied from either of the outer compartments, drill the main web adjacent to the box position. Remove the appropriate knock out and clip the box into the trunking base. For boxes in the same compartment as the supply, remove the appropriate box knock-outs and clip the box into trunking base.

- If boxes DD1510 and DD1520 are installed consecutively, a cut section of centre cover should be fitted between them.
- If DD1540 or DD1550 are installed, Adaptor DD1590 must be fitted either side to align with curved cover.
- If DD1540 or DD1550 are installed consecutively, use the spacer provided and at each end of a run use accessory adaptor DD1590 to align with curved cover.
- Part M coloured accessory boxes are available to meet the requirements of DDA regulations for Visual Impairment.

Covers

The covers have been designed to limit unauthorised removal and remain in position during normal conditions, irrespective of impact and minor undulations of the mounting surface.

Covers – fitting

Outer covers are fitted first. Locate front clip feature into the base and then roll the cover to the back of the trunking until the rear clip feature positively locates – it is possible to hear the click when this is located correctly. The centre cover is then clipped into place from the front. If accessory boxes are installed, the centre cover is butt joined beneath the moulded flange of the box (Odyssey box DD1510/DD1520) or adaptor (DD1590). The cut edges of lids are then concealed.
A gap of 15mm should be left between cover joints to permit fittings to clip to the base.

Covers – removal

To remove a cover, first detach a coupler, internal or external bend component to gain access. The main cover can then be gently eased off the base. To remove the outer cover, firstly ease from the base by inserting the blade of a terminal screwdriver between the captive legs of the cover and the base and then peel off.

Screening

Special conductive spray coating can be applied to one compartment, the cover, accessory boxes and fittings, to screen data cables against EMI interference.

- **For data/voice circuits only:**
  Warning: Owing to its relatively high surface resistance, CS coating SHOULD NOT be in contact with low voltage circuits BS7671 (1992) 50 V.A.C. – 1000 V.A.C. unless additional measures are undertaken.

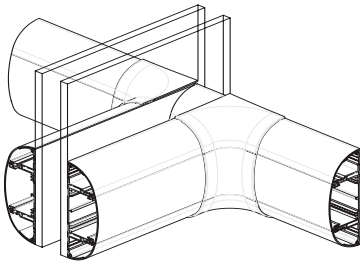
Antimicrobial

For technical details of antimicrobial Odyssey Bio trunking, please refer to Laboratory and Healthcare section.

Odyssey trunking– continued

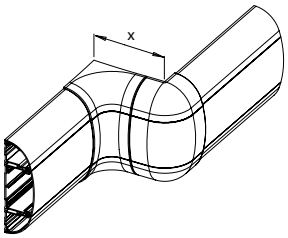
Method of continuation through a partition wall

Continue the main lateral run of base through the partition wall with short lengths of cover fitted where the trunking passes through the partition. The partition wall trunking is then butted up to the main run and the joint covered by an Internal bend.
(as shown below)



Offset dimensions

The minimum set that can be accommodated in the same plane (from internal to external bend), is shown below.



x =
Fixed bend offset 138mm
Adjustable bend offset 165mm
Adjustable external bend, fixed internal bend offset 163mm
Adjustable internal bend, fixed external bend offset 140mm

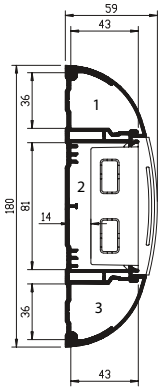
Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Compartment 1		Compartment 2		Compartment 3	
	No box	With box	No box	With box	No box	With box
PVC power cable 1.5mm² stranded copper	65	–	210	61	64	–
PVC power cable 2.5mm² stranded copper	45	–	141	30	45	–
PVC power cable 4.0mm² stranded copper	34	–	108	33	33	–
Data cable: Ø5.5mm	18	–	59	18	18	–
Data cable: Ø6.0mm	15	–	50	15	15	–
Data cable: Ø6.5mm	13	–	42	12	13	–
Data cable: Ø7.0mm	11	–	36	11	11	–
Data cable: Ø8.4mm						

Dimensions



Odyssey trunking – with box

Compartment 1 & 3 total area = 1278mm²
Compartment 2 total area = 859mm²

Odyssey trunking – no box

Compartment 2 total area = 3972mm²

Series R trunking

Material

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

Installation

Positioning

Series R is suitable for dado.

Expansion/contraction

PVC-U expands and contracts at a uniform rate of approx 5.25mm in a 3 metre length for a temperature change of 25°C. Therefore, a 3mm gap between each length of trunking base is recommended.
Adequate allowance is made within the fittings for thermal movement of the covers, which have a 10mm overlap on each side.

Fitting

- The base is supplied with pre-cut elongated holes at 250mm centres.
- Internal couplers on base units are not required.
- To fasten base, use No 8 round head screws and washers.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine-toothed panel or power jig-saw.
- External moulded fittings overlap the joints by up to 10mm to cover cutting inaccuracies.
- A variable angle jig-saw or chop saw is recommended for cutting 45 degree mitres.

Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the cover.

Joints and bends

All base joints should have a 3mm gap to allow for expansion.

- **Internal bends and external bends:** trunking body must be mitred at 45° to ensure total enclosure of trunking, including any internal fitted segregator.
- **Flat angles and tees:** are prefabricated. Trunking bases should be cut to butt up to fittings.

Cutting is not critical as the external moulded clip-on fittings cover the joints and overlap the trunking covers by 10mm each side, thus covering any inaccuracies.

Bend radius control

Please contact the Technical Team on 01424 856688

Accessory boxes

All accessory boxes are mounted in the main, centre compartment. The appropriate knockout removal depends whether supply is to be run in the centre compartment or either/both of the outer segregated compartments. When knockouts are removed, clip the box into the trunking body. When boxes are installed consecutively, a short cut length of centre cover (14mm min.) is required to cover the space between boxes.

Covers

The cover has been designed to remain in position irrespective of impact during normal conditions, minor undulations of the mounting surface, and to limit unauthorised removal.

Covers – fitting

The single cover is clipped into place from the front. If accessory boxes are installed, the covers are butt-joined to the edge of the box (RSSB1/2). The cut edges the cover are subsequently concealed by the accessory.

Covers – removal

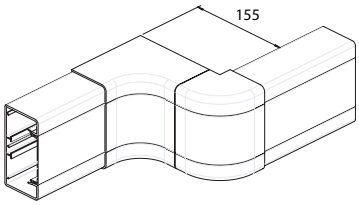
To remove the cover, first detach a coupler, internal or external bend component to gain access. The cover can then be gently eased off the base.

Method of continuation through a partition wall

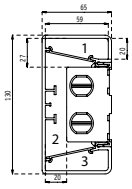
- Continue the main lateral run of base through the partition wall with short lengths of cover fitted where the trunking passes through the partition. The partition wall trunking is then butted up to the main run and the joint covered by an Internal bend.

Offset dimensions

The minimum set that can be accommodated in the same plane (from internal to external bend), is shown below.

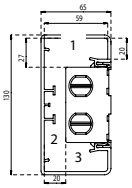


Series R– continued



Series R 130 – with box and segregators

Compartment 1 & 3 total area = 957mm²
Compartment 2 total area = 2210mm²
Compartment 2 (45% space factor) = 995mm²



Series R 130 – with box, no segregators

Compartment 1+2+3 total area = 4272mm²
Compartment 1+2+3 (45% space factor) = 1992mm²

Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Compartment 1		Compartment 2		Compartment 3	
	No box	With box	No box	With box	No box	With box
PVC power cable 1.5mm² stranded copper						
Series R 130						
(without segregator)	223	–	–	–	223	–
(with segregator)	50	–	–	115	50	–
PVC power cable 2.5mm² stranded copper						
Series R 130						
(without segregator)	152	–	–	–	152	–
(with segregator)	34	–	–	78	34	–
PVC power cable 4.0mm² stranded copper						
Series R 130						
(without segregator)	115	–	–	–	115	–
(with segregator)	25	–	–	59	25	–
Data cable: Ø5.5mm						
Series R 130						
(without segregator)	63	–	–	–	63	–
(with segregator)	14	–	–	32	14	–
Data cable: Ø6.0mm						
Series R 130						
(without segregator)	53	–	–	–	53	–
(with segregator)	11	–	–	27	11	–
Data cable: Ø6.5mm						
Series R 130						
(without segregator)	45	–	–	–	45	–
(with segregator)	10	–	–	23	10	–
Data cable: Ø7.0mm						
Series R 130						
(without segregator)	39	–	–	–	39	–
(with segregator)	8	–	–	20	8	–

Sterling profile trunking

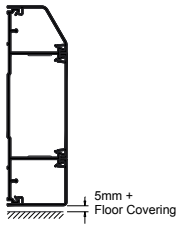
Material

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

Installation

Positioning

When used as a skirting system, sufficient clearance should be allowed between the floor covering and the profile fittings that clip over the cover i.e. 5mm + floor covering is recommended.



Expansion/contraction

PVC-U expands and contracts at a uniform rate of approx 5.25mm in a 3 metre length for a temperature change of 25°C. Therefore, a 3mm gap between each length of trunking base is recommended.Fittings have a 10mm overlap on each side to allow for thermal movement of the covers.

Fitting

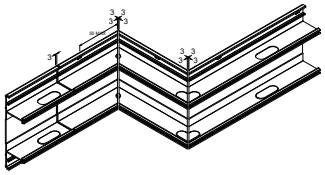
- The base is supplied with pre-cut elongated holes at 250mm centres.
- Internal couplers on base units are not required.
- To fasten base, use No 8 round head screws and washers.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine-toothed panel or power jig-saw.
- External moulded fittings overlap the joints by up to 10mm to cover cutting inaccuracies.
- A variable angle jig-saw or chop saw is recommended for cutting 45° mitres.
- To increase number of compartments to any number required, use base extension EBE1WH and extendable base EEB1.

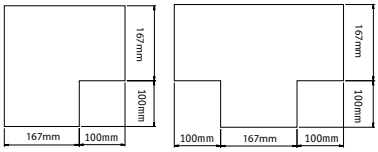
Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the cover.

Joints and bends

- Base joints should have a 3mm gap to allow for expansion.
- Internal, external bends and flat angles, the base must be mitred 45° to ensure total enclosure of trunking, including any internal fitted segregator.
- Flat angles, tees and crossovers are available prefabricated.
- External moulded fittings overlap the joints by up to 10mm to cover cutting inaccuracies.



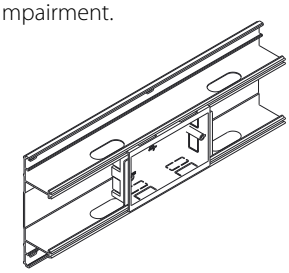


Bend radius control

The data internal and external bend radius control fittings for Sterling Profile trunking provide a bend radius of 50mm.

Accessory boxes

- For mounting an accessory box in the alternative compartment to supply. Fit the box and remove the closest knockout in the main web.
- Remove the appropriate knock out and clip the box into the trunking base.
- For boxes in the same compartment as the supply, remove the appropriate box knock-outs and clip the box into trunking base.
- When boxes are installed consecutively, a 14mm wide spacer (ES1) is required to cover the space between the boxes.
- Part M box assemblies with contrasting coloured faceplates are available to meet the requirements of DDA regulations for Visual Impairment.



Covers

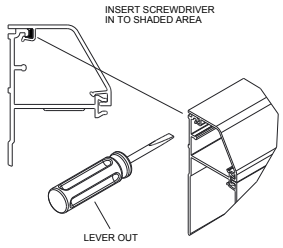
Covers are designed to limit unauthorised removal and to remain in position during normal conditions irrespective of impact and minor undulations of the mounting surface.

Covers – fitting

Covers are clipped into place from front. If accessory boxes are installed, the ETL1 cover is butt-joined to the edge of the box. Cut edges of the cover are subsequently concealed by the accessory. For fittings, a gap of 25mm is left between the two cover ends to permit the fitting to clip to base.

Covers – removal

To remove a cover, first detach a coupler, internal or external bend component to gain access. The main cover can then be gently eased off the base. To remove the outer cover, firstly ease from the base by inserting the blade of a terminal screwdriver between the captive legs of the cover and the base and then ease away from the base.



Screening

Special conductive spray coating can be applied to one compartment, the cover, accessory boxes and fittings, to screen data cables against EMI interference.

- **For data/voice circuits only:**
  Warning: Owing to its relatively high surface resistance, CS coating SHOULD NOT be in contact with low voltage circuits BS7671 (1992) 50 V.A.C. – 1000 V.A.C. unless additional measures are undertaken.

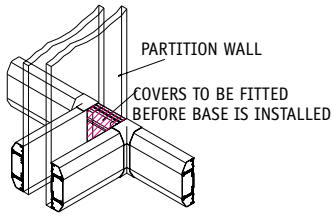
Antimicrobial

For technical details of antimicrobial Sterling Profile Bio trunking, please refer to Laboratory and Healthcare section.

Sterling Profile trunking – continued

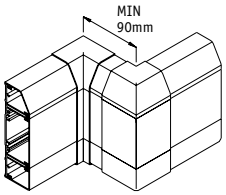
Method of continuation through a partition wall

- Continue the main lateral run of base through the partition wall.
- Fit short lengths of cover where the trunking passes through the partition.
- The partition wall trunking is then butted up to the main run and the joint covered by an internal bend fitting.

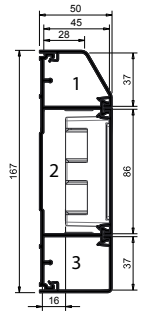


Offset dimensions

The minimum set that can be accommodated in the same plane (from internal to external bend), is shown below.

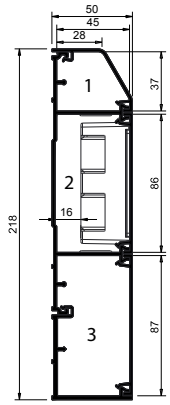


Dimensions



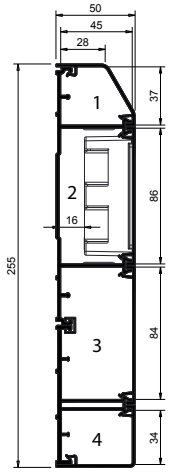
Sterling Profile 2 - with box
Compartment 1 total area = 1266mm^2
Compartment 2 total area = 1376mm^2
Compartment 3 total area = 1542mm^2

Sterling Profile 2 - no box
Compartment 2 total area = 3858mm^2



Sterling Profile 4 - with box in compartment 2
Compartment 1 total area = 1266mm^2
Compartment 2 total area = 1376mm^2
Compartment 3 total area = 3716mm^2

No box in compartment 2
Compartment 2 total area = 3858mm^2



Sterling Profile 12 - with box in compartment 2
Compartment 1 total area = 1266mm^2
Compartment 2 total area = 1376mm^2
Compartment 3 total area = 3566mm^2
Compartment 4 total area = 1430mm^2

No box in compartment 2
Compartment 2 total area = 3858mm^2

Other Sterling Profile dimensions

Other Sterling Profiles are a combination of the ones shown on this page and can be calculated using the compartment dimensions shown here.

