

BIO TRUNKING SOLUTIONS

ANTIMICROBIAL TRUNKING

DELIVERING INNOVATION
www.marshall-tufflex.com



UK OWNED
UK MANUFACTURER



**Marshall
Tufflex**

BIO TRUNKING FOR LABORATORY AND HEALTHCARE ENVIRONMENTS

Why use antimicrobial PVC-U trunking?

Certain microbial organisms are harmful to people and can proliferate to cause infections and disease. There is a need to control these organisms wherever infection control is of importance, particularly in environments such as

- Hospitals
- Nursing and care homes
- Food processing plants
- Surgeries
- Schools
- Sports and health centres

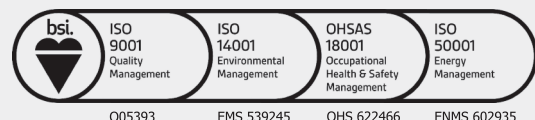


Bio Trunking solutions offer:

- Prevention of harmful bacteria growth (for more details see test results on page 11)
- Antimicrobial properties inherently formulated within the PVC-U and ABS compounds
- A durable, non-leaching antimicrobial treatment
- Testing to ISO 22196:2011
- Proven silver ion-based technology to neutralise any bacteria with which it comes into contact
- Registration with the Environmental Protection Agency (EPA).
- Compliance with the European Biocidal Products Directive (BPD)
- Proven reductions in bacterial viable count by more than 99.9%
- Antimicrobial treatments provide an extra level of protection when combined with normal cleaning procedures
- Bio trunking can be identified by using a UV light on the external surface of the trunking. The Bio system will reflect blue under UV light rather than violet, with the exception of those made with ABS, which are identified with the label on a non-visible surface.

Standards & Environmental

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





About Marshall-Tufflex

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

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

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

Collection Service

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

London & Manchester:

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

Hastings:

Collect from 10am the next day when you order before 12.30pm.

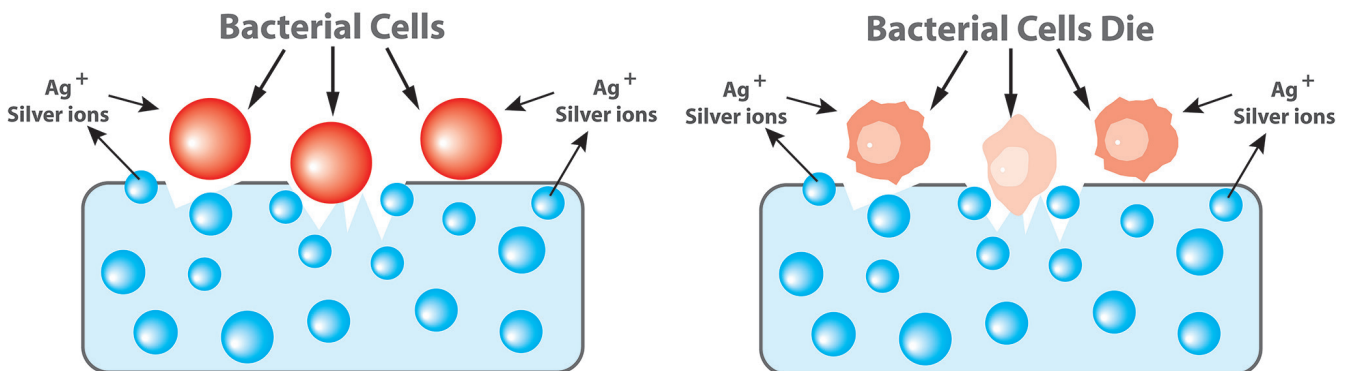
See back cover for collection point addresses.



Built-in protection

Where hygiene is a priority, we offer cable management systems with integral antimicrobial properties. By incorporating silver ions within the PVC-U based material the perimeter trunking will deliver ongoing antimicrobial protection that prevents 99.9% of harmful bacteria.

