



altro

Designed for possibilities.  
Made for people.



## Rail: floors guide

Transforming spaces  
in the global rail industry

[altro.com](https://altro.com)

# Introduction

Altro have been creating and manufacturing high quality transport flooring for over 60 years. Driven to transform everyday spaces for the people who use them, design-led innovation is at the heart of everything we do. Working closely with the industry's leading rail builders and operators globally, we aim to create environments for passengers and staff which are inviting, safe and compliant.

Altro consider all aspects of the journey a vehicle floor takes throughout its lifetime; both in service and during manufacture and maintenance.

By partnering with manufacturers, operators and designers, we provide solutions designed to enhance passenger experience and add efficiencies to assembly and maintenance.

Our collaborative approach allows customers to create rail interiors that are safe, durable, comfortable and visually appealing for passengers.

We share our customers' vision of making rail cars more appealing, convenient and environmentally-conscious setting to travel in. We will help you to deliver the on board experience that modern passengers demand.



Altro Transflor Motus  
in Central and Union

# Engineered for performance

We know that you expect the very best in engineering for every component of your rail car, flooring included. We're confident that each feature of our rail floors perform to the highest specification.

## Slip-resistant

Our acrylic products contain a variety of aggregates, which are embedded into the flooring to provide excellent slip resistance to safeguard passenger footing and ensure they can move through a train from entrance vestibules and through carriages safely no matter what the outside weather conditions may be.

## Durable

Trains incur extremely high levels of concentrated foot traffic, so hard-wearing durability is a necessity of any floor. Altro's resilient transport floors are engineered to stand up to the extremely high levels of concentrated foot traffic of rail applications, a quality backed up by long guarantees. Some Altro transport floors have been in situ for as long as 20 years, and still continue to perform.

## Lightweight

All Altro rail products are designed to be competitive in weight. The potential reduction in weight that can be achieved by selecting an Altro product can make a positive contribution to greater fuel economy and general wear.

## Impermeable

If contaminants are brought on board a train, Altro transport floors continue to perform. The construction of our products, combined with heat welded installation techniques, makes them impervious to the ingress of water and dirt; protecting subfloors from damage and preventing the need for costly repairs.

## Colour retentive

All Altro rail floors are tested to ensure UV stability. This ensures that areas exposed to greater levels of sunlight maintain their appearance over time. Our floors also support time-sensitive cleaning regimes to preserve the long-term visual appeal of vehicle interiors.



### Did you know?

Altro Transflor Motus and Altro Transflor Tungsten are compliant to EN 45545 HL2



**Slip resistance** – Our rail floors are engineered to ensure that your passengers and staff can travel and work in safety. For our safest option, ask about Altro Transflor Tungsten, the safest HL-2 compliant floor on the market.

**Durability** – our rail floors offer excellent wear resistance, losing less than 10% of particles after our vigorous laboratory tests.

**Compliance** – Altro rail floor fire, smoke and toxicity performance ratings are guaranteed on all common subfloors.

**Solutions** – Altro rail floors are supported with a range of added value services to enhance installation efficiencies.

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# Compliance

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When specifying interior components we understand that compliance and safety are top priorities. Our rail products are designed to meet the required fire, smoke and toxicity standards for different vehicle classes and rail applications around the world. This is achieved without any compromise to the slip resistant qualities our floors are renowned for and without the need for supplementary treatments to protect the surface layer from wear or discolouration.

## EN 45545 HL2

Altro Transflor Motus is a high performance EN 45545 HL2 and ASTM compliant rubber product, performing very strongly within the HL-2 bracket. With a competitive weight compared to similarly constructed products and a wide colour palette Altro Transflor Motus fulfils the diverse needs of modern rail interiors.

Altro Transflor Tungsten is compliant to EN 45545 HL2, making it ideal for those projects which need more versatility and a higher safety rating. Altro Transflor Tungsten is the lightest and safest HL2 rail flooring option on the market. 2m wide Altro Transflor Tungsten has been specified in a variety of application areas, from metros, to destination stations, to even cable cars!