Sterling Profile cable capacities

Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Compartment 1		Compartment 2		Compartment 3		Compartment 4
	No box	With box	No box	With box	No box	With box	No box
PVC power cable 1.5mm^2 stranded copper							
Sterling Profile 1	-	66	-	202	72	66	-
Sterling Profile 2	-	66	-	202	72	81	-
Sterling Profile 3	-	81	-	202	72	81	-
Sterling Profile 4	-	66	-	202	72	189	-
Sterling Profile 5	-	81	-	202	72	189	-
Sterling Profile 6	-	189	-	202	72	189	-
Sterling Profile 11	-	66	-	202	72	182	63
Sterling Profile 12	-	66	-	202	72	182	75
Sterling Profile 13	-	81	-	202	72	182	75
PVC power cable 2.5mm^2 stranded copper							
Sterling Profile 1	-	45	-	138	49	45	-
Sterling Profile 2	-	45	-	138	49	55	-
Sterling Profile 3	-	55	-	138	49	55	-
Sterling Profile 4	-	45	-	138	49	129	-
Sterling Profile 5	-	55	-	138	49	129	-
Sterling Profile 6	-	98	-	138	49	129	-
Sterling Profile 11	-	45	-	138	49	124	42
Sterling Profile 12	-	45	-	138	49	124	51
Sterling Profile 13	-	55	-	138	49	124	51
PVC power cable 4.0mm^2 stranded copper							
Sterling Profile 1	-	34	-	105	37	34	-
Sterling Profile 2	-	34	-	105	37	42	-
Sterling Profile 3	-	42	-	105	37	42	-
Sterling Profile 4	-	34	-	105	37	98	-
Sterling Profile 5	-	42	-	105	37	98	-
Sterling Profile 6	-	98	-	105	37	98	-
Sterling Profile 11	-	34	-	105	37	94	32
Sterling Profile 12	-	34	-	105	37	94	39
Sterling Profile 13	-	42	-	105	37	94	39
Data cable: Ø5.5mm^2							
Sterling Profile 1	-	19	-	57	20	19	-
Sterling Profile 2	-	19	-	57	20	23	-
Sterling Profile 3	-	23	-	57	20	23	-
Sterling Profile 4	-	19	-	57	20	51	-
Sterling Profile 5	-	23	-	57	20	54	-
Sterling Profile 6	-	51	-	57	20	54	-
Sterling Profile 11	-	19	-	57	20	51	17
Sterling Profile 12	-	19	-	57	20	51	21
Sterling Profile 13	-	23	-	57	20	51	21
Data cable: Ø6.0mm^2							
Sterling Profile 1	-	16	-	48	17	16	-
Sterling Profile 2	-	16	-	48	17	19	-
Sterling Profile 3	-	19	-	48	17	19	-
Sterling Profile 4	-	16	-	48	17	45	-
Sterling Profile 5	-	19	-	48	17	45	-
Sterling Profile 6	-	45	-	48	17	45	-
Sterling Profile 11	-	16	-	48	17	43	14
Sterling Profile 12	-	16	-	48	17	43	18
Sterling Profile 13	-	19	-	48	17	43	18
Data cable: Ø6.5mm^2							
Sterling Profile 1	-	14	-	41	15	14	-
Sterling Profile 2	-	14	-	41	15	16	-
Sterling Profile 3	-	16	-	41	15	16	-
Sterling Profile 4	-	14	-	41	15	38	-
Sterling Profile 5	-	16	-	41	15	38	-
Sterling Profile 6	-	38	-	41	15	38	-
Sterling Profile 11	-	14	-	41	15	37	12
Sterling Profile 12	-	14	-	41	15	37	15
Sterling Profile 13	-	16	-	41	15	37	15
Data cable: Ø7.0mm^2							
Sterling Profile 1	-	12	-	35	13	12	-
Sterling Profile 2	-	12	-	35	13	14	-
Sterling Profile 3	-	14	-	35	13	14	-
Sterling Profile 4	-	12	-	35	13	33	-
Sterling Profile 5	-	14	-	35	13	33	-
Sterling Profile 6	-	33	-	35	13	33	-
Sterling Profile 11	-	12	-	35	13	31	10
Sterling Profile 12	-	12	-	35	13	31	13
Sterling Profile 13	-	14	-	35	13	31	13

Twin165 trunking

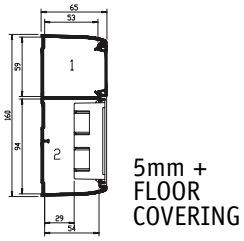
Material

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

Installation

Positioning

When used as a skirting system, sufficient clearance should be allowed between the floor covering and the profile fittings that clip over the cover i.e. 5mm + floor covering is recommended.



Expansion/contraction

PVC-U expands and contracts at a uniform rate of approx 5.25mm in a 3 metre length for a temperature change of 25°C. Therefore, a 3mm gap between each length of trunking base is recommended.
Adequate allowance is made within the fittings for thermal movement of the covers, which have a 7mm overlap on each side.

Fitting

- The base is supplied with pre-cut elongated holes at 250mm centres.
- Internal couplers on base units are not required.
- To fasten base, use No 8 round head screws and washers.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine-toothed panel or power jig-saw.
- External moulded fittings overlap the joints by up to 10mm to cover cutting inaccuracies.
- A variable angle jig-saw or chop saw is recommended for cutting 45° mitres.

Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the cover.

Joints and bends

- Base joints should have a 3mm gap to allow for expansion.
- Internal and external bends: Base should be cut square to bend base component.
- Flat angles and tees are pre-fabricated.
- External moulded fittings overlap the joints by up to 7mm to cover cutting inaccuracies.
- End caps to be screw fixed to base.

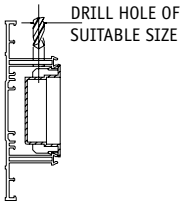
Bend radius control

The bend radius control fittings for Twin 165 provide a bend radius of 50mm.

Accessory boxes

The accessory box is mounted in the larger compartment (compartment 2). If supply is from the smaller compartment, drill the main web adjacent to the box position. Remove the appropriate knock out and clip the box into the trunking base. For boxes supplied from the main compartment, remove the appropriate box knock-outs and clip the box into trunking base. When boxes are installed consecutively, a 14mm wide spacer (ES1) is required to cover the space between the boxes.

- Part M box assemblies with contrasting coloured faceplates are available to meet the requirements of DDA regulations for Visual Impairment.



Covers

The covers have been designed to remain in position irrespective of impact during normal conditions, minor undulations of the mounting surface, and to limit unauthorised removal.

Covers – fitting

Covers are clipped into place from the front. If accessory boxes are installed, the covers are butt-joined to the edge of the box. For the fitting of couplers, a gap of 25mm is left between the two cover ends.

Covers – removal

To remove a cover, first detach a coupler, internal or external bend component to gain access. Both covers can then be gently eased off the base.

Screening

Special conductive spray coating can be applied to one compartment, the cover, accessory boxes and fittings, to screen data cables against EMI interference.

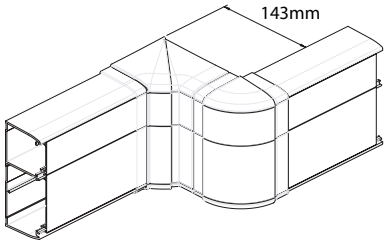
- **For data/voice circuits only:** Warning: Owing to its relatively high surface resistance, CS coating SHOULD NOT be in contact with low voltage circuits BS7671 (1992) 50 V.A.C. – 1000 V.A.C. unless additional measures are undertaken.
- Part M box assemblies with contrasting coloured faceplates are available to meet the requirements of DDA regulations for Visual Impairment.

Antimicrobial

For technical details of antimicrobial Twin165 Bio trunking, please refer to Laboratory and Healthcare section.

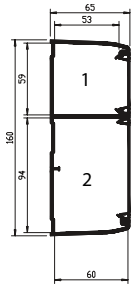
Offset dimensions

The minimum set that can be accommodated in the same plane (from internal to external bend), is shown below.

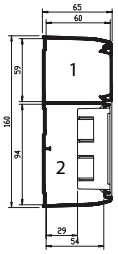


Twin165 – continued

Dimensions



Twin165 trunking - no accessory box
Compartment 1 total area = 3272mm²
Compartment 2 total area = 5404mm²



Twin165 trunking – with accessory box
Compartment 1 total area = 3272mm²
Compartment 2 total area = 3100mm²

Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Compartment 1		Compartment 2	
	No box	With box	No box	With box
PVC power cable 1.5mm² stranded copper	171	–	283	162
PVC power cable 2.5mm² stranded copper	117	–	193	111
PVC power cable 4.0mm² stranded copper	89	–	147	84
Data cable: Ø5.5mm	49	–	81	46
Data cable: Ø6.0mm	41	–	68	39
Data cable: Ø6.5mm	35	–	58	33
Data cable: Ø7.0mm	30	–	50	28
Data cable: Ø8.4mm	25	–	41	24

Twin Plus trunking

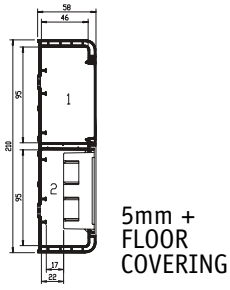
Material

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

Installation

Positioning

When used as a skirting system, sufficient clearance should be allowed between the floor covering and the profile fittings that clip over the cover i.e. 5mm + floor covering is recommended.



Expansion/contraction

PVC-U expands and contracts at a uniform rate of approx 5.25mm in a 3 metre length for a temperature change of 25°C. Therefore, a 3mm gap between each length of trunking base is recommended.
Adequate allowance is made within the fittings for thermal movement of the covers, which have a 10mm overlap on each side.

Fitting

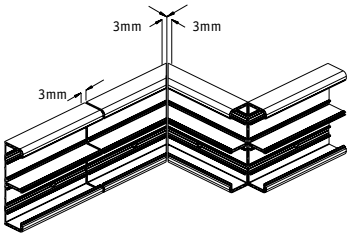
- The base is supplied with pre-cut elongated holes at 250mm centres.
- Internal couplers on base units are not required.
- To fasten base, use No 8 round head screws and washers.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine-toothed panel or power jig-saw.
- External moulded fittings overlap the joints by up to 10mm to cover cutting inaccuracies.
- A variable angle jig-saw or chop saw is recommended for cutting 45° mitres.

Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the cover.

Joints and bends

- Base joints should have a 3mm gap to allow for expansion.
- External bends: base should be cut square.
- Internal bends and flat angles, the base must be mitred 45° to ensure total enclosure of trunking, including any internal fitted segregator.
- Tees and crossovers are available prefabricated.
- External moulded fittings overlap the joints by up to 7mm to cover cutting inaccuracies.



Bend radius control

The bend radius control fittings for Twin Plus provide a bend radius of 50mm

Accessory boxes

If the accessory box is to be mounted in the alternative compartment to the supply, drill the main web adjacent to the box position. Remove the appropriate knock out and clip the box into the trunking base. For boxes in the same compartment as the supply, remove the appropriate box knock-outs and clip the box into trunking base. When boxes are installed consecutively, a 14mm wide spacer (ES1) is required to cover the space between the boxes.

- Part M box assemblies with contrasting coloured faceplates are available to meet the requirements of DDA regulations for Visual Impairment.

Covers

The covers have been designed to remain in position irrespective of impact during normal conditions, minor undulations of the mounting surface, and to limit unauthorised removal.

Covers – fitting

Covers are clipped into place from the front. If accessory boxes are installed, the covers are butt-joined to the edge of the box. For the fitting of couplers to conceal the cover joint, a gap of 30mm is left between the two cover ends.

Covers – removal

To remove a cover, first detach a coupler, internal or external bend component to gain access. Both covers can then be gently eased off the base.

Screening

Special conductive spray coating can be applied to one compartment, the cover, accessory boxes and fittings, to screen data cables against EMI interference.

- **For data/voice circuits only:**
  Warning: Owing to its relatively high surface resistance, CS coating SHOULD NOT be in contact with low voltage circuits BS7671 (1992) 50 V.A.C. – 1000 V.A.C. unless additional measures are undertaken.

Antimicrobial

For technical details of antimicrobial Twin Plus Bio trunking, please refer to Laboratory and Healthcare section.

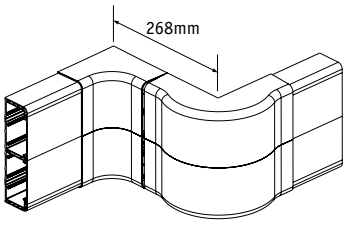
Method of continuation through a partition wall

Continue the main lateral run of base through the partition wall with short lengths of cover fitted where the trunking passes through the partition. The partition wall trunking is then butted up to the main run and the joint covered by an Internal bend.

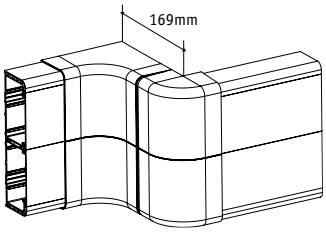
Offset dimensions

The minimum set that can be accommodated in the same plane (from internal to external bend), is shown below.

Large data capacity bend

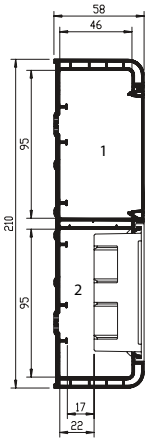


Standard bend



Twin Plus trunking – continued

Dimensions



Twin Plus trunking – with accessory box
Compartment 1 & 2 total area = 2431mm²

Twin Plus trunking – no accessory box
Compartment 1 & 2 total area = 4755mm²

Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Compartment 1	Compartment 2
	No box	With box
PVC power cable 1.5mm² stranded copper	248	127
PVC power cable 2.5mm² stranded copper	169	86
PVC power cable 4.0mm² stranded copper	128	65
Data cable: Ø5.5mm	70	36
Data cable: Ø6.0mm	59	30
Data cable: Ø6.5mm	50	25
Data cable: Ø7.0mm	43	22
Data cable: Ø8.4mm	36	18

XL trunking

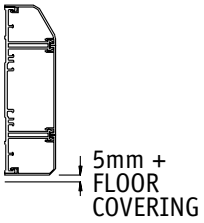
Material

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

Installation

Positioning

When used as a skirting system, sufficient clearance should be allowed between the floor covering and the profile fittings that clip over the cover i.e. 5mm + floor covering is recommended.



Expansion/contraction

PVC-U expands and contracts at a uniform rate of approx 5.25mm in a 3 metre length for a temperature change of 25°C. Therefore, a 3mm gap between each length of trunking base is recommended.
Adequate allowance is made within the fittings for thermal movement of the covers, which have a 10mm overlap on each side.

Fitting

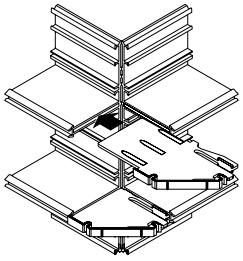
- The base is supplied with pre-cut elongated holes at 250mm centres.
- Internal couplers on base units are not required.
- To fasten base, use No 8 round head screws and washers.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine-toothed panel or power jig-saw.
- External moulded fittings overlap the joints by up to 10mm to cover cutting inaccuracies.
- A variable angle jig-saw or chop saw is recommended for cutting 45° mitres.

Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the cover.

Joints and bend

- Base joints should have a 3mm gap to allow for expansion.
- External bends: base should be cut square and segregators inserted as shown in drawing below.



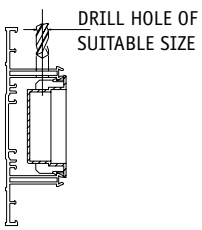
- Internal bends and flat angles, the base must be mitred 45° to ensure total enclosure of trunking, including any internal fitted segregator.
- Tees and crossovers are available prefabricated.
- External moulded fittings overlap the joints by up to 7mm to cover cutting inaccuracies.

Bend radius control

For data bend radius control fittings for XL, please contact the Technical Team on 01424 856688.

Accessory boxes

- If accessory box main compartment is supplied from an outer compartment, drill the main web adjacent to the box position.
- Remove the appropriate knock out and clip the box into the trunking base.
- For boxes in the same compartment as the supply, remove the appropriate box knock-outs and clip the box into trunking base.
- When boxes are installed consecutively, a 14mm wide spacer (ES1) is required to cover the space between the boxes.
- Part M box assemblies with contrasting coloured faceplates are available to meet the requirements of DDA regulations for Visual Impairment.



Covers

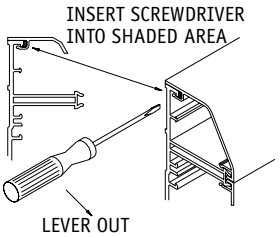
The covers have been designed to remain in position irrespective of impact during normal conditions, minor undulations of the mounting surface, and to limit unauthorised removal.

Covers – fitting

Covers are clipped into place from the front. If accessory boxes are installed, the covers are butt-joined to the edge of the box (ESSB1 and 2 only) and the cut edges of lids are subsequently concealed by the accessory. For fittings, a gap of 30mm is left between the two cover ends to permit the fitting to clip to the base.

Covers – removal

To remove a cover, first detach a coupler, internal or external bend component to gain access. The main cover can then be gently eased off the base. To remove the outer cover, firstly ease from the base by inserting the blade of a terminal screwdriver between the captive legs of the cover and the base and then peel off.



Screening

Special conductive spray coating can be applied to one compartment, the cover, accessory boxes and fittings, to screen data cables against EMI interference.

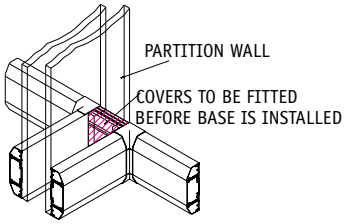
- **For data/voice circuits only:**
  Warning: Owing to its relatively high surface resistance, CS coating SHOULD NOT be in contact with low voltage circuits BS7671 (2008) 50 V.A.C. – 1000 V.A.C. unless additional measures are undertaken.