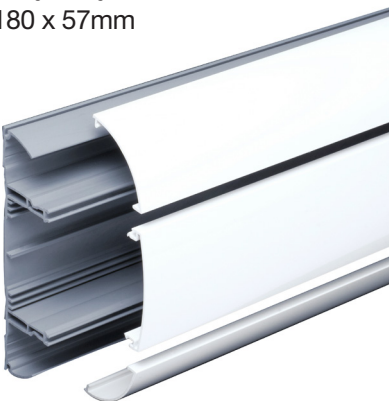
Because the Marshall-Tufflex Bio trunking solution is integral to the PVC-U material, there is no reduction in effectiveness of the trunking throughout its life – even if it is scratched or damaged. Bio trunking uses a silver ion solution throughout the product, ensuring that 99.9% of harmful bacteria – like MRSA – will not survive on the surface.



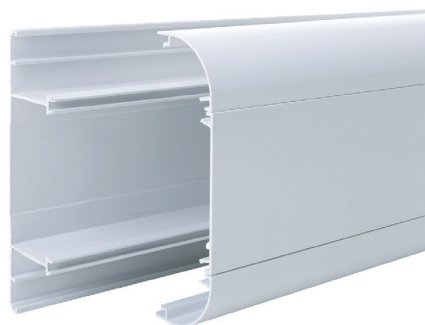
Our Bio Solutions

Odyssey and Sterling Curve Profile 1 trunking systems are available as standard with Bio antimicrobial protection within the PVC-U material.

Odyssey
180 x 57mm



Sterling Curve Profile 1
167 x 50mm



The following trunking ranges are also available in Bio but are made to order and therefore are subject to set-up charges, minimum order quantity and a longer lead time.

- Bench trunking
- Compact
- Mono Plus 20
- Sterling Profile
- Twin Plus
- XL

To request a quotation for your project, please contact our Technical Team on +44 (0)1424 856688

ODYSSEY BIO



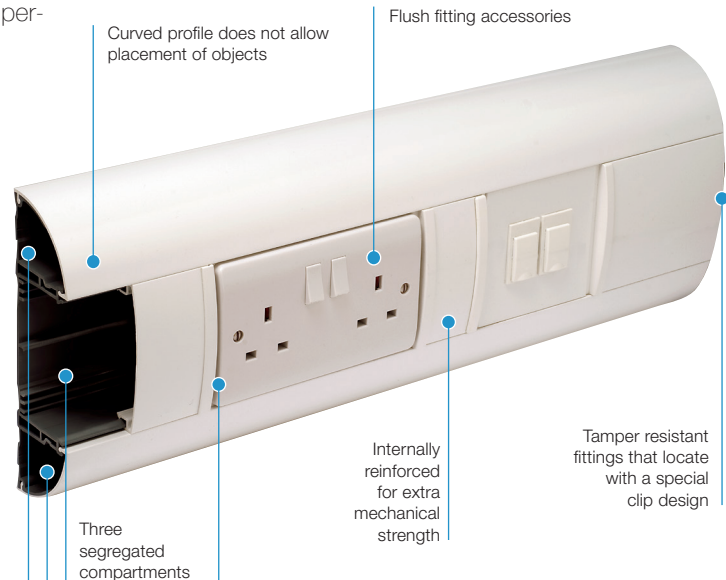
Odyssey Bio is a three-compartment trunking system with a completely curved front profile designed with tamper-resistant covers and fittings. Odyssey's curved profile is easy to clean and prohibits surface clutter.

Product information

- 180 x 57mm dado trunking with integral Bio protection
- 1 main compartment and 2 smaller outer compartments
- Can be subdivided
- Flush fitting accessories
- Tamper resistant covers and fittings
- Available in white as standard

Data information

- Compliant up to Cat 7a
- Standard bend radius 25mm
- Data fittings available for bend radius up to 65mm
- Steel divider available to BS EN 50174-2
- Adjustable data box 32-40mm



Part M

Coloured accessory boxes are available that meet the requirements of Part M (DDA). See page 7.