Altro Transflor Tungsten  
in Breeze



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# Safety

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Passengers using rail networks naturally expect to travel in comfort and safety. As the inventors of safety flooring, Altro create solutions that directly address the costly risks presented by potential slips, trips and falls. Our products are designed to help protect against the effects that external contaminants, such as water, ice, dust and even spillages, and general surface wear can commonly have on passenger safety.

Exposure to contaminants is unavoidable for any vehicle with passengers boarding from different climates and environments. To combat this, Altro acrylic flooring contains a variety of aggregates which create additional surface friction to safeguard passenger footing.

## Maintaining contact

The presence of surface contaminants – in even the smallest amounts – can reduce contact between the floor and the sole of passengers' shoes. When subjected to the downward pressure of passengers' feet, the aggregates in Altro acrylic flooring are able to penetrate surface contaminants to maintain the contact between the floor and shoe.

## Sustained performance

At peak times, passengers will often be standing while the train is in motion, making effective slip-resistance essential. Many alternative materials depend on grooved surfaces to provide this, however, these are prone to wear, require regular maintenance, and only provide slip resistance in one direction. The natural resilience of the mineral aggregates used in Altro acrylic rail floors actually enhances durability and provides slip resistance for the life of the product.

Altro Transilor Tungsten  
in Fog

# Design possibilities

## Create an impression

Altro rail floors are a practical and aesthetic solution for all rail applications: doing good, while looking good too. Whether you're looking to use colour or flooring design to make your design mark, we've got you covered.

## Creative freedom

Each range of Altro rail flooring has been developed with the insight of independent vehicle interior designers to better meet the needs of builders and operators alike. Product ranges offer thoughtful colour palettes to suit various vehicle types for maximum choice and appeal. Designs integrate practicality, supporting cleaning regimes for high foot traffic areas, as well as giving a broad range of colour options. And if you want to achieve something different, we have the ability to create colours and custom designs,\* opening up a world of possibilities.

In addition, Altro's kit cutting service isn't just a great way to streamline your installation – it opens up even more design options. If you're wondering on wayfinding, or deliberating on a striking design, Altro can make it happen.

\*Conditions apply.



“As facilities for people with visual impairments are becoming of greater importance, wayfinding is a growing feature of the railway of which Altro's design could be part of the solution.”

**Chandra Morbey,**  
Innovation and Projects Director,  
Porterbrook



### Did you know?

Our space visualiser lets you place any of our products in a vehicle environment to help you make the perfect choice.

Altro Transflor Motus in Central and  
Altro Transflor Tungsten in Safety Yellow

# Vehicular floor plan

To address the broad range of application areas commonly found on trains, Altro have created a variety of products and solutions that can be flexibly used in a variety of different spaces. Considering all aspects of installation, appearance, performance and maintenance, we can support OEMs and operators to achieve the best results for their particular requirements.