Antimicrobial

For technical details of antimicrobial XL Bio trunking, please refer to Laboratory and Healthcare section.

Method of continuation through a partition wall

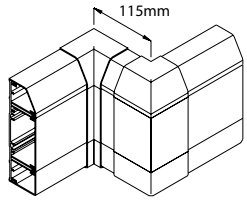
Continue the main lateral run of base through the partition wall with short lengths of cover fitted where the trunking passes through the partition. The partition wall trunking is then butted up to the main run and the joint covered by an Internal bend.
(as shown below)



XL trunking – continued

Offset dimensions

The minimum set that can be accommodated in the same plane (from internal to external bend), is shown below.



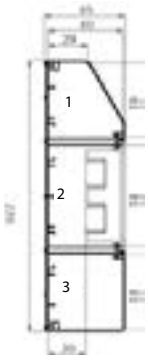
Dimensions

XL 202 Trunking - with box

Compartment 1 total area = 2824mm²
Compartment 2 total area = 2504mm²
Compartment 3 total area = 3531mm²

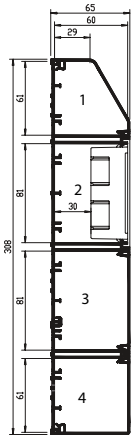
XL 202 Trunking - no box

Compartment 2 total area = 4771mm²



XL 212 Trunking - no box

Compartment 1 total area = 2824mm²
Compartment 2 total area = 4771mm²
Compartment 3 total area = 4732mm²
Compartment 4 total area = 3531mm²



Other Sterling Profile dimensions

Other XL trunking profiles are a combination of the ones shown on this page and can be calculated using the compartment dimensions shown here.

Cable capacities

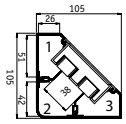
- All calculations allow for a 45% space factor.

As there can be differences between cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

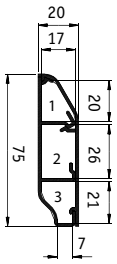
Cable capacity chart	Compartment 1		Compartment 2		Compartment 3		Compartment 4
	No box	With box	No box	With box	No box	With box	No box
PVC power cable 1.5mm² stranded copper							
XL 201	147	–	249	131	147	–	–
XL 202	147	–	249	131	184	–	–
XL 203	184	–	249	131	184	–	–
XL 211	147	–	249	131	247	–	147
XL 212	147	–	249	131	247	–	184
XL 213	184	–	249	131	247	–	184
PVC power cable 2.5mm² stranded copper							
XL 201	100	–	170	89	100	–	–
XL 202	100	–	170	89	126	–	–
XL 203	126	–	170	89		–	–
XL 211	100	–	170	89	169	–	100
XL 212	100	–	170	89	169	–	126
XL 213	126	–	170	89	169	–	126
PVC power cable 4.0mm² stranded copper							
XL 201	76	–	129	67	76	–	–
XL 202	76	–	129	67	95	–	–
XL 203	95	–	129	67	95	–	–
XL 211	76	–	129	67	128	–	76
XL 212	76	–	129	67	128	–	95
XL 213	95	–	129	67	128	–	95
Data cable: Ø5.5mm UTP & STP							
XL 201	42	–	71	37	42	–	–
XL 202	42	–	71	37	52	–	–
XL 203	52	–	71	37	52	–	–
XL 211	42	–	71	37	70	–	42
XL 212	42	–	71	37	70	–	52
XL 213	52	–	71	37	70	–	52
Data cable: Ø6.0mm UTP & STP							
XL 201	35	–	59	31	35	–	–
XL 202	35	–	59	31	44	–	–
XL 203	44	–	59	31	44	–	–
XL 211	35	–	59	31	59	–	35
XL 212	35	–	59	31	59	–	44
XL 213	44	–	59	31	59	–	44
Data cable: Ø6.5mm UTP & STP							
XL 201	30	–	50	26	30	–	–
XL 202	30	–	50	26	37	–	–
XL 203	37	–	50	26	37	–	–
XL 211	30	–	50	26	50	–	30
XL 212	30	–	50	26	50	–	37
XL 213	37	–	50	26	50	–	37
Data cable: Ø7.0mm UTP & STP							
XL 201	25	–	43	23	25	–	–
XL 202	25	–	43	23	32	–	–
XL 203	32	–	43	23	32	–	–
XL 211	25	–	43	23	43	–	25
XL 212	25	–	43	23	43	–	32
XL 213	32	–	43	23	43	–	32
Data cable: Ø8.38mm UTP & STP							
XL 201	21	–	37	19	21	–	–
XL 202	21	–	37	19	27	–	–
XL 203	27	–	37	19	27	–	–
XL 211	21	–	37	19	36	–	21
XL 212	21	–	37	19	36	–	27
XL 213	27	–	37	19	36	–	27

Aluminium trunking capacity guide

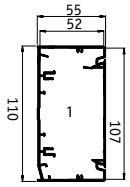
Trunking sizes up to 150mm



Bench trunking – no box
1 & 3 = 1285mm² total area
1 & 3 = 578mm² 45% space factor
2 = 2138mm² total area
2 = 962mm² 45% space factor
With box in comp 2
2 = 962mm²

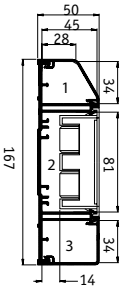


Sovereign Plus skirting– no box (Box installed externally)
1 = 229mm² total area
1 = 103mm² 45% space factor
2 = 416mm² total area
2 = 187mm² 45% space factor
3 = 262mm² total area
3 = 118mm² 45% space factor

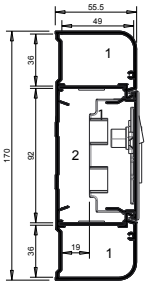


Elegance 110 aluminium – no box
1 = 5254mm² total area
1 = 2364mm² 45% space factor
With box in comp 1
1 = 2987mm² total area
1 = 1344mm² 45% space factor

Trunking sizes from 150mm to 200mm

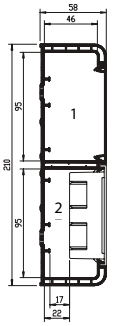


Sterling Profile 3002 – no box
1 = 1197mm² total area
1 = 538mm² 45% space factor
2 = 3556mm² total area
3 = 1600mm² 45% space factor
3 = 1451mm² total area
3 = 652mm² 45% space factor
With box in comp 2
2 = 1279mm² total area
2 = 575mm² 45% space factor

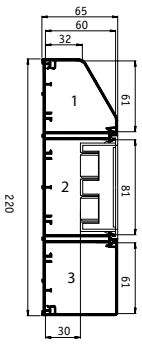


Elegance 170 aluminium – no box
1 = 1764mm² total area
1 = 794mm² 45% space factor
2 = 4508mm² Total Area
2 = 203mm² 45% space factor
With box in comp 2
2 = 1748mm² total area
2 = 787mm² 45% space factor

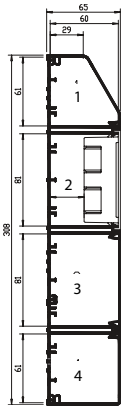
Trunking sizes over 200mm



Twin Plus – no box
1 & 2 = 4755mm² total area
1 & 2 = 2140mm² 45% space factor
With box in comp 1 or 2
1 & 2 = 2431mm² total area
1 & 2 = 1094mm² 45% space factor



XL 302 – no box
1 = 2824mm² total area
1 = 1271mm² 45% space factor
2 = 4771mm² total area
2 = 2147mm² 45% space factor
3 = 3531mm² total area
3 = 1589mm² 45% space factor
With box in comp 2
2 = 2504mm² total area
2 = 1127mm² 45% space factor



XL 312 – no box
1 = 2824mm² total area
1 = 1271mm² 45% space factor
2 = 4771mm² total area
2 = 2147mm² 45% space factor
3 = 4732mm² total area
3 = 2130mm² 45% space factor
4 = 3531mm² total area
4 = 1589mm² 45% space factor
With box in comps 2 or 3
2 = 2511mm² total area
2 = 1130mm² 45% space factor
3 = 2466mm² total area
3 = 1109mm² 45% space factor

Conductor type	Size	Cable factor
Stranded PVC power	1.5mm²	8.6
Stranded PVC power	2.5mm²	12.6
Stranded PVC power	4.0mm²	16.6
*Data cable	Ø5.5mm	30.2
*Data cable	Ø6.0mm	36.0
*Data cable	Ø6.5mm	42.2
*Data cable	Ø7.0mm	49.0
*Data cable	Ø8.4mm	58.0

To determine cable capacity, select the size of the cable required and its corresponding cable factor from the table. Divide the compartment area figure (with or without 45% space factor) with the cable factor figure to achieve cable capacity.

Calculations

Please note that all the above calculations are based on a box depth of 30mm

Bench trunking aluminium

Material

Aluminium trunking is manufactured from high precision extruded aluminium with a powder coat finish.
White RAL 9016
Silver Grey RAL 9006
Accessory boxes are supplied in PVC-U or polycarbonate both of which are 100% recyclable.

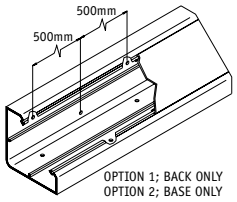
Installation

Positioning

Bench and desk installations: a single run can be fitted to rear of furniture or, if run down centre line, two units can be joined back to back presenting accessories on both sides.

Fitting

- Secure trunking base in one plane only every 500mm by drilling alternative Ø6mm holes either side of divider nib.
- Secure using No 8 round head screws and washers. Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine tooth blade (32/36tpi) or, preferably, a circular saw with a 350mm fine tungsten blade (90/108tpi). This will produce an edge requiring minimal de-burring.
- Consecutive lengths of base are aligned and butt jointed together.



Earthing

- Base, covers and metallic fittings to be cleaned of protective and powder coatings and earth bonded.
- Incoming earth connection is made using LTB1 bonding assembly installed in the earth channel of the base.
- Bonding base to base: in final ring or radial 32Amp circuits, bonding strap LBS1 can be used.Bonding cover to base use LBS2

Joints and bends

- Base joints should be butt jointed together.
- Internal and external bends are prefabricated in aluminium, aligned and butt jointed together so cutting of base and covers has to be very accurate to produce a good finish.

Bend radius control

Contact the Technical Team on 01424 856688

Accessory boxes

- Remove the appropriate box knockout that align with segregated compartment containing supply cable and clip the box into the trunking base.
- When boxes are installed consecutively, a 14mm wide spacer (ES1) is required to cover the space between the boxes.
- Part M box assemblies with contrasting coloured faceplates are available to meet the requirements of DDA regulations for Visual Impairment.

Covers

Covers are designed to limit unauthorised removal and to remain in position during normal conditions irrespective of impact and minor undulations of the mounting surface.

Covers – fitting

Covers are clipped into place from front. If accessory boxes are installed, the LTL1 cover is butt-joined to the edge of the box (ESSB1/2 only). Cut edges of the cover are concealed by the accessory. Adjoining covers are butt-jointed.

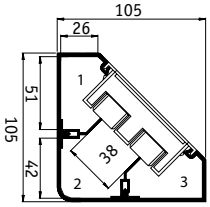
Covers – removal

To remove a cover, first detach an accessory to gain access. The main cover can then be gently eased off the base.

Screening

Aluminium containment protects internal circuits from external electromagnetic interference. For internal segregation and screening, use a screened dividing fillet.

Dimensions



Bench trunking – with box

Compartment 1 (total area) = 1285mm²
Compartment 2 (total area) = 2138mm² (with box)
Compartment 3 (total area) = 1285mm²

Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between data cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Compartment 1		Compartment 2		Compartment 3	
	No box	With box	No box	With box	No box	With box
PVC power cable 1.5mm² stranded copper	67	–	–	111	67	–
PVC power cable 2.5mm² stranded copper	45	–	–	76	45	–
PVC power cable 4.0mm² stranded copper	34	–	–	57	34	
Data cable: Ø5.5mm	19	–	–	31	19	–
Data cable: Ø6.0mm	16	–	–	26	16	–
Data cable: Ø6.5mm	13	–	–	22	13	–
Data cable: Ø7.0mm	11	–	–	19	11	–
Data cable: Ø8.4mm	9	–	–	16	9	–

Only for straight runs. If bends are required please contact the Technical Team on 01424 856688.

Elegance Aluminium

Material

Aluminium trunking is manufactured from high precision extruded aluminium with a powder coat finish.
White RAL 9016
Silver Grey RAL 9006
Accessory boxes are supplied in PVC-U or polycarbonate both of which are 100% recyclable.

Installation

Positioning

Elegance can be installed at dado level or as a bench-mounted installation.

Fitting

- Secure trunking base every 750mm.
- Secure using No.8 round head screws and washers using the grooves in the outer (110) or inner (170) compartments of the base to facilitate drilling Ø6mm holes.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine tooth blade (32/36tpi) or, preferably, a circular saw with a 350mm diameter fine tungsten blade (90/108tpi). This will produce an edge requiring minimal de-burring.
- Consecutive lengths of base are aligned and butt jointed together.

Earthing

- Base, covers and metallic fittings to be cleaned of protective powder coatings for earth bonding.
- Elegance 110: Incoming earth connection is made using LBT1 bonding assembly installed in the earth channel of the base.
- Elegance 170: Incoming earth connection is made using LBT3 bonding kit, with edge clip attached to the earth rib in the base and faston connector crimped to incoming earth cable.
- Bonding base to base: in final ring or radial 32Amp circuits, bonding strap LBS1 can be used.
- Bonding end caps to base: use bonding strap LBS5.
- Bonding base to cover, use LBS2.

Joints and bends

- Straight lengths should be butt jointed together with the aid of LDP1 coupler pin if required.
- Internal bends, external bends, flat angles and tees are prefabricated in aluminium and butt jointed together so cutting of base and covers has to be very accurate to produce a good finish.

Accessory boxes

- Remove appropriate knockout and clip box into trunking base.
- For boxes in same compartment as supply, remove appropriate knockout and clip box into trunking base.
- When boxes are installed consecutively, a 14mm wide length of cover is required to cover the space between the boxes.
- Part M box assemblies with contrasting coloured faceplates are available to meet the requirements of DDA regulations for Visual Impairment.

Covers

Covers are designed to limit unauthorised removal and to remain in position during normal conditions irrespective of impact and minor undulations of the mounting surface.

Covers – fitting

Covers are clipped into place from front. If accessory boxes are installed, the LTL1/LP1010 cover is butt-joined to the edge of the box (ESSB1/2 only). Cut edges of the cover are concealed by the accessory.

Covers – removal

To remove a cover, first detach an accessory to gain access. The main cover can then be gently eased off the base.

Screening

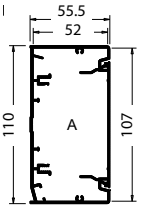
Aluminium containment will protect all internal circuits from external electromagnetic interference. For internal segregation metallic dividing fillets are avaliable.

Offset dimensions

The minimum set that can be accommodated in the same plane (from internal to external bend), is 145mm.

Dimensions

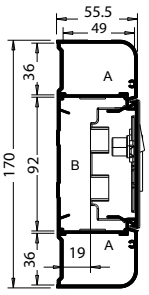
Elegance 110



A = 5254mm² total area
A = 2365mm² 45% space factor

With box in comp 1
A = 2987mm² total area
A = 1344mm² 45% space factor

Elegance 170



A = 1764mm² total area
A = 794mm² 45% space factor

Without Accessory
B = 4508mm² total area
B = 2028mm² 45% space factor

With Accessory
B – 1748mm² total area
B = 787mm² 45% space factor

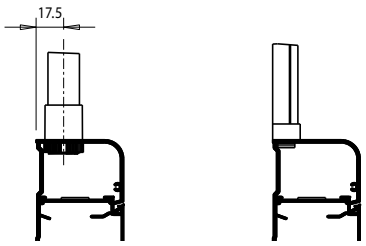
Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between data cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Fixing to Conduit and Mini Trunking

Elegance 170 can be used in conjunction with Conduit and Mini trunking systems as detailed in the diagrams below:



Cable capacity chart Total cables = Volume/ cable factor	Elegance 110		Elegance 170		
	Compartment A		Compartment A	Compartment B	
	No box	With box		No box	With box
PVC power cable 1.5mmv stranded copper	275	–	92	236	92
PVC power cable 2.5mm² stranded copper	188	–	63	161	62
PVC power cable 4.0mm² stranded copper	142	–	48	122	47
PVC power cable 6.0mm² stranded copper	112	–	37	96	37
Data cable: Ø5.5mm	76	–	26	65	25
Data cable: Ø6.0mm	64	–	21	55	21
Data cable: Ø6.5mm	54		18	46	18
Data cable: Ø7.0mm	48		16	41	16

Sterling Profile aluminium

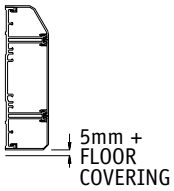
Material

Aluminium trunking is manufactured from high precision extruded aluminium with a powder coat finish.
White RAL 9016
Silver Grey RAL 9006
Accessory boxes are supplied in PVC-U or polycarbonate both of which are 100% recyclable.

