

Marshall-Tufflex

Bio Trunking Solutions

Antimicrobial trunking systems

CI/SfB	
(62)	In6



www.marshall-tufflex.com



About Marshall-Tufflex

Marshall-Tufflex is the UK's market leading manufacturer of cable management products with over 65 years' experience in the industry. The company is British-based and operates with a high degree of integrity and a strong business ethos. Today, as a globally operating company, Marshall-Tufflex consistently pioneers new products and invests in the research that provides effective future solutions for a fast moving market.

Customer Service

Our network of sales engineers supported by our Customer Service Team provide technical assistance and access to stock availability, lead times and delivery schedules.

Technical Support

Our Technical Team can advise on a wide range of solutions and technical issues such as the latest wiring regulations, product standards, EMI shielding, data cabling control and Parts L and M compliancy. Contact them on +44 (0) 1424 856688.

Products In Stock

Extensive stockholdings via a large network of national wholesalers gives excellent availability throughout the UK. Whilst our distributors across the world have full access to our product range and maintain their own local stocks.

Contents	page
Why use antimicrobial PVC-U trunking?	page 3
Which trunking system?	page 4
Test results	page 6
White paper	page 6
Case studies	page 7

Environmental

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

Jim Fletcher, Managing Director



Sustainability and performance:

Bio Trunking Solutions are manufactured from PVC-U, a cost-effective and sustainable choice of material for perimeter trunking systems and comparable with other materials such as steel and aluminium.

- 100% recyclable.
- PVC-U has a long life cycle.
- No phthalates are used in the manufacture of PVC-U.
- PVC-U has an excellent fire performance (see www.beamainstallation.org.uk > technical bulletins).

Carbon assessment

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

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



Quality Management Systems:

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



Environmental Management Systems:

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



Marshall-Tufflex and Vinyl 2010

Marshall-Tufflex is dedicated to meeting the requirements of Vinyl 2010 and its Voluntary Commitment to the European Commission. www.vinyl2010.org

RECYCLING

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



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

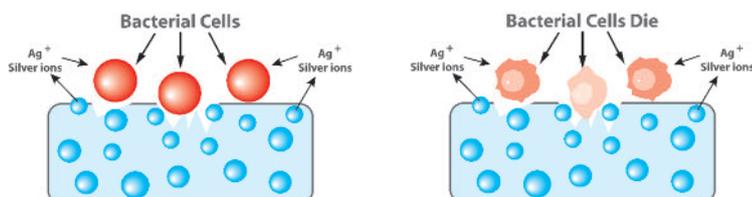
- Hospitals
- Nursing and care homes
- Medical units
- Surgeries
- Schools
- Sports and health centres

Microbial organisms can also cause product deterioration, discoloration and bad odours and antimicrobial treatments help to prevent these effects and provide an extra level of protection when combined with normal cleaning procedures.



