

# Marshall-Tufflex

## Bio Trunking Solutions

Antimicrobial trunking systems

CI/SfB
(62) In6



[www.marshall-tufflex.com](http://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.

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## 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

### 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.

### Sustainability

All Marshall-Tufflex Bio Trunking is manufactured from PVC-U. This material is 100% recyclable and has an excellent fire performance.

*(See BEAMA report on [www.beamainstallation.org.uk](http://www.beamainstallation.org.uk) > technical bulletins)*

### Marshall-Tufflex and Vinyl 2020

The company is dedicated to meeting the ongoing Vinyl 2020 programme and its Voluntary Commitment to the European Commission

### RECYCLING

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



Certificate No. Q05393  
Registration  
BS EN ISO 9001:2008

### Quality Management Systems:

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



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

### Environmental Management Systems:

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

## 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

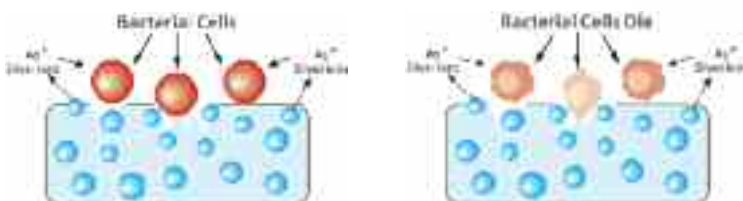
- Hospitals
- Nursing and care homes
- Medical units
- Surgeries
- Schools
- Sports and health centres

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

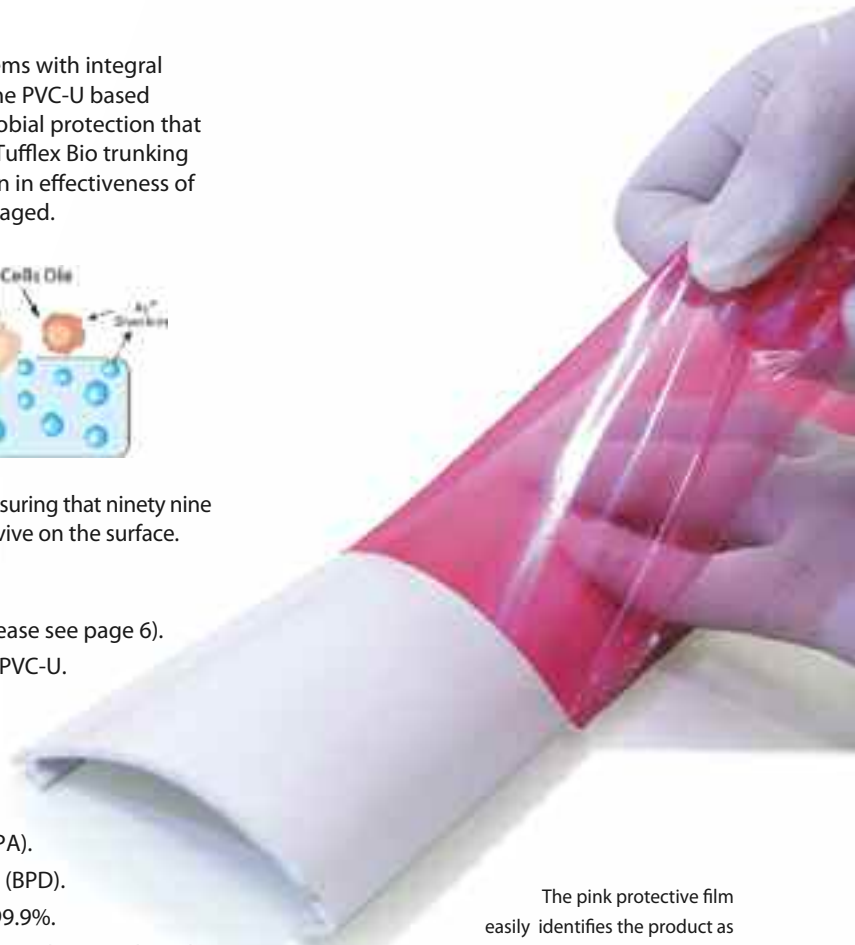
Where hygiene is a priority, we offer cable management systems with integral antimicrobial properties. By incorporating silver ions within the PVC-U based material the perimeter trunking will deliver ongoing antimicrobial protection that prevents 99% of harmful bacteria. Because the Marshall-Tufflex 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 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 within the 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 (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 recognised by checking for the 'Bio' mark on the inside of the trunking lid. They can also be tested by using a UV light on the external surface of the trunking. The Bio system will reflect blue under UV light rather than violet.



The pink protective film easily identifies the product as Marshall-Tufflex Bio trunking with inherent antimicrobial properties.

## Which trunking system?

### Odyssey Trunking 180mm x 57mm

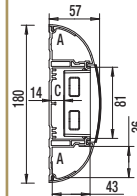
A top of the range trunking system with a unique curved profile. Moving away from the traditional box shape, this trunking not only presents a uniquely striking appearance but is mechanically stronger, with a profile that prohibits clutter, avoids dust traps and makes cleaning easy.

- 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

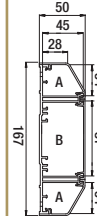
A popular and stylish looking trunking system that is easy and cost effective to use and has been tried and tested over the years.

- 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
- Bio also available in other Sterling Profiles



**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

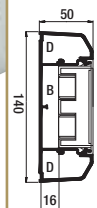
An economical and stylish three compartment trunking, compact in size to fit within areas that have trunking height restrictions.