Installation

Positioning

Suitable for dado and skirting installation. When used as a skirting system, sufficient clearance should be allowed between the floor covering and the profile fittings that clip over the cover i.e. 5mm + floor covering is recommended.

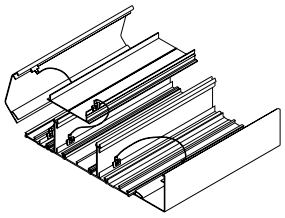


Fitting

- Secure trunking base every 750mm.
- Secure using No 8 round head screws and washers using the grooves in the outer compartments of the base to facilitate drilling Ø6mm holes.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine tooth blade (32/36tpi) or, preferably,a circular saw with a 350mm diameter fine tungsten blade (90/108tpi). This will produce an edge requiring minimal de-burring.
- Consecutive lengths of base are aligned and butt jointed together.

Earthing

- Clean protective coating from base, covers and metallic fittings and then earth bond.
- Incoming earth connection is made using LTB1 bonding assembly installed in the earth channel of the base.
- Bonding base to base: in final ring or radial 32Amp circuits, bonding strap LBS1 can be used.
- Bonding covers and end caps to base: use bonding strap LBS2.

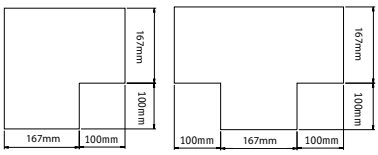


Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the cover.

Joints and bends

- Moulded from colour matching polycarbonate.
- Internal and external bends must be mitred at 45° to ensure total enclosure and segregation of trunking compartments, including any internal fitted segregator.
- Straight lengths should be butt jointed together.
- Flat angles and tees are prefabricated in aluminium.
- Cutting of base and covers is not critical as external moulded clip-on fittings cover the joint and overlap covers by 10mm each side to cover minor inaccuracies.

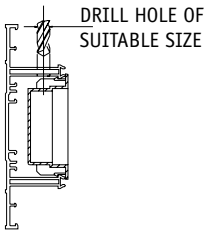


Bend radius control

Contact the Technical Team on 01424 856688

Accessory boxes

- For mounting an accessory box in the alternative compartment to supply, drill the main web adjacent to the box position.
- Remove the appropriate knock out and clip the box into the trunking base.
- For boxes in the same compartment as the supply, remove the appropriate box knock-outs and clip the box into trunking base.
- When boxes are installed consecutively, a 14mm wide spacer (ES1) is required to cover the space between the boxes.
- Part M box assemblies with contrasting coloured faceplates are available to meet the requirements of DDA regulations for Visual Impairment.



Covers

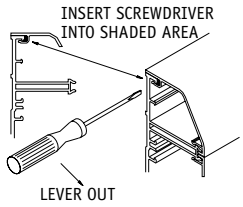
Covers are designed to limit unauthorised removal and to remain in position during normal conditions irrespective of impact and minor undulations of the mounting surface.

Covers – fitting

Covers are clipped into place from front. If accessory boxes are installed, the LTL1 cover is butt-joined to the edge of the box. Cut edges of the cover are subsequently concealed by the accessory. For fittings, a gap of 25mm is left between the two cover ends to permit the fitting to clip to base.

Covers – removal

To remove a cover, first detach a coupler, internal or external bend component to gain access. The main cover can then be gently eased off the base. To remove the outer cover, firstly ease from the base by inserting the blade of a terminal screwdriver between the captive legs of the cover and the base and then ease away from the base.

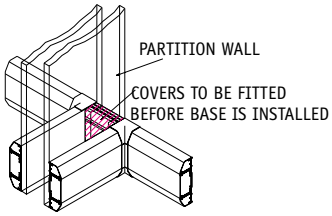


Screening

Aluminium containment will protect all internal circuits from external electromagnetic interference. For internal segregation and screening, use a screened dividing fillet.

Method of continuation through a partition wall

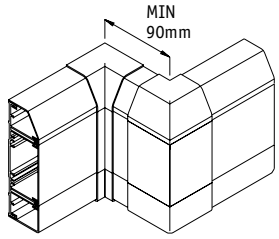
Continue the main lateral run of base through the partition wall.Fit short lengths of cover where the trunking passes through the partition. The partition wall trunking is then butted up to the main run and the joint covered by an internal bend fitting.



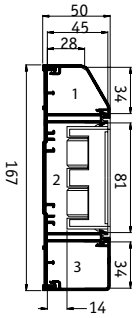
Sterling Profile aluminium – continued

Offset dimensions

The minimum set that can be accommodated in the same plane (from internal to external bend), is shown below.



Dimensions



Sterling Profile 3002 - no box

Compartment 1 (total area) = 1197mm²
Compartment 2 (total area) = 3556mm² (with box)
Compartment 3 (total area) = 1451mm²

Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between data cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Compartment 1		Compartment 2		Compartment 3	
	No box	With box	No box	With box	No box	With box
PVC power cable 1.5mm² stranded copper						
Sterling Profile 1	62	–	186	66	62	–
Sterling Profile 2	62	–	186	66	75	–
Sterling Profile 3	75	–	186	66	75	–
PVC power cable 2.5mm² stranded copper						
Sterling Profile 1	42	–	126	45	42	–
Sterling Profile 2	42	–	126	45	51	–
Sterling Profile 3	51	–	126	45	51	–
PVC power cable 4.0mm² stranded copper						
Sterling Profile 1	32	–	96	34	32	–
Sterling Profile 2	32	–	96	34	39	–
Sterling Profile 3	39	–	96	34	39	–
Data cable: Ø5.5mm						
Sterling Profile 1	17	–	52	19	17	–
Sterling Profile 2	17	–	52	19	21	–
Sterling Profile 3	21	–	52	19	21	–
Data cable: Ø6.0mm						
Sterling Profile 1	14	–	44	15	14	–
Sterling Profile 2	14	–	44	15	18	–
Sterling Profile 3	18	–	44	15	18	–
Data cable: Ø6.5mm						
Sterling Profile 1	12	–	37	13	12	–
Sterling Profile 2	12	–	37	13	15	–
Sterling Profile 3	15	–	37	13	15	–
Data cable: Ø7.0mm						
Sterling Profile 1	10	–	32	11	10	–
Sterling Profile 2	10	–	32	11	13	–
Sterling Profile 3	13	–	32	11	13	–

Twin Plus aluminium

Material

Aluminium trunking is manufactured from high precision extruded aluminium with a powder coat finish.
White RAL 9016
Silver Grey RAL 9006
Accessory boxes are supplied in PVC-U or polycarbonate both of which are 100% recyclable.

Installation

Positioning

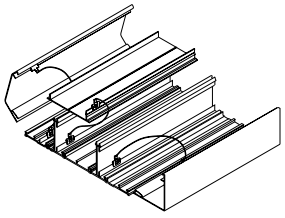
Suitable for dado and skirting installation. When used as a skirting system, sufficient clearance should be allowed between the floor covering and the profile fittings that clip over the cover i.e. 5mm + floor covering is recommended.

Fitting

- Secure trunking base every 750mm.
- Secure using No 8 round head screws and washers using the grooves in the outer compartments of the base to facilitate drilling Ø6mm holes.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine tooth blade (32/36tpi) or, preferably,a circular saw with a 350mm fine tungsten blade (90/108tpi). This will produce an edge requiring minimal de-burring.
- Consecutive lengths of base are aligned and butt jointed together.

Earthing

- Clean protective coating from base, covers and metallic fittings and then earth bond.
- Incoming earth connection is made using LTB1 bonding assembly installed in the earth channel of the base.
- Bonding base to base: in final ring or radial 32Amp circuits, bonding strap LBS1 can be used.
- Bonding covers and end caps to base: use bonding strap LBS2.

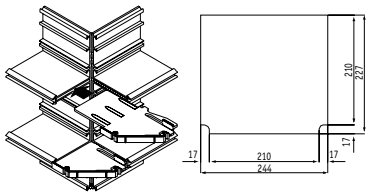


Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the cover.

Joints and bends

- Moulded from colour-matching polycarbonate. External bends: base should be cut square at the corner and the internal segregator inserted into the web of each base.
- Internal bends: base must be mitred 45° to ensure total enclosure of trunking, including any internal fitted segregator.
- External moulded fittings overlap the joints by up to 10mm to cover cutting inaccuracies.



Bend radius control

The bend radius control fittings for Twin Plus provide a bend radius of 50mm

Accessory boxes

- If the accessory box is to be mounted in the alternative compartment to the supply, drill the main web adjacent to the box position.
- Remove the appropriate knock out and clip the box into the trunking base.
- For boxes in the same compartment as the supply, remove the appropriate box knock-outs and clip the box into trunking base.
- When boxes are installed consecutively, a 14mm wide spacer (ES1) is required to cover the space between the boxes.
- Part M box assemblies with contrasting coloured faceplates are available to meet the requirements of DDA regulations for Visual Impairment.

Covers

The covers have been designed to remain in position irrespective of impact during normal conditions, minor undulations of the mounting surface, and to limit unauthorised removal.

Covers – fitting

Covers are clipped into place from the front. If accessory boxes are installed, the covers are butt-joined to the edge of the box. For the fitting of couplers to conceal the cover joint, a gap of 25mm is left between the two cover ends.

Covers – removal

To remove a cover, first detach a coupler, internal or external bend component to gain access. Both covers can then be gently eased off the base.

Screening

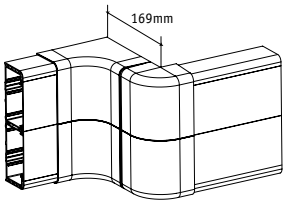
Aluminium containment will protect all internal circuits from external electromagnetic interference. For internal segregation and screening, use a screened dividing fillet.

Method of continuation through a partition wall

Continue the main lateral run of base through the partition wall with short lengths of cover fitted where the trunking passes through the partition. The partition wall trunking is then butted up to the main run and the joint covered by an Internal bend.

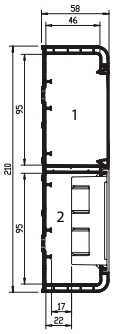
Offset dimensions

The minimum set that can be accommodated in the same plane (from internal to external bend), is shown below.



Twin Plus aluminium – continued

Dimensions



Twin Plus trunking – with accessory box

Compartment 1 (total area) = 4755mm²
Compartment 2 (total area) = 2431mm² with box
Compartment 2 (45% space factor) = 1094mm²
(compartment 1 and 2 are reversible)

Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between data cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Compartment 1		Compartment 2	
	No box	With box	No box	With box
PVC power cable 1.5mm² stranded copper	248	127	248	127
PVC power cable 2.5mm² stranded copper	169	86	169	86
PVC power cable 4.0mm² stranded copper	128	65	128	65
Data cable: Ø5.5mm	70	36	70	36
Data cable: Ø6.0mm	59	30	59	30
Data cable: Ø6.5mm	50	25	50	25
Data cable: Ø7.0mm	43	22	43	22
Data cable: Ø8.38mm	36	18	36	18

XL trunking aluminium

Material

Aluminium trunking is manufactured from high precision extruded aluminium with a powder coat finish. Accessory boxes are supplied in PVC-U or polycarbonate both of which are 100% recyclable.

Installation

Positioning

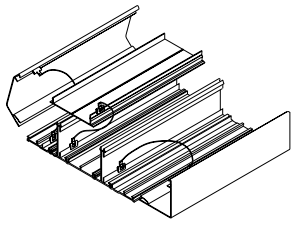
For dado and skirting installation. When used as a skirting system, sufficient clearance should be allowed between the floor covering and the profile fittings that clip over the cover i.e. 5mm + floor covering is recommended.

Fitting

- Secure trunking base every 750mm.
- Secure using No 8 round head screws and washers using the grooves in the outer compartments of the base to facilitate drilling 6mm holes.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine tooth blade (32/36tpi) or, preferably,a circular saw with a 350mm diameter fine tungsten blade (90/108tpi). This will produce an edge requiring minimal de-burring.
- Consecutive lengths of base are aligned and butt jointed together.

Earthing

- Clean protective coating from base, covers and metallic fittings and then earth bond.
- Incoming earth connection is made using LTB1 bonding assembly installed in the earth channel of the base.
- Bonding base to base: in final ring or radial 32Amp circuits, bonding strap LBS1 can be used.
- Bonding covers and end caps to base: use bonding strap LBS2.

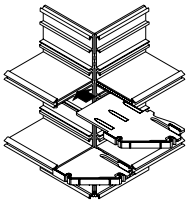


Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the cover.

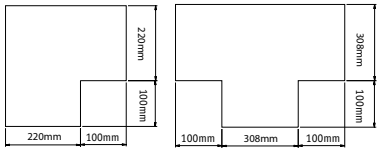
Joints and bends

- Moulded from colour-matching polycarbonate.
- External bends: base should be cut square at the corner and the internal segregator inserted into the web of each base.



- Internal bends: base must be mitred 45° to ensure total enclosure of trunking, including any internal fitted segregator.
- Flat angles, tees and crossovers are prefabricated aluminium.
- External moulded fittings overlap the joints by up to 10mm to cover cutting inaccuracies.

Template dimensions for Flat angle and Tee

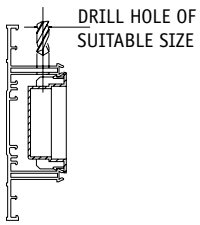


Bend radius control

For data bend radius control fittings for XL, please contact the Technical Team on 01424 856688.

Accessory boxes

- If accessory box in main compartment is supplied from an outer compartment, drill the main web adjacent to the box position.
- Remove the appropriate knock out and clip the box into the trunking base.
- For boxes in the same compartment as the supply, remove the appropriate box knock-outs and clip the box into trunking base.
- When boxes are installed consecutively, a 14mm minimum space is required to cover the space between the boxes (use PVC-U ES1WH or use section of aluminium cover)
- Part M box assemblies with contrasting coloured faceplates are available to meet the requirements of DDA regulations for Visual Impairment.



Covers

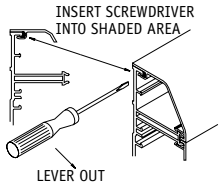
The covers have been designed to remain in position irrespective of impact during normal conditions, minor undulations of the mounting surface, and to limit unauthorised removal.

Covers – fitting

Covers are clipped into place from the front. If accessory boxes are installed, the LTL1 covers are butt-joined to the edge of the box (ESSB1 and 2 only) and the cut edges of lids are subsequently concealed by the accessory. For fittings, a gap of 30mm is left between the two cover ends to permit the fitting to clip to the base.

Covers – removal

To remove a cover, first detach a coupler, internal or external bend



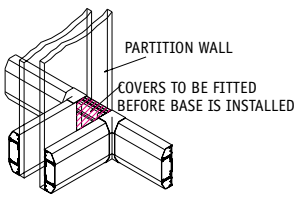
component to gain access. The main cover can then be gently eased off the base. To remove the outer cover, firstly ease from the base by inserting the blade of a terminal screwdriver between the captive legs of the cover and the base and then peel off.

Screening

Aluminium containment will protect all internal circuits from external electromagnetic interference. For internal segregation and screening, use a screened dividing fillet.

Method of continuation through a partition wall

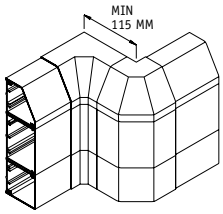
Continue the main lateral run of base through the partition wall with short lengths of cover fitted where the trunking passes through the partition. The partition wall trunking is then butted up to the main run and the joint covered by an Internal bend. (as shown below)



XL trunking aluminium – continued

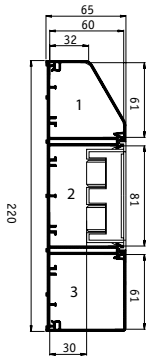
Offset dimensions

The minimum set that can be accommodated in the same plane (from internal to external bend), is shown below.