Built-in protection

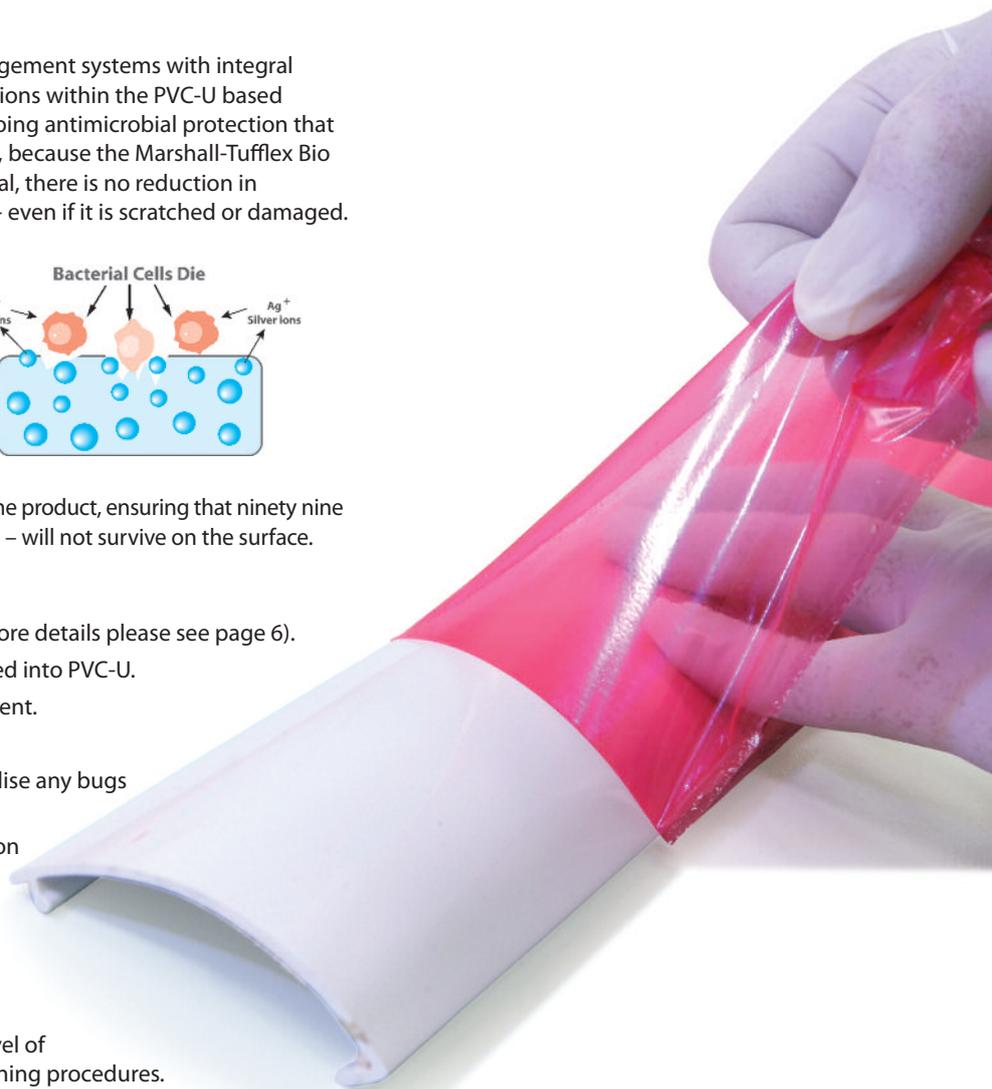
Where hygiene is a priority, we offer cable management systems with integral antimicrobial properties. By incorporating silver ions within the PVC-U based material the perimeter trunking will deliver ongoing antimicrobial protection that prevents 99.9% of harmful bacteria growth. And, because the Marshall-Tufflex 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 ninety nine point nine percent of harmful bacteria – like MRSA – will not survive on the surface.

Bio Trunking Solutions offer:

- Prevention of harmful bacteria growth (for more details please see page 6).
- Antimicrobial properties inherently formulated into PVC-U.
- A durable, non-leaching antimicrobial treatment.
- Testing to ISO 22196:2007.
- Proven silver ion-based technology to neutralise any bugs with which it comes into contact.
- Registration with the Environmental Protection Agency (EPA).
- Compliance with the European Biocidal Products Directive (BDP).
- 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.



Which trunking system?

Odyssey Trunking 180mm x 57mm

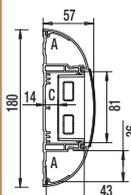
A top of the range trunking system with a unique curved profile. Moving away from the traditional box shape, this trunking not only presents a uniquely striking appearance but is mechanically stronger, with a profile that prohibits clutter, avoids dust traps and makes cleaning easy.

- Three segregated compartments.
- Curved profile does not allow placement of objects.
- Flush accessories to maintain a smooth profile.
- Internally reinforced for extra mechanical strength.
- Tamper resistant trunking and fittings that locate with a special clip design.
- Includes a lock feature for adjustable corners.
- MT32 pre-wired, pre-tested power connection optional.



Cable Capacity:
Cat 6 UTP (Based on Ø6.5mm cable)

COMPARTMENT	45% FILL	100% FILL
A	13	30
*C (with accs box)	10	23
C (without accs box)	38	85



Data Information:
Standard bend radius 25mm (Cat 6).
Steel divider is available to provide EMC screening between compartments.
Adjustable data box 32-40mm.

Sterling Profile 1 167mm x 50mm

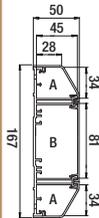
A popular and stylish looking range of trunking systems that is easy and cost effective to use and has been tried and tested over the years.

- Three segregated compartments.
- Separate lid access to each compartment.
- Can be fed from larger trunking systems for increased cable distribution.
- MT32 pre-wired, pre-tested power connection optional.



Cable Capacity:
Cat 6 UTP (Based on Ø6.5mm cable)

COMPARTMENT	45% FILL	100% FILL
A	13	28
*B (with accs box)	10	23
B (without accs box)	41	91



Data Information:
Standard bend radius 25mm (Cat 6).
Steel divider is available to provide EMC screening between compartments.
Adjustable data box 32-40mm.