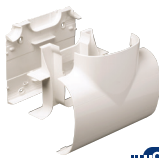
Trunking profile







Trunking assembly (base and 3 covers)

code	size	pack
DD1B	180 x 57mm	1 x 3m

Fittings

 Coupler <table border="1"> <thead> <tr> <th>code</th> <th>pack</th> </tr> </thead> <tbody> <tr> <td>DD1213WH</td> <td>1</td> </tr> </tbody> </table>	code	pack	DD1213WH	1	 End cap <table border="1"> <thead> <tr> <th>code</th> <th>pack</th> </tr> </thead> <tbody> <tr> <td>DD1233WH</td> <td>2</td> </tr> </tbody> </table>	code	pack	DD1233WH	2	 Internal bend <table border="1"> <thead> <tr> <th>code</th> <th>pack</th> </tr> </thead> <tbody> <tr> <td>DD1313WH</td> <td>1</td> </tr> </tbody> </table>	code	pack	DD1313WH	1	 Internal bend adjustable <table border="1"> <thead> <tr> <th>code</th> <th>adjustable</th> <th>pack</th> </tr> </thead> <tbody> <tr> <td>DD1333WH</td> <td>85-95°</td> <td>1</td> </tr> </tbody> </table>	code	adjustable	pack	DD1333WH	85-95°	1
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Boxes

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*Manufactured from ABS

STERLING CURVE BIO



Sterling Curve is a sleek data compliant medium sized trunking system with three segregated compartments. The curved data compartments are designed to stop clutter, avoid dust traps and to make cleaning easy.

Product information

- 167 x 50mm dado trunking with integral Bio protection
- 3 segregated compartments
- Comprehensive range of flush power and data accessories
- Single piece moulded fittings
- Flat Tees and Flat Angles have integral bend radius control
- Available in white as standard

Data information

- Compliant up to Cat 7a
- Standard bend radius 25mm
- Data fittings available for bend radius up to 50mm
- Adjustable data box 32-40mm



Part M

Coloured accessory boxes are available that meet the requirements of Part M (DDA).



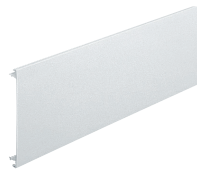
Sterling Curve Bio Profile 1

size	pack
67 x 50mm	1 x 3m



Base unit

code	pack
ETB1M	4 x 3m



Main compartment cover

code	pack
ETL1BIOWH	8 x 3m



Curve cover

code	pack
CEC1BIOWH	8 x 3m



Curve Profile 1 Coupler

code	pack
CECP1MBIOWH	2



Curve Profile 1 End cap

code	pack
CEEC1MBIOWH	2



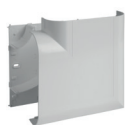
Curve Profile 1 Internal bend

code	pack
CEIP1MBIOWH	2



Curve Profile 1 External bend

code	pack
CEXP1MBIOWH	2



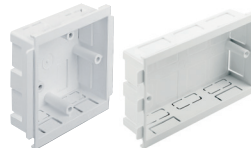
Curve Profile 1 Flat angle complete

code	pack
CEXBP1MBIOWH*	1



Curve Profile 1 Flat tee complete

code	pack
CEFT1MBBIOWH*	1



1 gang accessory box

code	depth	pack
ESSB1BIOWH	30mm	20

2 gang accessory box

code	depth	pack
ESSB2BIOWH	30mm	10



1 gang accessory plate

code	pack
ESSP1BIOWH	2

2 gang accessory plate

code	pack
ESSP2BIOWH	2

*Manufactured from ABS

PART M COLOURED BOXES AND PLATES

DDA COMPLIANT BOXES FOR VISUAL IMPAIRMENT

Part M of the UK Building Regulations for Visual Impairment requires that face plates differ in colour from their background. Coloured accessory boxes provide a different colour frame to contrast against standard white accessories and are offered as part of our standard product range in blue (RAL5002) and charcoal (RAL7021). Two ranges are available, one compatible with Odyssey and one compatible with other PVC-U trunking systems.



Odyssey trunking with Part M boxes installed at Old Swinford Hospital School, Stourbridge.



Sterling Profile 1 with charcoal Part M flush plate.

Plates are available in other colours subject to set up charges, minimum order quantities and longer lead times.