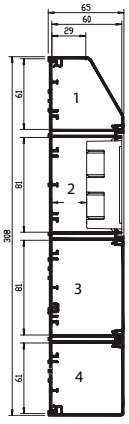


Dimensions

XL 302



XL 312



XL 302 – no box

Compartment 1 (total area) = 2824mm²
Compartment 2
(45% space factor) = 4771mm² (with box)
Compartment 3
(45% space factor) = 3531mm² (with box)
Compartment 3 = 2504mm² (with box)

XL 312 – no box

Compartment 1 (total area) = 2824mm²
Compartment 2 (total area) = 4771mm²
Compartment 2 = 2511mm² (with box)
Compartment 3 (total area) = 4732mm²
Compartment 3 = 2102mm² (with box)
Compartment 4 (total area) = 3531mm²

Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between data cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Compartment 1		Compartment 2		Compartment 3		Compartment 4
	No box	With box	No box	With box	No box	With box	No box
PVC power cable 1.5mm² stranded copper							
XL 301	147	–	249	131	147	–	–
XL 302	147	–	249	131	184	–	–
XL 303	184	–	249	131	184	–	–
XL 311	147	–	249	131	247	128	147
XL 312	147	–	249	131	247	128	184
XL 313	184	–	249	131	247	128	184
PVC power cable 2.5mm² stranded copper							
XL 301	100	–	170	89	100	–	–
XL 302	100	–	170	89	126	–	–
XL 303	126	–	170	89	126	–	–
XL 311	100	–	170	89	169	88	100
XL 312	76	–	129	89	169	88	126
XL 313	95	–	129	89	169	88	126
PVC power cable 4.0mm² stranded copper							
XL 301	76	–	129	67	76	–	–
XL 302	76	–	129	67	95	–	–
XL 303	95	–	129	67	95	–	–
XL 331	76	–	129	67	128	52	76
XL 312	76	–	129	67	128	52	95
XL 313	95	–	129	67	128	52	95
Data cable: Ø5.5mm							
XL 301	42	–	71	37	42	–	–
XL 302	42	–	71	37	52	–	–
XL 303	52	–	71	37	52	–	–
XL 311	42	–	71	37	70	36	42
XL 312	42	–	71	37	70	36	52
XL 313	52	–	71	37	70	36	52
Data cable: Ø6.0mm							
XL 301	35	–	59	31	35	–	–
XL 302	35	–	59	31	44	–	–
XL 303	44	–	59	31	44	–	–
XL 331	35	–	59	31	59	30	35
XL 312	35	–	59	31	59	30	44
XL 313	44	–	59	31	59	30	44
Data cable: Ø6.5mm							
XL 301	30	–	50	26	30	–	–
XL 302	30	–	50	26	37	–	–
XL 303	37	–	50	26	37	–	–
XL 311	30	–	50	26	50	26	30
XL 312	30	–	50	26	50	26	37
XL 313	37	–	50	26	50	26	37
Data cable: Ø7.0mm							
XL 301	25	–	43	23	25	–	–
XL 302	25	–	43	23	32	–	–
XL 303	32	–	43	23	32	–	–
XL 311	25	–	43	23	43	22	25
XL 312	25	–	43	23	43	22	32
XL 313	32	–	43	23	43	22	32
Data cable: Ø8.4mm							
XL 301	21	–	37	19	21	–	–
XL 302	21	–	37	19	27	–	–
XL 303	27	–	37	19	27	–	–
XL 311	21	–	37	19	36	19	21
XL 312	21	–	37	19	36	19	27
XL 313	27	–	37	19	36	19	27

Steel trunking Series 130 and Series 170

Material

Steel trunking is manufactured from pre-galvanised steel with a powder coat finish to RAL 9010.

Installation

Positioning

- System 130: suitable for dado installation.
- System 170: suitable for dado and skirting installation.

When used as a skirting system, sufficient clearance should be allowed between the floor covering and the profile fittings that clip over the cover i.e. 5mm + floor covering is recommended.

Fitting

- Secure trunking base every 750mm.
- Secure using No 8 round head screws and washers using the grooves in the outer compartments of the base to facilitate drilling 6mm holes.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine tooth blade (32/36tpi) or, preferably,a circular saw with a 350mm fine tungsten blade (90/108tpi). This will produce an edge requiring minimal de-burring.
- Consecutive lengths of base are aligned and butt jointed together using the coupling/bonding set.

Earthing

- Trunking base, main fittings and accessories are fitted with earth connections.
- Bonding base to fittings: use coupling/ bonding set or wire between fitted earth connections.
- Bonding base to cover: covers have pressed out side grippers which automatically establish earth contact when pressed into trunking base.
- Bonding base to end caps: use bonding strap LBS3.

Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the cover.

Joints and bends

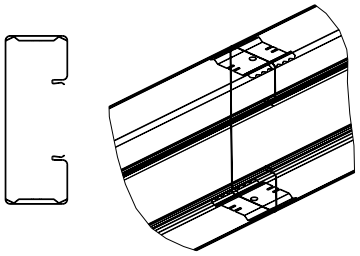
- Base joints should be aligned and butt jointed together.
- Internal and external bends, flat angles and tees are prefabricated in steel, aligned and butt jointed to the base using coupling bonding sets.
- Clip-on external tolerance sleeve overlaps the joints to cover minor inaccuracies.

Screening

Steel containment protects internal circuits from external electromagnetic interference. For internal segregation and screening, use the steel dividing fillet 351189.

Internal coupling/bonding set

- Comprises of two identical parts.
- Insert both parts into end of one length of trunking. Slide next section of base onto couplers and fix into position.

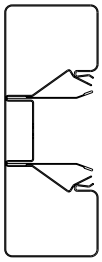


Accessory boxes

Standard depth 40mm
Remove the appropriate box knockout and clip each side of the box into the trunking base.
When boxes are installed consecutively, use cover spacer WG01085 between adjacent boxes.

Dividing fillet

Dividing fillet 351189 is supplied in 1 metre lengths. It is held in place through using the universal multi-purpose clip. A minimum of 3 clips are required to hold 2 lengths of the dividing fillet in place.
The trunking can be divided into up to 3 compartments using the dividing fillet.
Please refer to element 3 of the diagram on page 143.



Covers

Covers are designed to limit unauthorised removal and to remain in position during normal conditions irrespective of impact and minor undulations of the mounting surface.

Covers – fitting

Covers are clipped into place from front. If accessory boxes are installed, covers are butt-joined to the edge of the box (RSSB10WH end RSSB20WH). Cover lengths are determined so that ends are covered by a fitting or accessory. External bends and flat angles should be fitted with the correct bend/flat
angle cover.

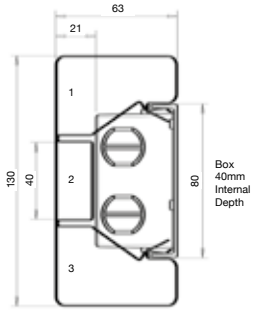
Covers – removal

To remove a cover, first detach an external joint cover or accessory to gain access. The main cover can then be gently eased off the base.

Steel trunking Series 130 and Series 170 – continued

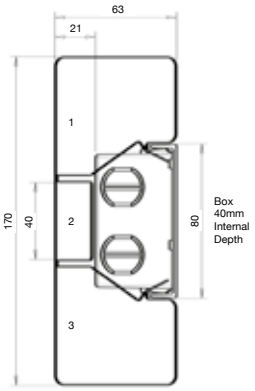
Dimensions

System 130 trunking
130 x 63mm



Compartments 1 & 3 = 1585mm² (each) total area
Compartments 1 & 3 = 760mm² (each) 45% space factor
Compartment 2 = 713mm² total area (with box)
Compartment 2 = 342mm² 45% space factor (with box)

System 170 trunking
170 x 63mm



Compartments 1 & 3 = 2812mm² (each) total area
Compartments 1 & 3 = 1265mm² (each) 45% space factor
Compartment 2 = 760mm² total area (with box)
Compartment 2 = 342mm² 45% space factor (with box)

Cable capacities

• All calculations allow for a 45% space factor.

As there can be differences between data cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Compartment 1 Systems 130 & 170		Compartment 2 Systems 130 & 170		Compartment 3 Systems 130 & 170	
	No box	With box	No box	With box	No box	With box
PVC power cable 1.5mm² stranded copper						
System 130	82	–	–	39	82	–
System 170	147	–	–	39	147	–
PVC power cable 2.5mm² stranded copper						
System 130	60	–	–	27	60	–
System 170	100	–	–	27	100	–
PVC power cable 4.0mm² stranded copper						
System 130	42	–	–	20	42	–
System 170	76	–	–	20	76	–
Data cable: Ø5.5mm						
System 130	23	–	–	11	23	–
System 170	41	–	–	11	41	–
Data cable: Ø6.0mm						
System 130	19	–	–	9	19	–
System 17010	35	–	–	9	35	–
Data cable: Ø6.5mm						
System 130	16	–	–	8	16	–
System 170	29	–	–	8	29	–

Conductor type	Size	Cable factor
Stranded PVC power	1.5mm²	8.6
Stranded PVC power	2.5mm²	12.6
Stranded PVC power	4.0mm²	16.6
*Data cable	Ø5.5mm	30.2
*Data cable	Ø6.0mm	36.0
*Data cable	Ø6.5mm	42.2

*Check with manufacturer for typical values.

To determine cable capacity, select the size of the cable required and its corresponding cable factor from the table. Divide the compartment area figure (with or without 45% space factor) with the cable factor figure to achieve cable capacity.

Power, voice and data accessories

General

MT32 13Amp pre-wired sockets, Marshall-Tufflex BS 1363 power assemblies and voice and data boxes for Marshall-Tufflex PVC-U and aluminium trunking systems (except Sovereign Plus and steel systems) Trunking accessory mounting boxes.

Installation

MT32 pre-wired socket range

Fitting

- Plug in incoming pre-wired lead (from previous socket or distribution board) to appropriate connector mounted in socket assembly box.
- Connect selected pre-wired lead to outgoing connector mounted on opposite side of socket assembly box.
- Clip complete assembly into trunking compartment.
- When trunking cover is fitted, it should be slid between back box frame and the loosened accessory face plate.
- Front plate is then fully tightened down to clamp accessory in place.
- For pre-made close coupled assemblies, use lid spacer (ES1WH) between boxes.

MT32 system with non-Marshall-Tufflex socket assemblies

Fitting

- For non-Marshall-Tufflex accessories, use pre-assembled outlet box unit.
- Connect cable tails to accessory in accordance with wiring regulations and fit accessory to back box.
- Connect pre-wired incoming and outgoing leads and fit to trunking (as above).
- For close coupled assemblies, use lid spacer (ES1WH) between boxes.

Marshall-Tufflex BS 1363 power assemblies (sockets, switches, spur units)

Fitting

- Remove front cover from assembly.
  - Front fix accessories: remove the two securing screws
  - Flush finish accessories: unclip from back box.
- Remove appropriate knockout/s for wiring.
- Wire according to wiring regulations.
- Re-assemble accessory and re-fit face plate.
- Clip complete assembly into trunking compartment.
- For close coupled assemblies, use lid spacer (ES1WH) between boxes.

Voice and data outlet modules (punched 6c 22 x 37mm apertures to accept appropriate voice or data outlets)

Fitting

- Remove front cover from assembly.
  - Front fix accessories: remove the two securing screws.
  - Flush finish accessories: unclip from back box.
- Fit appropriate voice or data outlets.
- Wire according to manufacturer's instructions.
- Re-fit face plate.
- Clip complete assembly into trunking compartment.
- For close coupled assemblies, use lid spacer (ES1WH) between boxes.

Trunking accessory boxes for mounting standard BS1363 wiring accessories and Data plates

Standard boxes

- 1 gang fixing centres: 60.3mm
- 2 gang fixing centres: 120.6mm
- Depth: 30mm

Fitting

- Remove appropriate knockouts.
- Feed cables through knockout.
- Wire to accessory in accordance to wiring regulations and manufacturer's instructions.
- Screw accessory to box.
- Clip complete assembly into trunking compartment.

Adjustable boxes – two part

- 1 gang fixing centres: 60.3mm
- 2 gang fixing centres: 120.6mm
- Depth: 32 - 50mm

Fitting

- Remove appropriate knockouts.
- Feed cables through knockout.
- Wire to accessory in accordance to wiring regulations and manufacturer's instructions.
- Screw accessory to box front frame.
- Press (ratchet) both components together until required final box depth is reached.
- Clip complete assembly into trunking compartment.

Screening

- Boxes available with copper spray screening to protect data outlets from electromagnetic interference.

Part M boxes and box assemblies

- Comply with the requirements of Part M (DDA)
- Odyssey coloured boxes (DD1510 and DD1520) with coloured flanges to contrast with trunking cover colour.
- ESPM box assemblies with contrasting coloured flush accessory box frames. For colour varieties please view the perimeter trunking pages.

Bench trunking

Material

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

Installation

Positioning

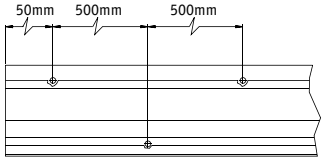
If used as a skirting system, a clearance of 5mm is recommended above the floor covering to allow the profile fittings to clip over the cover.
Bench and desk installations: a single run can be fitted to rear of furniture or, if run down centre line, two units can be joined back to back presenting accessories on both sides.

Expansion/contraction

PVC-U expands and contracts at a uniform rate of approx 5.25mm in a 3 metre length for a temperature change of 25°C. Therefore, a 3mm gap between each length of trunking base is recommended. Fittings allow for thermal expansion of the covers.

Fitting

- Secure trunking base in one plane only every 500mm by drilling alternative 6mm holes either side of divider nib.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To provide cable segregation, dividing fillets are snapped on to internal nibs in base.
- To cut the trunking, use a fine-toothed panel or power jig-saw.
- External profile fittings overlap joints by up to 10mm to cover cutting inaccuracies.
- Accepts Marshall-Tufflex and standard UK wiring and data accessories.



Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the cover.

Joints and bends

- Base joints should have a 3mm gap to allow for expansion.
- Internal and external bends are prefabricated.
- External moulded fittings overlap the joints to cover cutting inaccuracies.
- Couplers are required to align and join bend assemblies to trunking.
- Secure end caps using solvent adhesive MSC3.

Accessory boxes

- Remove the appropriate knock out that aligns with segregated compartment containing supply cable and clip the box into the trunking base.
- When boxes are installed consecutively, a 14mm wide spacer (ES1) is required to cover the space between the boxes.
- Part M box assemblies with contrasting coloured faceplates are available to meet the requirements of DDA regulations for Visual Impairment.

Covers

Covers are designed to limit unauthorised removal and to remain in position during normal conditions irrespective of impact and minor undulations of the mounting surface.

Covers – fitting

Covers are clipped into place from front. If accessory boxes are installed, the cover is butt-joined to the edge of the box . Cut edges of the cover are concealed by the accessory.
For couplers, a gap of 25mm is left between the two cover ends to permit the fitting to clip to base.

Covers – removal

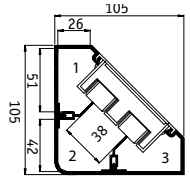
To remove a cover, first detach a coupler to gain access. The cover can then be gently eased off the base.

Antimicrobial

For technical details of antimicrobial Bio Bench trunking, please refer to Laboratory and Healthcare section.

Dimensions

Bench trunking – with box



Compartment 1 & 3= 1285mm² total area
Compartment 1 & 3 = 578mm² 45% space factor

Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between data cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Compartment 1		Compartment 2		Compartment 3	
	No box	With box	No box	With box	No box	With box
PVC power cable 1.5mm² stranded copper	67	–	–	111	67	–
PVC power cable 2.5mm² stranded copper	45	–	–	76	45	–
PVC power cable 4.0mm² stranded copper	34	–	–	57	34	
Data cable: Ø5.5mm	19	–	–	31	19	–
Data cable: Ø6.0mm	16	–	–	26	16	–
*Data cable: Ø6.5mm	13	–	–	22	13	–
*Data cable: Ø7.0mm	11	–	–	19	11	–
*Data cable: Ø8.38mm	9	–	–	16	9	–

*Only for straight runs. If bends are required please contact the Technical Team on 01424 856688.

Cornice trunking

Material

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

Installation

Positioning

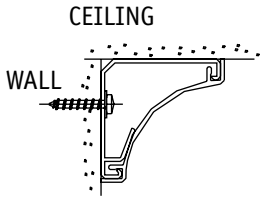
For surface wiring around ceilings.