Mono Plus 20 Trunking 140mm x 50mm

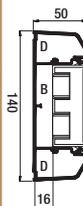
An economical and stylish three compartment trunking, compact in size to fit within areas that have trunking height restrictions.

- Three segregated compartments.
- Suitable for height restricted applications.
- One piece fittings with single lid access for improved security.
- MT32 pre-wired, pre-tested power connection optional.



Cable Capacity:
Cat 6 UTP (Based on Ø6.5mm cable)

COMPARTMENT	45% FILL	100% FILL
D	11	21
*B (with accs box)	12	28
B (without accs box)	37	82



Data Information:
Standard bend radius 25mm (Cat 6).
Adjustable data box 32-40mm.

*Capacity calculated using 30mm deep accessory boxes.

Compact 2 Trunking 130mm x 50mm

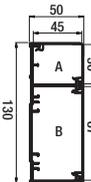
A compact, fully segregated two compartment system suited to fit within areas that have trunking height restrictions and where the physical outside dimensions are very important, for example to negotiate above or below radiators and window sills.

- One full size and one half size compartment.
- Suitable for height restricted applications.
- Separate lid access to each compartment.
- Can be fed from larger trunking system for increased cable distribution.
- MT32 pre-wired, pre-tested power connection optional.



Cable Capacity:
Cat 6 UTP (Based on Ø6.5mm cable)

COMPARTMENT	45% FILL	100% FILL
A	15	34
*B (with accs box)	11	24
B (without accs box)	41	91



Data Information:
Standard bend radius 25mm (Cat 6).
Steel divider is available to provide EMC screening between compartments.
Adjustable data box 32-40mm.

Twin Plus Trunking 210mm x 57mm

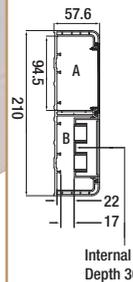
For areas requiring large quantities of Cat 6 data cabling, this high capacity, segregated, two compartment containment system looks good and incorporates 50mm bend radius fittings that exceed international standard requirements.

- Two large segregated compartments.
- Separate lid access to each compartment.
- Extra depth for increased cable capacity.
- MT32 pre-wired, pre-tested power connection optional.



Cable Capacity:
Cat 6 UTP (Based on Ø6.5mm cable)

COMPARTMENT	45% FILL	100% FILL
A	53	117
*B (with accs box)	20	45



Data Information:
50mm bend radius fittings.
Steel divider is available to provide EMC screening between compartments.
Adjustable data box 32-47mm.

Bench Trunking 105mm x 105mm

In a laboratory or medical work area, Bench Trunking can be usefully mounted directly on the bench or angled under shelving. This is a sturdy and easy to install trunking that, with dividing fillets, can bring segregated services to desks and benches.

- Can also be designed to individual specifications and pre-wired.
- Back to back configuration available.
- Positive fixing lids for easy re-configuration of cabling.
- 1, 2 and 3 gang boxes available.
- MT32 pre-wired power connection optional.



In addition to the systems shown, Marshall-Tufflex can also offer systems XL, Mini and Maxi trunking as a bio option. **Please enquire for more details.**

Bio Trunking is available with a conductive spray coating for protection from electromagnetic interference (EMI) without any reduction in cable capacity. **Please contact the Technical Team for more information.**

Test results

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 x 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 x 10 ⁶	6.9	-----	-----
2. Curved profile – Red Tape, White PVC – Treated with Ultra-Fresh CA-16	<2.00 x 10 ¹	<1.3	>5.6	<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): an antibiotic resistant, opportunist pathogen that can survive on surfaces within the hospital environment.
- *Klebsiella pneumoniae*: an opportunist pathogen affecting people with a weakened immune system.
- *Streptococcus pyogenes*: tonsillitis, scarlet fever, necrotising fasciitis (the 'flesh-eating bug').
- Vancomycin-resistant *Enterococcus faecalis*: *E. faecalis*: a concern when antibiotic resistance is acquired.
- *Escherichia coli*: All of us are colonised by *E. coli* in our gut but this bacterium can cause infections if it is transferred to a wound or a different part of the body causing severe food-associated illness.
- *Pseudomonas aeruginosa*: a common bacterium found in water and other environments and is associated with burns infections, medical device infections and food spoilage.
- *Acinetobacter baumannii*: is associated with HAI and is often resistant to antibiotics.
- *Bacillus subtilis* is a spore forming bacterium with the ability to form resistant spores that cause a problem for cleaning and disinfection.
- *Salmonella*: the *Salmonella* species cause food-borne illness.
- *Legionella*: Legionellosis is a severe form of pneumonia caused by inhalation of infected aerosols, for example via air conditioning systems.
- Lactobacilli are essentially non-pathogenic: they are often used as probiotics. Some species cause spoilage, for example in the brewing industry.
- *Corynebacterium pseudodiphtheriticum*: associated with respiratory infection.