- 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
- Bio also available in Mono 10



**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.

## Twin165 Trunking 160mm x 65mm

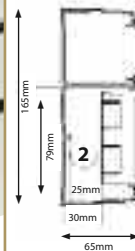
Twin165 is a mid-size two-compartment perimeter trunking system, designed as a compact variation of Twin Plus. Twin165 offers high capacity for Cat 6 and Cat 6a data cabling for specification in commercial, industrial and educational environments.

- Cat 6 and Cat 6a compliancy
- Full segregation for data cables
- Compliance with Part M of the UK Building Regulations
- Compatibility with MT32 Prefabrication Wiring Systems



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

COMPARTMENT	45% FILL	100% FILL
1	35	77
2 (with accs box)	33	72
2 (without accs box)	58	125



**Data Information:**  
 Bend radius control 50mm (Cat6 and Cat6a).

## Twin Plus Trunking 210mm x 57mm

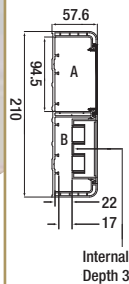
For areas requiring large quantities of Cat 6 data cabling, this high capacity, segregated, two compartment containment system looks good and incorporates 50mm bend radius fittings that exceed international standard requirements.

- 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, Compact 2, Mini and Maxi Trunking as a bio option (minimum order quantities may apply). **Please enquire for more details.**

Bio Trunking is available with unique copper 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 2709051

**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 <sup>5</sup> 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 <sup>6</sup>	6.9	-----	-----
2. Curved profile – Red Tape, White PVC – Treated with Ultra-Fresh CA-16	<2.00 x 10 <sup>1</sup>	<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](http://www.marshall-tufflex.com/bio)

## Case study 1

**FOR:** Pathology Laboratories, Kettering General Hospital

**SPECIFIER:** Building Design Services, Corby, Northamptonshire

**INSTALLER:** Mann Electrical Services, Northampton

As part of a major £1.1m refurbishment to the pathology departments by Kettering General Hospital NHS Trust, Odyssey Bio antimicrobial cable containment system was chosen to enhance infection control measures within the sterile services section of the hospital.

The project has involved the fitting of more than 400 linear metres of Odyssey Bio in a phased 18 month programme of works whilst the department remained up and running. The project also used Odyssey's coloured back boxes, in red, to provide Part M compliance at a competitive cost and Marshall-Tufflex also supplied Bench Trunking with Part M box assemblies.

**Jens Haugaard**, from Building Services Design, the Consulting engineers for the refurbishment, chose Odyssey bio in the research laboratories for these reasons: *"Its new qualities were appealing. I like the fact that the antimicrobial formula is integral to the plastic so that, despite what happens to it, it will continue to do its job. Additionally its curvature is easy to wipe clean."*

**Bob Farmer** of Mann Electrical Services who installed the products, is also happy with the performance of Odyssey Bio. He said: *"It looks good and the necessary specification changes to the special bench trunking units were dealt with efficiently."*



## Case study 2

**FOR:** University Hospital of North Tees, Stockton

**SPECIFIER:** North Tees and Hartlepool NHS Foundation Trust, Estates Department

**INSTALLER:** DH Potters (Electrical).

The University Hospital of North Tees, in Stockton, opted for Marshall-Tufflex's anti-microbial, fully curved trunking system for an electrical upgrade to a stroke ward in order to help prevent the spread of infection.

The University Hospital of North Tees is part of the North Tees and Hartlepool NHS Foundation Trust, which provides healthcare to around 400,000 people and places great importance on good patient care through safe, modern, high quality health services.

Odyssey Bio was installed in Ward 40, a 20 bed ward at University Hospital North Tees by DH Potters (Electrical).

**Richard Speight**, estates engineer for the University Hospital of North Tees, was particularly attracted to the unique curvature of the CAT 6 compliant, anti-microbial containment system, which repels dust and dirt and aids cleaning regimes. *"Flat surfaces gather dust and dust gathers bugs,"* said Mr Speight, who considered the work to install power sockets to each bed in the high-risk environment a timely opportunity to fit Marshall-Tufflex's Odyssey Bio cable containment system. *"The curving profile was a big bonus,"* he added.

The University Hospital of North Tees is part of the North Tees and Hartlepool NHS Foundation Trust, which provides healthcare to around 400,000 people and places great importance on good patient care through safe, modern, high quality health services.

Also registered with the Environmental Protection Agency (EPA) and compliant with the European Biocidal Products Directive (BPD), Odyssey Bio is one of a comprehensive range of solution-driven products by Marshall-Tufflex.



## **Marshall-Tufflex Ltd**

Churchfields Industrial Estate  
Hastings, East Sussex TN38 9PU  
United Kingdom

**Telephone:** 01424 856600

**Fax:** 01424 856611

International Tel: +44 (0)1424 856000

International Fax: +44 (0)1424 856666

Email: [sales@marshall-tufflex.com](mailto:sales@marshall-tufflex.com)

Web: [www.marshall-tufflex.com](http://www.marshall-tufflex.com)

Technical Hotline: +44 (0)1424 856688

### **Republic of Ireland & Northern Ireland distributor**

Core Electrical Ltd  
17b Goldenbridge Industrial Estate  
Tyrconnell Road, Inchicore  
Dublin 8

Telephone: +353 (0)1453 7033

Fax: +353 (0)1453 8911

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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