Expansion/contraction

PVC-U expands and contracts at a uniform rate of approx 5.25mm in a 3 metre length for a temperature change of 25°C. Therefore, a 3mm gap between each length of trunking base is recommended. Fittings allow for thermal expansion of the covers.

Fitting

- Secure trunking base in one plane every 500mm by drilling 6mm holes in the wall side of the trunking and use round head screws and washers.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine-toothed panel or power jig-saw.
- External profile fittings overlap joints by up to 10mm to cover cutting inaccuracies.
- A variable angle jig-saw or chop saw is recommended for cutting 45° mitres.



Joints and bends

- Base joints should have a 3mm gap to allow for expansion.
- Base must be mitred 45˚ to ensure total closure of trunking.
- End caps with clips ensure security of trunking.

Covers

Covers are designed to limit unauthorised removal and to remain in position during normal conditions irrespective of impact and minor undulations of the mounting surface.

Covers – fitting

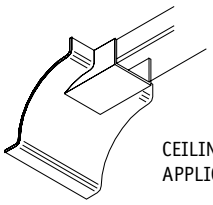
Covers are clipped into place from front. For external moulded fittings, a gap of 25mm is left between the two cover ends to permit the fitting to clip to base.

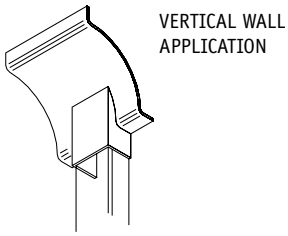
Covers – removal

To remove a cover, first remove a fitting to gain access. Insert blade of terminal screwdriver between captive legs of cover and base and gently ease off.

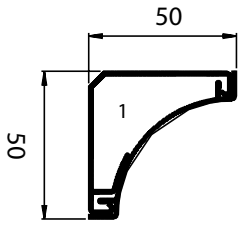
Accessories

Accessories are serviced through a spur using a mini trunking adaptor and mini trunking across the ceiling to a pendant drop or down the wall to an appropriate accessory box.





Dimensions



1 = 837mm² total area
1 = 376mm² 45% space factor

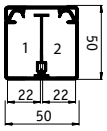
Cable capacities

- All calculations allow for a 45% space factor.

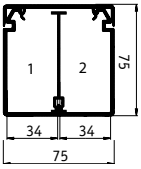
As there can be differences between data cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Cable factor	Compartment 1
PVC power cable 1.5mm² stranded copper	8.6	43
PVC power cable 2.5mm² stranded copper	12.6	29
PVC power cable 4.0mm² stranded copper	16.6	22
Data cable: Ø5.5mm	30.2	12
Data cable: Ø6.0mm	36	10

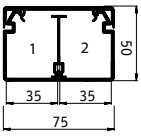
Maxi and Sceptre trunking



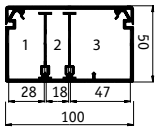
Maxi MTRS50
Total = 1979mm² total area
Total = 890mm² 45% space factor
1 & 2 = 911mm² total area
1 & 2 = 410mm² 45% space factor



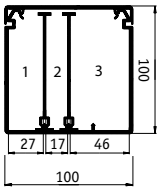
Maxi MTRS75
Total = 4709mm² total area
Total = 2119mm² 45% space factor
1 & 2 = 2196mm² total area
1 & 2 = 988mm² 45% space factor



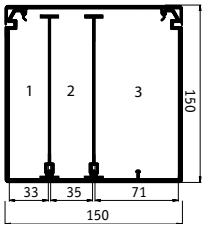
Maxi MTRS75/50
Total = 3032mm² total area
Total = 1365mm² 45% space factor
1 & 2 = 1347mm² total area
1 & 2 = 606mm² 45% space factor



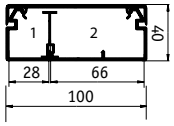
Maxi MTRS100/50
Total = 4040mm² total area
Total = 1818mm² 45% space factor
1 = 1056mm² total area
1 = 475mm² 45% space factor
2 = 660mm² total area
2 = 297mm² 45% space factor
3 = 1829mm² total area
3 = 823mm² 45% space factor



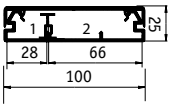
Maxi MTRS100
Total = 8733mm² total area
Total = 3930mm² 45% space factor
1 = 2375mm² total area
1 = 1069mm² 45% space factor
2 = 1464mm² total area
2 = 659mm² 45% space
3 = 4075mm² total area
3 = 1834mm² 45% space factor



Maxi MTRS150
Total = 20193mm² total area
Total = 9087mm² 45% space factor
1 = 4406mm² total area
1 = 1983mm² 45% space factor
2 = 4728mm² total area
2 = 2128mm² 45% space factor
3 = 9482mm² total area
3 = 4267mm² 45% space factor



Sceptre DTR1
Total = 3168mm² total area
Total = 1426mm² 45% space factor
1 = 816mm² total area
1 = 367mm² 45% space factor
2 = 2002mm² total area
2 = 901mm² 45% space factor



Sceptre DTR2
Total = 1731mm² total area
Total = 779mm² 45% space factor
1 = 435mm² total area
1 = 196mm² 45% space factor
2 = 1197mm² total area
2 = 538mm² 45% space factor

Conductor type	Size	Cable factor
Stranded PVC power	1.5mm²	8.6
Stranded PVC power	2.5mm²	12.6
Stranded PVC power	4.0mm²	16.6
*Data cable	Ø5.5mm	30.2
*Data cable	Ø6.0mm	36.0
*Data cable	Ø6.5mm	42.2
*Data cable	Ø7.0mm	49.0
*Data cable	Ø8.4mm	58.0

*Check with manufacturer for typical values

To determine cable capacity, select the size of the cable required and its corresponding cable factor from the table. Divide the compartment area figure (with or without 45% space factor) with the cable factor figure to achieve cable capacity.

Note: When 30mm deep accessory boxes are installed in MTRS100, MTRS100/50 and DTR1, reduce the area by 2600²mm.

TECHNICAL INFORMATION

Maxi and Sceptre trunking – continued

Material

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

Installation

Positioning

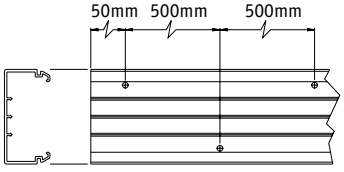
Feeder or distribution trunking.

Expansion/contraction

PVC-U expands and contracts at a uniform rate of approx 5.25mm in a 3 metre length for a temperature change of 25°C. Therefore, a 3mm gap between each length of trunking base is recommended. Fittings allow for thermal expansion of the covers.

Fitting

- Secure trunking base in one plane only every 500mm by drilling alternate 6mm holes.
- Use roundhead screws.
- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To provide cable segregation, dividing fillets are snapped on to internal nibs in base.
- To cut the trunking, use a fine-toothed panel or power jig-saw.
- External profile fittings overlap joints by up to 10mm to cover cutting inaccuracies.
- A variable angle jig-saw or chop saw is recommended for cutting 45° mitres.
- **Maxi only:** trunking lengths are connected using internal couplers as follows:
  - Cement one end of the internal coupler to one base using adhesive solvent MSC3. Leave other end of coupler free in adjoining base to facilitate thermal movement.

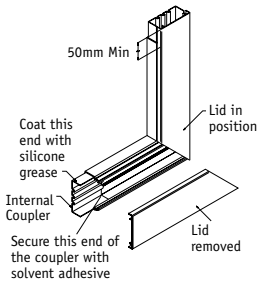


Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the cover.

Joints and bends

- Clip-on fittings and 2-part moulded flat angle: base must be mitred at 45˚ to ensure total enclosure of trunking, including any internal fitted segregator.
- Fabricated fittings: a 3mm gap between trunking base and bend or flat angle is recommended.
- External moulded fittings overlap the joints by up to 10mm to cover cutting inaccuracies.
- Maxi fabricated fittings are supplied with internal couplers (see Fittings)
- Secure end caps using solvent adhesive MSC3.



Accessories

- **Sceptre DTR1, Maxi MTRS100/50 and MTRS100:** accessory boxes and plates can be used.
- Remove appropriate knockout and clip box into base.
- **Sceptre DTR2:** only accessory plates can be used.
- When boxes or plates are installed consecutively, fit a 25mm cover spacer (MTRS100LID25WH) between the accessories to conceal space between the boxes.

Covers

Covers are designed to limit unauthorised removal and to remain in position during normal conditions irrespective of impact and minor undulations of the mounting surface.

Covers – fitting

Covers are clipped into place from front. If accessory boxes are installed, the cover is butt-joined to the edge of the box. Cut edges of the cover are concealed by the accessory. For external fitting couplers, the following gaps should be left between the two cover ends to permit the fitting to clip to base:

DTR2	20mm
MTRS50	20mm
MTRS75	20mm
MTRS75/50	20mm
MTRS100/50	20mm
MTRS100	30mm

DTR1: DTR1 couplers are held in place by the two covers. To install, slide coupler up against first installed cover. Fit adjoining cover and slide up to coupler, ensuring the coupler moulding extends over the two covers.

Covers removal

To remove a cover, first detach a coupler or internal/external bend to gain access. The main cover can then be gently eased off the base.

Antimicrobial

For technical details of antimicrobial Bio maxi trunking, please refer to Laboratory and Healthcare section.

Maxi and Sceptre trunking – continued

Maxi trunking Cable capacity chart	Compartment 1	Compartment 2	Compartment 3
	No box	No box	No box
PVC power cable 1.5mm² stranded copper			
MTRS50	47	47	–
MTRS75	114	114	–
MTRS75/50	70	70	–
MTRS100/50	55	34	95
MTRS100	124	76	213
MTRS150	230	247	496
PVC power cable 2.5mm² stranded copper			
MTRS50	32	32	–
MTRS75	78	78	–
MTRS75/50	48	48	–
MTRS100/50	37	23	65
MTRS100	84	52	145
MTRS150	157	168	338
PVC power cable 4.0mm² stranded copper			
MTRS50	24	24	–
MTRS75	60	60	–
MTRS75/50	36	36	–
MTRS100/50	28	17	49
MTRS100	64	39	110
MTRS150	119	128	257
Data cable: Ø5.5mm			
MTRS50	13	13	–
MTRS75	32	32	–
MTRS75/50	20	20	–
MTRS100/50	15	9	27
MTRS100	35	21	60
MTRS150	65	70	141
Data cable: Ø6.0mm			
MTRS50	11	11	–
MTRS75	27	27	–
MTRS75/50	16	16	–
MTRS100/50	13	8	22
MTRS100	29	18	50
MTRS150	55	59	118
Data cable: Ø6.5mm			
MTRS50	9	9	–
MTRS75	23	23	–
MTRS75/50	14	14	–
MTRS100/50	11	7	19
MTRS100	25	15	43
MTRS150	46	50	101
Data cable: Ø7.0mm			
MTRS50	8	8	–
MTRS75	20	20	–
MTRS75/50	12	12	–
MTRS100/50	9	6	16
MTRS100	21	13	37
MTRS150	40	43	87
Data cable: Ø3.38mm			
MTRS50	7	7	–
MTRS75	17	17	–
MTRS75/50	10	10	–
MTRS100/50	8	5	14
MTRS100	18	11	31
MTRS150	34	36	73

Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between data cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Sceptre trunking Cable capacity chart	Compartment 1	Compartment 2
	No box	No box
PVC power cable 1.5mm² stranded copper		
DTR1	42	104
DTR2	22	62
PVC power cable 2.5mm² stranded copper		
DTR1	29	71
DTR2	15	42
PVC power cable 4.0mm² stranded copper		
DTR1	22	54
DTR2	11	32
Data cable: Ø5.5mm		
DTR1	12	29
DTR2	6	17
Data cable: Ø6.0mm		
DTR1	10	25
DTR2	5	14

Mini trunking

Material

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

Installation

Positioning

As feeder trunking.

Expansion/contraction

PVC-U expands and contracts at a uniform rate of approx 5.25mm in a 3 metre length for a temperature change of 25°C. Therefore, a 3mm gap between each length of trunking base is recommended. Fittings allow for thermal expansion of the covers.

Fitting

- Mini trunking
- Secure trunking base at lease every 375mm by drilling 6mm holes.
- Fasten using roundhead screws.
- Self-fixing mini trunking
- Remove protective film exposing 100-150mm of adhesive foam.
- Line up accurately and press firmly into position.
- Repeat until base is installed.
- For long term performance we recommend additional securing with screws and washers.

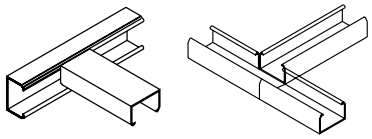
Note: the bond created by the tape can be very strong. Maximum adhesion occurs after 24 hours. Ensure surface is dust-free, dry, clean and flat.Uneven surface contact will reduce bonding performance. Installation in cold conditions below +5˚c may affect adhesion.

Mini and Mini SF trunking

- Avoid over-tightening to permit thermal movement.
- The use of plastic caps over screw heads is recommended to protect installed cables.
- To cut the trunking, use a fine-toothed panel or power jig-saw.
- External profile fittings overlap joints by up to 10mm to cover cutting inaccuracies.
- A variable angle jig-saw or chop saw is recommended for cutting 45° mitres.
- End caps are secured using adhesive solvent MSC3.

Joints and bends

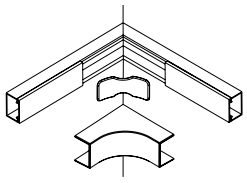
- All fittings incorporate clip-on design.
- 3mm gap between trunking base and bend or flat angle is recommended.
- For internal bends and flat angles, bases should be mitred 45˚.
- For external bends, bases should be cut square to the corner.
- For tees, bases should be cut square and butt up to each other.

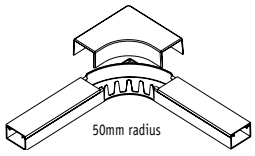


- External clip on fittings overlap trunking base by up to 10mm to cover cutting inaccuracies.
- Secure end caps using solvent adhesive MSC3.

Bend radius control – MMT4 only

- For internal bends, base should be mitred at 45°
- For external bends, base should be cut square with the corner and the radius control fitted.
- For flat angles and tees, allowance should be made when cutting base, for moulded components.



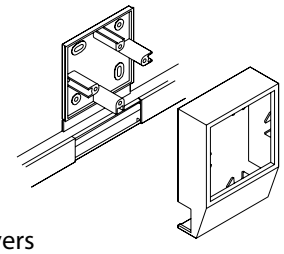


Accessory boxes

- Select appropriate surface box.
- Remove required knockout.
- Clean burrs from around aperture.
- Snap mini adaptor into position on box and place in position.
- Ensure trunking seats securely into adaptor.
- Secure box using diagonally opposite fixing holes.

Shrouded entry boxes

- For use with MMT2 or MMT3 only.
- Fit back plate in position, secure using diagonally opposite fixing holes.
- Run mini base up to back plate (for terminal accessory) or continue through.
- Remove required knockout from outer cover to fit mini trunking and fit over base plate.Install wiring leaving sufficient to wire accessory.
- Complete assembly is finally secured together when the wired accessory is screwed to accessory front plate.
- Fit mini trunking cover to base, ensuring cover extends into knockout.



Covers

Covers are designed to limit unauthorised removal and to remain in position during normal conditions irrespective of impact and minor undulations of the mounting surface.

Covers – fitting

Covers are clipped into place from front.

Covers – removal

To remove a cover, first detach a coupler or internal/external bend to gain access. The cover can then be gently eased off the base.

Cable capacities

- All calculations allow for a 45% space factor.
- Divide cable factor (1st table) into capacity (2nd table) to ascertain number of cables.

As there can be differences between data cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Conductor type	Size	Cable factor
Stranded PVC power	1.5mm²	8.6
Stranded PVC power	2.5mm²	12.6
Stranded PVC power	4.0mm²	16.6
Stranded PVC power	6.0mm²	21.2
*Data cable	Ø5.5mm	30.2
*Data cable	Ø6.0mm	36.0

Mini trunking	Size mm	45% capacity
MMT100	10 x 8	18.5mm²
MMT0	16 x 10	42mm²
MMT1	16 x 16	77.2mm²
MMT2	25 x 16	119.7mm²
MMT3	38 x 16	193mm²
MMT4	38 x 25	342mm²
MMT5	50 x 25	449mm²
MMT6	38 x 38	501mm²
MMT7	75 x 16	397mm²

Soverign Plus trunking

Material

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

Installation

Positioning

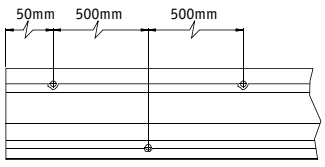
Suitable for skirting and architrave installation. When used as a skirting system, sufficient clearance should be allowed between the floor covering and the profile fittings that clip over the cover i.e. 5mm + floor covering is recommended.