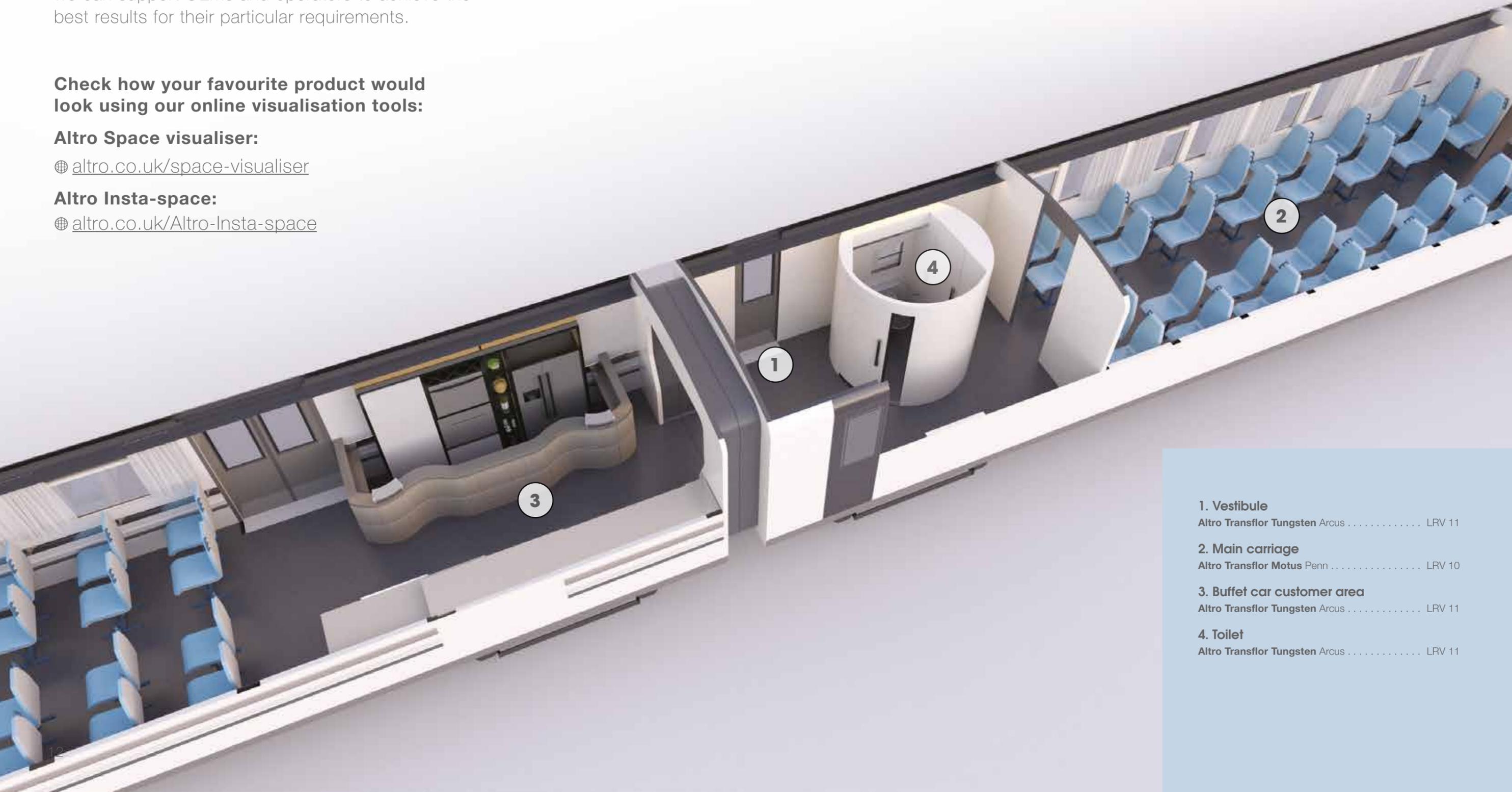
**Check how your favourite product would look using our online visualisation tools:**

**Altro Space visualiser:**

[altro.co.uk/space-visualiser](http://altro.co.uk/space-visualiser)

**Altro Insta-space:**

[altro.co.uk/Altro-Insta-space](http://altro.co.uk/Altro-Insta-space)



- 1. Vestibule**  
Altro Transflor Tungsten Arcus ..... LRV 11
- 2. Main carriage**  
Altro Transflor Motus Penn ..... LRV 10
- 3. Buffet car customer area**  
Altro Transflor Tungsten Arcus ..... LRV 11
- 4. Toilet**  
Altro Transflor Tungsten Arcus ..... LRV 11



Altro Transflor Motus in Atocha

# Altro Transflor Motus™

A high performance HL-2 rubber product with easy maintenance and wide design options.