WHITE PAPER

Joanna Verran is Professor of Microbiology in the School of Biology, Chemistry and Health Science at Manchester Metropolitan University. Her research is interdisciplinary, involving collaboration with materials scientists, polymer and dental technologists and surface engineers focusing on the interactions occurring between microorganisms and inert surfaces. In 2008, Professor Verran wrote a 6-page White Paper on the effectiveness of silver ion pregated antimicrobial trunking for Marshall-Tufflex. Here are a few extracts from that paper:

"In the hospital environment, patients are particularly susceptible to infection, thus reduction in the transfer of microorganisms directly from person to person and indirectly via inanimate objects, is a key objective. The microorganisms present may also be more resistant to antibiotics.

"... 'silver ions' exert a bactericidal effect at very low concentrations. Unlike antibiotics, which have specific targets present in microbial cells thus demonstrating 'selective toxicity' ... silver, like other biocides, is toxic to multiple components of bacterial cell metabolism. These include damage to the bacterial cell wall and membrane permeability.

"... damage leads to blockage of transport and enzyme systems, alterations of proteins, ... and binding of microbial nucleic acid, which prevents protein synthesis and cell division.

"... rapid or sustained release is important ... demonstrated by impregnated surfaces where the silver is mobile and essentially renewable to the surface. Coatings might, in contrast, be lost or exhausted more rapidly."

To download the White Paper in full, please go to www.marshall-tufflex.com/bio

Case study 1

FOR: Derriford Hospital, Plymouth

SPECIFIER: Plymouth Hospitals NHS Trust, Electrical Estates Department

INSTALLER: Dodd Group South Western

The Marshall-Tufflex Bio Trunking Solution was used for the eleven operating theatres at Derriford Hospital, Plymouth, an acute general hospital that is part of Plymouth Hospitals NHS Trust.

Installed by Dodd Group as part of a strict, on-going process to control the spread of infection, Odyssey Bio Trunking was specified by Plymouth Hospitals NHS Trust's Electrical Estates department.

Plymouth Hospitals NHS Trust places great emphasis on quality, safety and effective care of patients and has been named as one of the top performing Trusts in the country. This Odyssey Bio Trunking installation is part of an upgrade to the monitoring system, linking essential patient data during an operation - such as blood pressure, pulse and heart rates - to a central information processing unit.

Paul Cookney, Theatre Estates, Plymouth Hospitals NHS Trust: *"It is a superb product...we're very pleased with it."*

Rob Ellis, Head of Electrical Estates, Plymouth Hospitals NHS Trust: *"Marshall-Tufflex Bio Trunking is a product that is likely to come to the fore in the control of infection, as NHS Trusts up and down the country tackle the continuing threat of virulent infectious diseases."*



Case study 2

FOR: Heavitree Hospital, Exeter

SPECIFIER: Estates & Facilities, Royal Devon & Exeter NHS Trust

CONSULTANT ENGINEER: Terry Hearne & Partners

ELECTRICAL CONTRACTOR: Beale & Cole of Exeter

Three treatment rooms and a recovery ward within an Exeter hospital's new dermatology and lymphoedema unit have been fitted with an antimicrobial and fully curved profile trunking system from market leading cable management specialist Marshall-Tufflex.

Consultant engineers Terry Hearne & Partners opted for Marshall-Tufflex's curved Odyssey Bio cable containment in order to ensure clinical areas within the new unit at Heavitree Hospital are as hygienic as possible.

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, such as MRSA, E-Coli and Salmonella, found in hospitals, care homes and other locations where infection control is an issue.

Bio Trunking Solutions 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 remain effective throughout its lifetime.

Simon Cuthbert of Terry Hearne & Partners says: *"Even though there are no regulations, we considered Odyssey Bio to be the best course of action available to us. It provides us with peace of mind, the hospital is extremely happy with it and it's also a good-looking trunking,"* concluded Mr Cuthbert.



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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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