Expansion/contraction

PVC-U expands and contracts at a uniform rate of approx 5.25mm in a 3 metre length for a temperature change of 25°C. Therefore, a 3mm gap between each length of trunking base is recommended. Fittings allow for thermal expansion of the covers.

Fitting

- Secure base every 500mm by drilling alternate 6mm in the two outer slots provided.
- Secure using No 8 round head screws and washers.
- Avoid over-tightening to permit thermal movement. Internal couplers on base units not required.
- To cut the trunking, use a fine-toothed panel or power jig-saw.
- External profile fittings overlap joints by up to 10mm to cover cutting inaccuracies.
- A variable angle jig-saw or chop saw is recommended for cutting 45° mitres.
- For segregation, use the cable retainers to retain cables in correct compartments.



Single lengths

Where it is required to fit a single length of trunking (under 3 metres) between two inside walls and no accessory box is fitted, it is advisable to install a coupler in the centre of the run to facilitate the removal of the cover.

Joints and bends

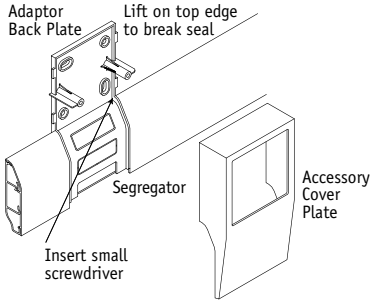
- Base joints should have a 3mm gap to allow for expansion.
- Mitre bases for internal bends, external bends and flat angles at 45° to ensure total enclosure of trunking.
- External moulded fittings overlap the joints by up to 10mm to cover cutting inaccuracies.
- Trunking cover holds external moulded fittings in place when they are clipped on to base.

Bend radius control

Not available.

Accessory boxes

- Mounted on to trunking body with accessory external to the trunking.
- Remove required knockout in back segregator plate that aligns with trunking cable compartment.
- Clip to trunking base and secure to wall surface using 2 diagonally opposite fixing holes.
- Feed cables through knockout.
- After trunking cover has been fitted to base, clip front cover plate to back plate.
- Complete assembly is finally secured together when the wired accessory is screwed to accessory front plate.



Covers

Covers are designed to limit unauthorised removal and to remain in position during normal conditions irrespective of impact and minor undulations of the mounting surface.

Covers – fitting

Covers are clipped into place from front. If accessory boxes are installed, covers are butt-joined to the edge of the box assembly. Cut edges of the cover are concealed by the accessory. For fittings, a gap of 4mm is left between the two cover ends to permit the fitting to clip to base.

Covers – removal

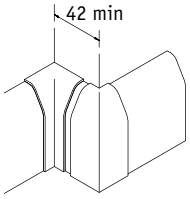
To remove a cover, isolate circuit and detach an accessory and front mounting component. Insert blade of screwdriver between captive legs of cover and gently peel off.

Screening

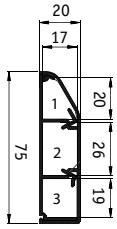
Not available.

Offset dimensions

The minimum set that can be accommodated in the same plane (from internal to external bend), is shown below:

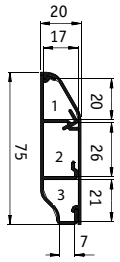


Dimensions



Sovereign Plus architrave

1 = 246mm² total area
1 = 110mm² 45% space factor
2 = 405mm² total area
2 = 182mm² 45% space factor
3 = 322mm² total area
3 = 144mm² 45% space factor



Sovereign Plus skirting

1 = 238mm² total area
1 = 107mm² 45% space factor
2 = 416mm² total area
2 = 187mm² 45% space factor
3 = 261mm² total area
3 = 117mm² 45% space factor

Cable capacities

- All calculations allow for a 45% space factor.

As there can be differences between data cable sizes, Marshall-Tufflex recommend that cable dimensions are confirmed with the manufacturing company.

Cable capacity chart	Compartment 1	Compartment 2	Compartment 3
	No box	No box	No box
PVC power cable 1.5mm² stranded copper			
Sovereign Plus architrave	12	21	16
Sovereign Plus skirting	12	21	12
PVC power cable 2.5mm² stranded copper			
Sovereign Plus architrave	8	14	11
Sovereign Plus skirting	8	14	9
PVC power cable 4.0mm² stranded copper			
Sovereign Plus architrave	6	10	8
Sovereign Plus skirting	6	10	7
Data cable: Ø5.5mm			
Sovereign Plus architrave	3	6	4
Sovereign Plus skirting	3	6	3
Data cable: Ø6.0mm			
Sovereign Plus architrave	3	5	4
Sovereign Plus skirting	3	5	3

PVC–U Conduit

Material

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

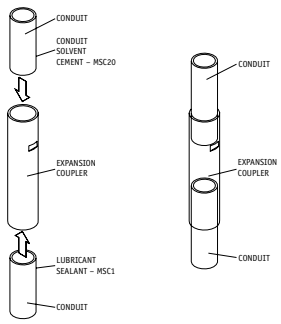
Installation

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

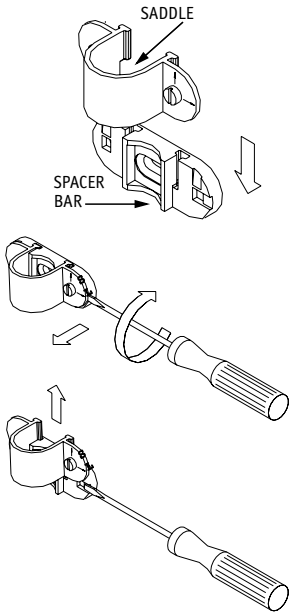
- Solvent cement MSC is a slow acting solvent cement especially formulated for watertight conduit fittings.

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.



MT Supertube

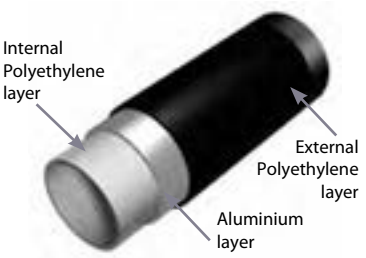
General information

MT Supertube provides LSOH 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 LSOH polyethylene.

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

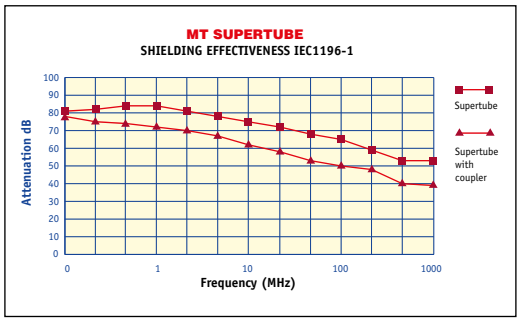


Sheilding effectiveness

Sheilding 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

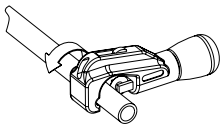
1. For EMC screening system

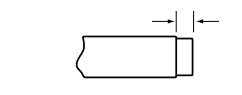
a. Cut the tube squarely to the required length (Tool No. 20001).

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.





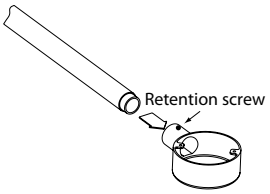
2. For halogen free system

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.



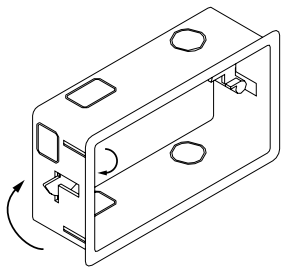
MT Supertube FR Plus performance

Fire Performance				
Oxygen Index	BS EN ISO 4589-2		46.5%	
Flammability Temperature	BS EN ISO 4589-3		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

Accessory boxes and enclosures

Square and rectangular dry lining accessory boxes



Installation

Fitting

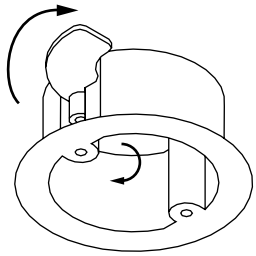
- Choose correct box for application and board depth and cut relevant size aperture in board for box (see table).
- Board should have sufficient strength to support the accessory.
- Remove knockout(s) and pass cables into box. Insert box into aperture and swivel out lugs using internal fins (if fitted) to hold box in position.
- Terminate accessory and, using accessory fixing screws, draw in the lugs, clamping box securely to the board.
- For easy identification the lugs are colour-coded to denote board thickness on standard boxes:

Lug Colour	Adjustment
Grey	1 – 9mm
White	6 – 14mm
Green	18 – 25mm
Black	9 – 26mm

Cut out dimensions

Box type	Cut out size
1 gang	73 x 73mm
2 gang	135 x 73mm
Dual gang	157 x 73mm

Circular dry lining accessory boxes



- Choose correct box for application and board depth and cut relevant size aperture in board for box (see table).
- Board should have sufficient strength to support the accessory.
- Remove knockout(s) and pass cables into box. Insert box into aperture and swivel out lugs using internal fins, if fitted, to hold box in position.
- Terminate accessory and, using accessory fixing screws, draw in the lugs, clamping box securely to the board.

Lug Colour	Type
White	Single entry box
Red	Dual entry box

Note: Ceiling mounted circular boxes can support 3kg centrally at 60°C maximum subject to ceiling construction.

- For easy identification the lugs are colour-coded to denote type of box:

	Single entry	Dual entry
Board thickness	9-32mm	9-32mm
Entry	Ø20mm x1off KO	Ø20mm x2off KO
Aperture size	Ø63.5mm	Ø70.0mm
Internal depth	34mm	34mm
Fixing centres	M3.5 x 50.8mm	M4.0 x 50.8mm M3.5 x 60.3mm

Moulded enclosures Adaptable boxes

Adaptable boxes as supplied, have a degree of IP66 protection. Any openings that are drilled or cut the box body and are not sealed with appropriate IP66 components or a failure to use the silicon rubber seal fitted, will negate the IP66 rating.

GRP ladder and tray

Material

GRP (Glass Reinforced Polyester) has, good stability to UV, great mechanical strength and is 40% lighter than steel. GRP is a non-conductive insulating material, resistant to temperatures from -800C to + 1400C and has excellent resistance to fire and corrosion being self-extinguishing and zero halogen.

Installation

Expansion/contraction

Bases come with

Fitting

- Secure base at centres of 1500mm apart.
- Supports should be position at a maximum of 300mm from the start or finish of a run.
- Place the projecting lip of the next base into previous base, maintaining joint for expansion.

Bend radius control

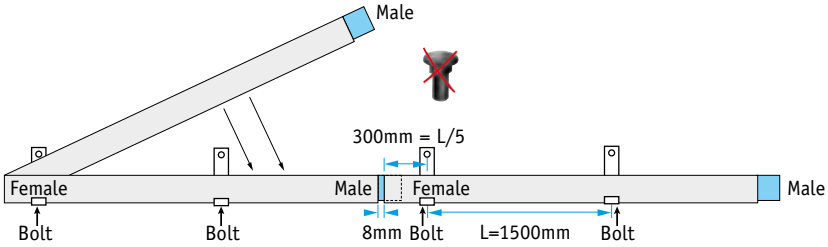
Hot press moulded technique of manufacture permits the forming of 3000mm base/covers and a large range of fittings with various bend radius controls.

Covers

Covers should overlap the base joint by at least 300mm to ensure maximum strength.Secure to the base by four clips, two required at 50-100mm from each end.

Loading characteristics

- Defection <5mm (1/300).
- Coefficient of safety >1.7 (in accordance with IEC 61537) using the interlocking and self-adjustable coupling without fasteners.
- Loading diagram details (below) in accordance with IEC 61537, at an ambient temperature of 25°C.



Positioning couplings without screwing junctions

- Every junction fitting should have accompanying support within 200mm.
- All bases and fittings must be fixed laterally with 4mm clearance holes on each side of support.
- Built-in, self-adjusting, interlocking couplers automatically provide an expansion joint for thermal movement.
- Can be drilled with standard power tools.
- When cutting by hand, a tungsten, carbide-tipped, heavy duty cross-cut saw is recommended.
- Power disc cutting equipment makes this task easier but should be done in an open air environment.

GRP ladder and tray - continued

GRP cable ladders pultruded

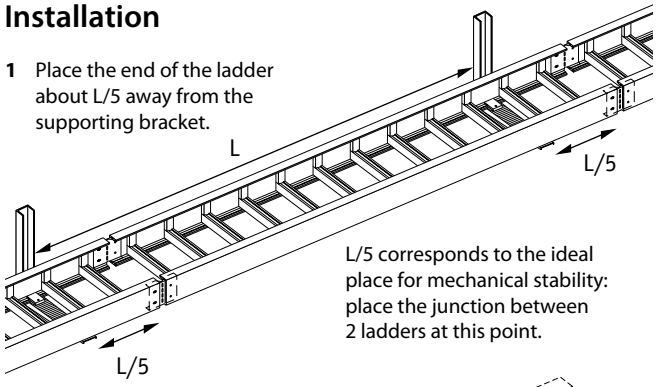
Resin types (all zero halogen)

Polyester (standard)	good all round performance, mechanical strength, corrosion resistance, fire behaviour, temperature rating
Acrylic (on request)	excellent resistance to fire in a corrosive environment
Vymilester (on request)	highly resistant to a specific range of chemical agents (H2SO4HC1…)
Carbon loaded polyester (on request)	anitistatic properties for highly explosive atmospheres

Alternatively for specific projects we will define a solution to meet your needs.

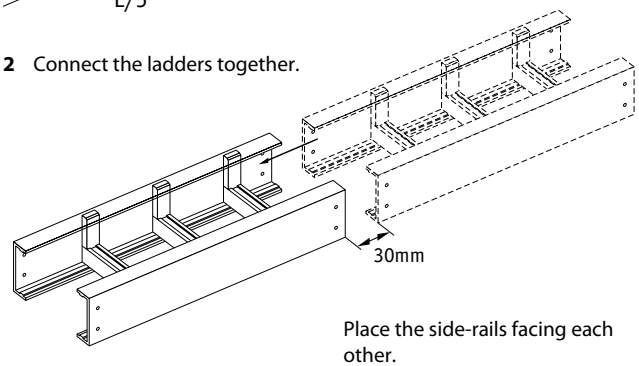
Installation

1 Place the end of the ladder about L/5 away from the supporting bracket.

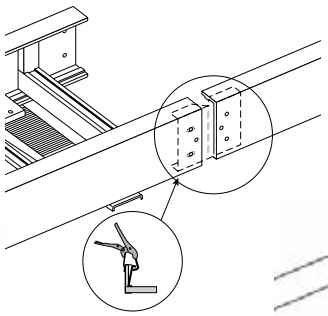


L/5 corresponds to the ideal place for mechanical stability: place the junction between 2 ladders at this point.

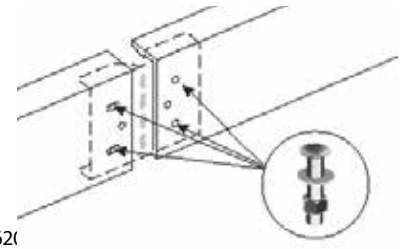
2 Connect the ladders together.



Place the side-rails facing each other.



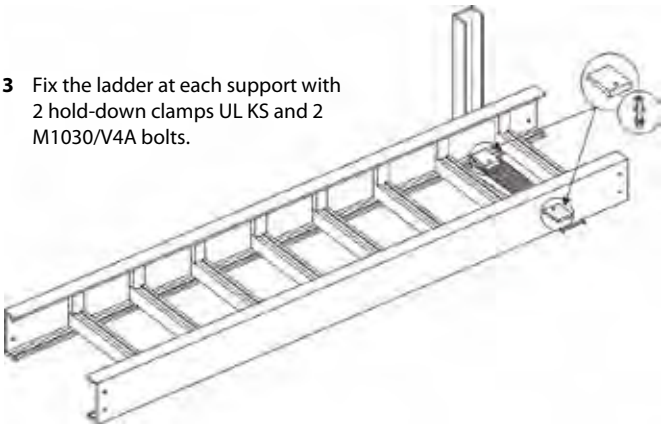
Fix the stainless steel splice plates UL IH with the help of stall clips, the oval holes* placed nearest the supporting bracket.