1 and 2 gang accessory boxes for Odyssey trunking

code	description	pack
DD1510BU	1 gang – blue	20
DD1510CH	1 gang – charcoal	20
DD1520BU	2 gang – blue	10
DD1520CH	2 gang – charcoal	10



1 and 2 gang power and data mounting frame for Odyssey trunking

code	description	pack
DD1560BU	1 gang – blue plate	2
DD1560CH	1 gang – charcoal plate	2
DD1570BU	2 gang – blue plate	2
DD1570CH	2 gang – charcoal	2



1 and 2 gang accessory boxes with coloured flush plate for PVC-U trunking systems

code	description	pack
ESPM1BU	1 gang – blue plate	1
ESPM1CH	1 gang – charcoal plate	1
ESPM2BU	2 gang – blue plate	1
ESPM2CH	2 gang – charcoal plate	1



Retrofit spacer for 1 and 2 gang accessory boxes for PVC-U trunking systems

code	description	pack
ES3BU	Part M spacer – blue	4
ES3CH	Part M spacer – charcoal	4



Part M boxes, plates and spacers are available with BIO properties but are non-standard items so will be subject to set up charges, minimum order quantities and longer lead times.

ODYSSEY BIO HEAVITREE HOSPITAL

Consultant engineers opted for Marshall-Tufflex's curved Odyssey Bio trunking in order to ensure three treatment rooms and a recovery ward within a unit at Heavitree Hospital are as hygienic as possible.



"Preventing the spread of infection is a major element of the work we do within healthcare buildings and we are increasingly looking for building products that can play a part," said Simon Cuthbert, of Terry Hearne & Partners, who designed the mechanical and electrical aspects of the project.

Silver-formulated, antimicrobial cable containment systems such as Odyssey Bio are playing an important role in fighting the spread of hospital-acquired infections with a proven method of neutralizing some of the most common and dangerous bacteria found in hospitals, care homes and other locations where infection control is an issue. Untreated trunking systems can harbour harmful bacteria and, if touched, be a source of cross-contamination.

Odyssey Bio is, however, different to other anti-bacterial cable containment systems: not only does it have a uniquely all-curved profile, its active ingredients are embodied in the PVC-U itself rather than applied as a surface coating. Surface coatings can become ineffective if scratched or damaged whilst Odyssey Bio will go on doing its job even if it is scratched or damaged. Odyssey's sleek curved lines not only look good but are also impossible to clutter, allowing the necessary regular cleansing operation to be easily maintained.

Standard Odyssey was used for the circuit, housing voice and data structured cabling in consulting rooms and associated administrative areas and antimicrobial Odyssey Bio was used in the treatment areas.

ODYSSEY BIO DERRIFORD HOSPITAL

Eleven operating theatres at a leading South West hospital are fitted out with Odyssey Bio, providing hospitals managers with an additional weapon in their battle against infection.

Cat 7a compliant Odyssey Bio has been tested and is proven to exhibit reductions in bacterial viable counts by more than 99.99%. It is a most effective weapon in the battle against superbugs and cross-infection when used in conjunction with meticulous cleaning and personal hygiene routines.

Odyssey Bio proved perfect for operating theatres at the Derriford Hospital, Plymouth. It was installed as part of a strict, on-going process to control the spread of infections and specified by Plymouth Hospital NHS Trust's Electrical Estates department. Dodd Group, the resident electrical contractor on site, installed the sleek trunking, favoured for its aesthetically pleasing and easy-to-clean curved profile.

Fears that a trunking system might be a potential dust and dirt trap were quickly dispelled: *"We had expected something far heftier but people don't notice it unless it's pointed out to them,"* said Paul Cookney for Theatre Estates, Plymouth NHS Trust, about Odyssey Bio. *"It has such a low profile with the advantage of no edge. It is a superb product that has provided us with a cheaper and more effective method of managing cables. We are very pleased with it."*

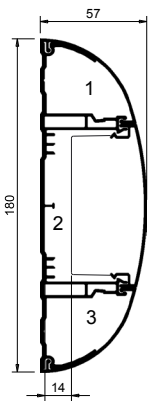


"Preventing the spread of infection is a major element of the work we do"