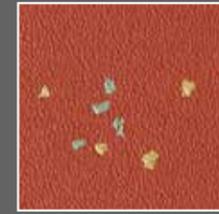
Umeda  
MOT20008 (2.0 mm)  
MOT25008 (2.5 mm)  
WR255 / A1M338 / LRV 41



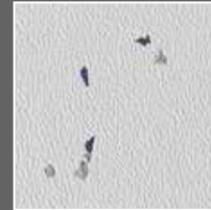
Atocha  
MOT20011 (2.0 mm)  
MOT25011 (2.5 mm)  
WR544 / A1M27 / LRV 29



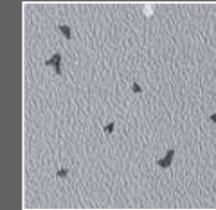
Opole  
MOT20006 (2.0 mm)  
MOT25006 (2.5 mm)  
WR545 / A1M361 / LRV 25



Sao Bento  
MOT20012 (2.0 mm)  
MOT25012 (2.5 mm)  
WR258 / A1M42 / LRV 13



New Street  
MOT20002 (2.0 mm)  
MOT25002 (2.5 mm)  
WR261 / A1M85 / LRV 43



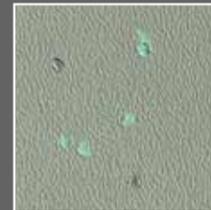
Central  
MOT20004 (2.0 mm)  
MOT25004 (2.5 mm)  
WR531 / A1M84 / LRV 24



Penn  
MOT20010 (2.0 mm)  
MOT25010 (2.5 mm)  
WR523 / A1M72 / LRV 10



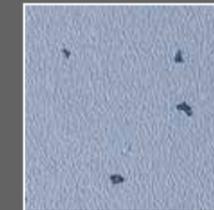
Euston  
MOT20007 (2.0 mm)  
MOT25007 (2.5 mm)  
WR537 / A1M348 / LRV 9



Mandurah  
MOT20003 (2.0 mm)  
MOT25003 (2.5 mm)  
WR511 / A1M52 / LRV 21



Piccadilly  
MOT20001 (2.0 mm)  
MOT25001 (2.5 mm)  
WR263 / A1M486 / LRV 33



Paddington  
MOT20009 (2.0 mm)  
MOT25009 (2.5 mm)  
WR509 / A1M71 / LRV 21



Union  
MOT20005 (2.0 mm)  
MOT25005 (2.5 mm)  
WR250 / A1M73 / LRV 8



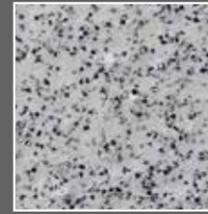
LRV = Light Reflectance Value  
A1M = Mastic  
WR = Weld rod



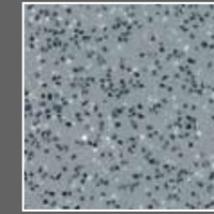


# Altro Transflor Tungsten™

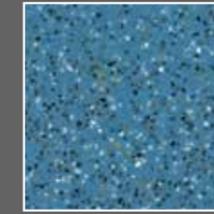
An acrylic, HL-2 compliant product for all applications.



Whirlwind  
TUN20910  
WR79 / A1M191 / LRV 38



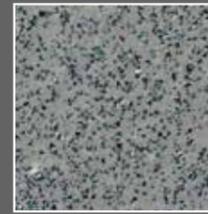
Fog  
TUN203001  
WR81 / A1M81 / LRV 27



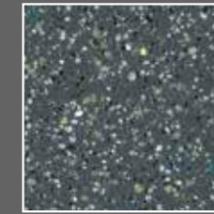
Azure  
TUN203007  
WR249 / A1M249 / LRV 15



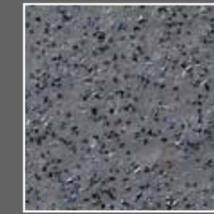
Sleet  
TUN20907  
WR231 / A1M73 / LRV 10



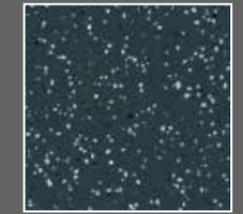
Gust  
TUN20908  
WR81 / A1M81 / LRV 23



Storm  
TUN203009  
WR82 / A1M82 / LRV 16



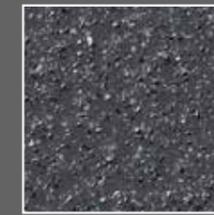
Breeze  
TUN20909  
WR86 / A1M86 / LRV 18