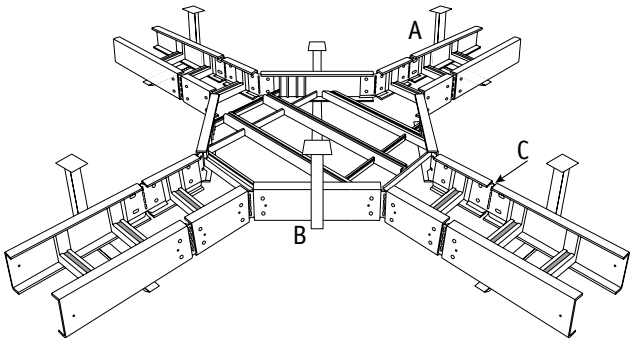
Lock the junction with 4 x M62(

(*) The splice plates UL IH are pre-punched with 2 holes Ø 8mm and 2 oval holes 20 x 8mm in order to assure a solid fixing and to allow the expansion of the GRP material.

3 Fix the ladder at each support with 2 hold-down clamps UL KS and 2 M1030/V4A bolts.



4 Follow the installation procedure.

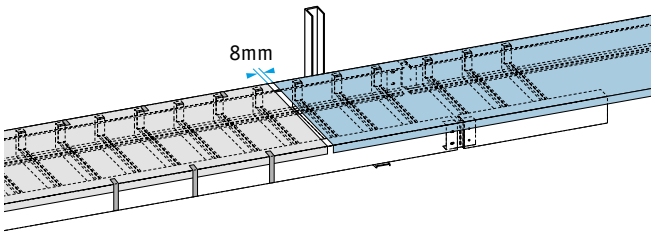


A All fitings must be supported at every cable entry.

B Add a central support for all fittings with radius greater than 250mm and/or with width greater than 400mm.

C Lock systematically each splice plate UL IH with 4 M620/V4AS bolts on fittings extremities.

5 Fix the cover with clips made of stainless steel 316 (ref.DF50, DF80, DF100 and DF150).



Under normal conditions use 3 clips alternatively on each side per 3 metres of ladders.

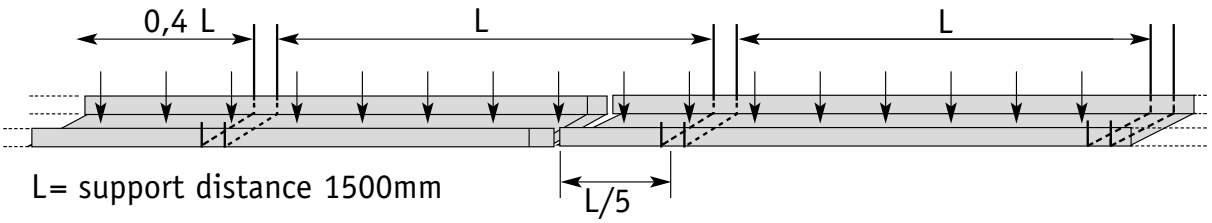
Under extreme conditions (strong winds > 60km/h) use 7 clips per 3 metres of ladders.

GRP ladder and tray - continued

Standard span pressed tray

Load characteristics

Coefficient of safety > 1.7 (in accordance with IEC 61537) this data is given for ladders coupled with splice plates and bolts.



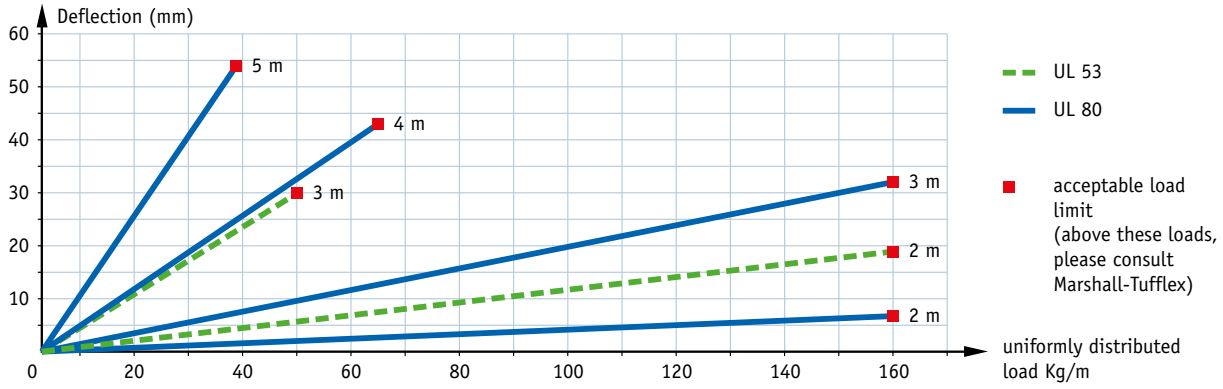
The deflection values are measured with the position of the junction between 2 ladders at a distance L/5 from a support. If this distance is not respected, it is necessary to raise the deflection values by about 30% when fully loaded.

		Useful area (mm²)	Weight of cables kg/m	Maximum admissable load kg/m according to the distance between supports				
				2m	3m	4m	5m	6m
UL…53	150 – 300	4420 – 9520	= 250	160	50			
	400 – 600	12920 – 19720	= 550		50			
UL…80	150 – 300	7690 – 16840	= 450	160	160	60	30	
	400 – 600	22940 – 35140	= 1000			60	30	

Optimal conditions, for cost reduction on your installation.

Series UL load diagram: supporting distances from 2 to 5m.

For 100mm and 150mm wall height refer to Marshall-Tufflex.



Localised loads

To be able to compare this to a uniformly distributed load it is necessary to double the value of the localised load. Example: A 60kg local load at the centre of a ladder with 3m of support distance. Equivalent load: 60 x 2 = 120kg uniformly distributed along 3m (ie 40kg/m).

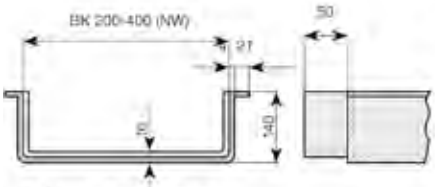
GRP ladder and tray - continued

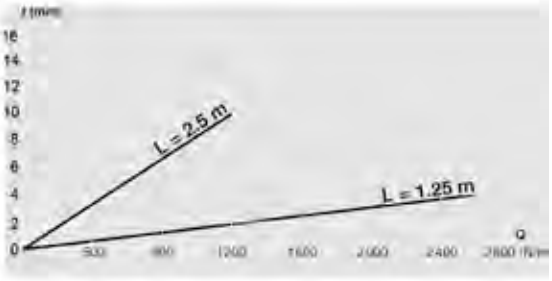
GRP Ground Ducts

Load characteristics of ground duct

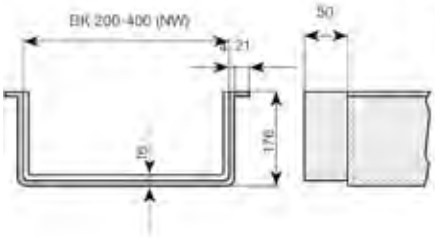
BK Height 140 mm

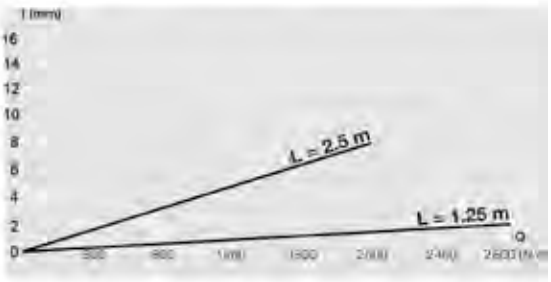
F = Deflection
L = Support Distance
Q = Distributed Load



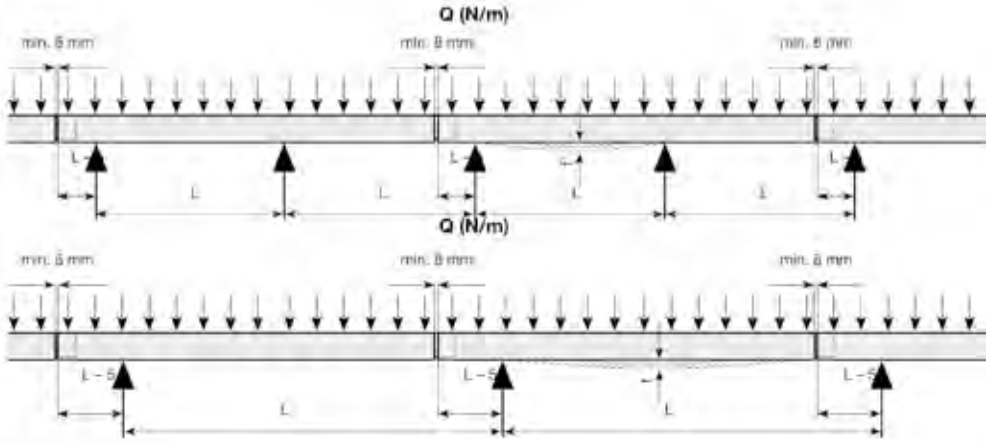


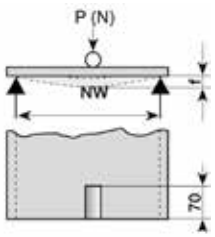
BK Height 176 mm





Tested in normal conditions of use



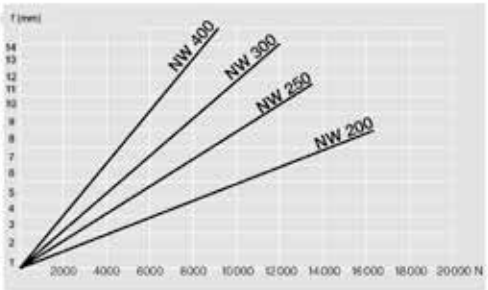


Load at edge of piece

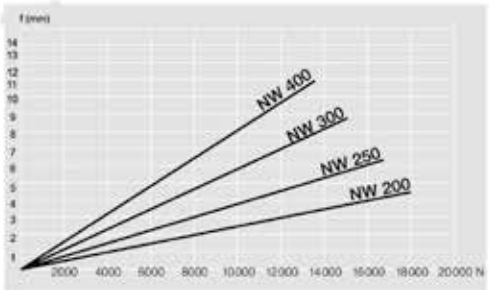
Load diagrams of plate covers

P = Load in N
f = Deflection
NW = Nominal width BK

BKDR 5mm



BKDR 8mm



TECHNICAL INFORMATION

Callmaster fire and security systems

Material

PVC-U is flame retardant and self extinguishing. It provides a 100% recyclable material with good sustainability. It complies with the requirements of BS 4761 Parts 6 and 7 and BS 4678. The Callmaster system isdesigned to comply with BS 7671:2008.

Installation

- Select Terminal or through box to suit installation.
- If a terminal box is used, fit the blanking plate to unused entry.
- Depending upon circuit wiring, select MIC internal Pot retainer or cable Fibre clamp. Both components are suitable for single for single or twin cable runs.
- Insert one half of the retainer/clamp into the surface box (from the rear) and secure box to the wall.
- Lay in MIC or cable and secure in position with top half of retainer/ clamp – fit Mini adaptor.
- Terminate wiring to accessory and fit to box.

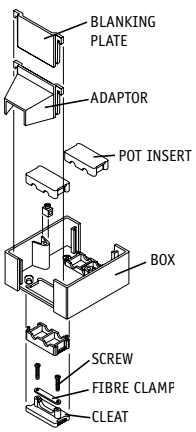
Boxes

Dimensional data for square boxes

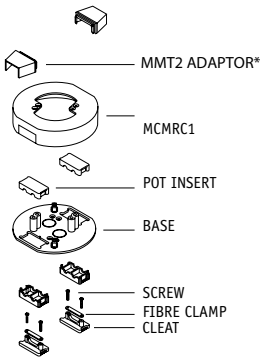
- Overall: 87 x 87mm
- Depth: 38mm external; 35mm internal.
- Fixing centres: 60.3mm.
- Pot size: Ø15mm.

Dimensional data for circular boxes

- Overall diameter: 123mm excluding adaptors
- Depth: 28mm external; 24mm internal.
- Dual fixing centre: 50.8 and 60.3mm.
- Pot size: Ø15mm.



Mini trunking additional adaptors



Intumescent (fire barrier) pads

Marshall-Tufflex dry lining boxes are available with intumescent (fire barrier) pads to comply with the requirements of BS 7671:2008 IEE Wiring Regulations and Document B of the UK Building Regulations.

Bio trunking

General information

Certain microbial organisms are harmful to people and can proliferate, via surfaces, to spread infection and disease. We have a responsibility to control such organisms wherever possible, particularly in environments such as hospitals, care homes, medical units, surgeries, schools, sports and health centres.

Microbial organisms can also case product deterioration, discolouration and bad odours and antimicrobial treatments help to prevent these effects.

Marshall-Tufflex antimicrobial Bio cable management systems incorporate silver ions with the PVC-U compound, providing integral antimicrobial protection that prevents 99.9% of harmful bacteria growth.

Material – PVC-U

PVC-U is flame retardant and self-extinguishing. It provides a 100% recyclable material with good sustainability. It complies with the requirements of BS 4761 Parts 6 and 7, BS 4678 and BS 7671:2008.

Material – silver ion additive

Silver ions have been proven to exert recognised bactericidal effect. When incorporated within materials such as PVC-U, silver is toxic to multiple components of bacterial cell metabolism, damaging the cell wall and membrane permeability.

Installation

For technical information on installation of all PVC-U Bio trunking systems, please refer to the relevant technical pages of PVC-U Perimeter trunking systems starting on page 225.

Bio Trunking Solutions are independently tested to ISO 22196:2007

TEST RESULTS: Marshall-Tufflex Report #2422431
LABORATORY: Thomson Research Associates Inc., Ontario, Canada
TEST ORGANISM: Methicillin Resistant Staphylococcus aureus - MRSA

Quantitative Assessment of Activity – ISO 22196:2007 MRSA				
Concentration of starting inoculum		4.94×10^5 CFU/mL		
Sample Description	Number of bacteria recovered	Log Value	R = [log(B/C)]	% Survival
1. Flat profile – Blue Tape, White PVC – untreated control	7.19×10^6	6.9	------	------
2. Curved profile – Red Tape, White PVC – Treated with Ultra-Fresh CA-16	$<2.00 \times 10^1$	<1.3	>5.6	<0.1%

TEST RESULTS: Marshall-Tufflex Report #2422435
LABORATORY: Thomson Research Associates Inc., Ontario, Canada
TEST ORGANISM: Klebsiella pneumoniae

Quantitative Assessment of Activity – ISO 22196:2007 K.pneumoniae				
Concentration of starting inoculum		1.16×10^5 CFU/mL		
Sample Description	Number of bacteria	Log Value	R = [log(B/C)]	% Survival
1. Flat profile – Blue Tape, White PVC – untreated control	3.06×10^6	6.5	------	------
2. Curved profile – Red Tape, White PVC – Treated with Ultra-Fresh CA-16	4.01×10^2	2.6	3.9	<0.1%

The treated curved profile (Sample 2) showed excellent control of both MRSA and Klebsiella Pneumoniae with a greater than 99.9% reduction in bacteria compared to the untreated flat profile (Sample 1). The bacteria grew on the untreated sample.

Bio trunking has demonstrated effectiveness against:

- Methicillin Resistant Staphylococcus aureus (MRSA)
- Klebsiella pneumoniae
- Streptococcus pyogenes
- Enterococcus faecalis
- Escherichia coli
- Pseudomonas aeruginosa
- Acinetobacter baumanii
- Bacillus subtilis
- Salmonella
- Legionella

Aluminium systems

Material

Aluminium is a high quality material which is light to handle but with excellent mechanical strength and impact-resistance. Aluminium provides inherent LSOH properties and first class screening performance, especially in high frequencies.

XL Aluminium trunking Installation

For all technical information on XL Aluminium trunking, please refer to pages 251 and 252 of the Aluminium perimeter trunking section. All information on those pages is relevant with the following additions:

Positioning

For dado installation only.

Gas outlets

Covers for gas mounting plates EEBH05 (1 gang), EEBH04 (2 gang) and EEBH03 (3 gang) are pre-punched to accept gas outlets and can be used with XL trunking.

Light fittings

Pre-cut covers to accept external lighting mountings are available on request. For more information please contact the Technical Team on 01424 855688.

Please note: in the general installation instructions for XL Aluminium trunking, polycarbonate fittings are shown as an option but these would not generally be used within a healthcare environment.

Technical notes