Simon Cuthbert, Terry Hearne & Partners

Technical Information

Odyssey trunking 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

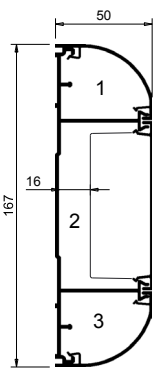
Internal trunking dimensions

Compartment 1 = 36 x 46mm
Compartment 2 = 81 x 48mm
Compartment 3 = 36 x 46mm

Odyssey trunking Cable Capacities

Cable capacity chart	Compartment 1		Compartment 2		Compartment 3	
	No box	With box	No box	With box	No box	With box
PVC power cable 1.5mm ² stranded copper	71	–	226	69	71	–
PVC power cable 2.5mm ² stranded copper	47	–	152	47	47	–
PVC power cable 4.0mm ² stranded copper	34	–	109	33	34	–
Data cable: Ø5.5mm	24	–	76	23	24	–
Data cable: Ø6.0mm	20	–	64	20	20	–
Data cable: Ø6.5mm	18	–	56	17	18	–
Data cable: Ø7.0mm	15	–	47	14	15	–
Data cable: Ø8.4mm	10	–	33	10	10	–

Sterling Curve Profile 1 Dimensions



Sterling Curve Profile 1 – no box

1 & 3 = 1170mm² total area
1 & 3 = 527mm² 45% space factor
2 = 3858mm² total area
2 = 1736mm² 45% space factor

With box in comp 2

2 = 1376mm² total area
2 = 619mm² 45% total area

Internal trunking dimensions

Compartment 1 = 39 x 45mm
Compartment 2 = 86 x 46mm
Compartment 3 = 39 x 45mm

Sterling Curve Profile 1 Cable Capacities

Cable capacity chart	Compartment 1		Compartment 2		Compartment 3	
	No box	With box	No box	With box	No box	With box
PVC power cable 1.5mm ² stranded copper	66	–	217	77	66	–
PVC power cable 2.5mm ² stranded copper	44	–	146	52	44	–
PVC power cable 4.0mm ² stranded copper	32	–	105	37	32	–
Data cable: Ø5.5mm	22	–	73	26	22	–
Data cable: Ø6.0mm	19	–	61	22	19	–
Data cable: Ø6.5mm	16	–	54	19	16	–
Data cable: Ø7.0mm	14	–	45	16	14	–
Data cable: Ø8.4mm	10	–	31	11	10	–

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 cause product deterioration, discolouration and bad odours and antimicrobial treatments help to prevent these effects.

Marshall-Tufflex antimicrobial Bio trunking incorporates 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 the current version of the UK Wiring Regulations BS 7671.

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 contact our Technical Team on +44 (0)1424 856688.

PVC Material Test Results

LABORATORY Anti-Microbial Test Division, Kyoto Biseibutsu Kenkyusyo, Yamashina-ku, Kyoto 607-8482, Japan
TEST ORGANISM MRSA (Methicillin Resistant Staphylococcus aureus) Escherichia coli
STANDARD ISO 22196 / JIS Z 2801:2000

Quantitative Assessment of Activity - MRSA (Methicillin Resistant Staphylococcus aureus)				
	Number of live organisms (Colony Forming Units)		% reduction of Colony Forming Units, expressed as comparison with control	
	0 hours	24 Hours		
Control - Untreated polyethylene film	110,000	96,000	–	–
PVC	110,000	<10	>99.98% Reduction	VERY GOOD

Quantitative Assessment of Activity - Escherichia coli				
	Number of live organisms (Colony Forming Units)		% reduction of Colony Forming Units, expressed as comparison with control	
	0 hours	24 Hours		
Control - Untreated polyethylene film	110,000	14,000,000	–	–
PVC	110,000	<10	>99.99992% Reduction	EXCELLENT

ABS Material Test Results

LABORATORY Thomson Research Associates Inc., Ontario, Canada
TEST ORGANISM Klebsiella pneumonia, Staphylococcus aureus
STANDARD ISO 22196:2011

Quantitative Assessment of Activity - K. pneumoniae				
Concentration of starting inoculum		1.92 x 10 ⁵		
Sample Description	No. Bacteria Recovered	Log Value	R=[log(B/C)]	% Reduction
Inoculum Control	8.39 x 10 ⁶	6.9	–	–
ABS	<2.00 x 10 ¹	<1.3	>5.6	>99.9%

Quantitative Assessment of Activity - S. aureus				
Concentration of starting inoculum		1.92 x 10 ⁵		
Sample Description	No. Bacteria Recovered	Log Value	R=[log(B/C)]	% Reduction
Inoculum Control	1.00 x 10 ⁶	6.0	–	–
ABS	1.04 x 10 ²	2.0	4.0	>99.9%

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

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