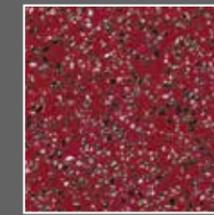
Midnight  
TUN203005  
WR72 / A1M72 / LRV 11



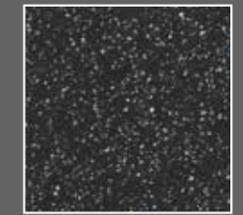
Supercell  
TUN20912  
WR473 / A1M308 / LRV 15



Arcus  
TUN20906  
WR101 / A1M72 / LRV 11



Sprite  
TUN20911  
WR248 / A1M238 / LRV 11



Vortex  
TUN20905  
WR277 / A1M100 / LRV 6



Firestorm  
TUN20904  
WR100 / A1M100 / LRV 5

# Technical tables

Altro Transflor Tungsten

Flooring type	EN 13845 ASTM F1303	Safety flooring
Slip resistance	BAM PTV DIN 51130 EN 13845 EN 13893 ASTM D2047	Extremely slip resistant ≥ 40 R11 ESf DS ≥ 0.6
Thickness	EN ISO 24346	2 mm / 0.08"
Wear layer thickness	EN ISO 24340	2 mm / 0.08"
Flexibility	EN ISO 24344 ASTM F1303	Pass
Weight	EN ISO 23997	2.7 kg/m <sup>2</sup> / 4.98lb/sy
Roll dimensions	EN ISO 24341	2 m x 20 m - 40 m <sup>2</sup> 6'7" x 65'7"
Light fastness	EN ISO 105-B02 ASTM F1515	≥ 6
Wear resistance	EN 13845 ASTM C501	≤ 10% particles lost over 50,000 cycles
Residual indentation	EN ISO 24343-1 ASTM F970	≤ 0.10 mm
Fire performance	EN 45545-2 BS 6853 DIN 5510 ASTM E648 ASTM E662  NFPA 130	HL2 Category Ia SF3 / FED ≤ 1 Class A Ds (1.5) ≤ 100 Ds (4) ≤ 200 Pass
Chemical resistance*	EN ISO 26987	Good
Castor chair abrasion	EN 425	Pass
Electrical behaviours	EN 1815	≤ 2 kV Antistatic
Shore A hardness	ISO 7619	90 +/-5

\*Caution ketone / aromatic solvents. Please contact Altro for further technical advice regarding staining and chemical resistance

Altro Transflor Motus

Flooring type	EN 1817	Rubber floor
Slip resistance	ASTM D2047 DIN 51130	≥ 0.6 R10
Thickness	EN ISO 24346	2.0 mm / 0.079" 2.5 mm / 0.098"
Wear layer thickness	EN ISO 24340	2.0 mm / 0.079" 2.5 mm / 0.098"
Flexibility	EN ISO 24344	Pass
Weight	EN ISO 23997	3.3 kg/m <sup>2</sup> / 6.08 lb/sy (2.0 mm) 4.17 kg/m <sup>2</sup> / 7.69 lb/sy (2.5 mm)
Roll dimensions	EN ISO 24341	1.5 m x 15 m 4' 11" x 49' 2.5"
Light fastness	EN ISO 105-BO2	≥ 6 Blue scale, ≥ 3 grey scale
Wear resistance	ISO 4649 Procedure A (5 N)	≤ 250 mm <sup>3</sup>
Residual indentation	EN ISO 24343-1	≤ 0.15 mm (2.0 mm) ≤ 0.20 mm (2.5 mm)
Fire performance	EN 45545-2 NFPA 130 ASTM E648 ASTM E662  BSS 7239	HL2 Pass Class 1 (≥ 0.50 W/cm <sup>2</sup> ) Ds (1.5) ≤ 100 Ds (4) ≤ 200 Fulfilled
Chemical resistance*	EN ISO 26987	Good
Castor chair abrasion	EN 425	Pass
Electrical behaviours	EN 1815	≤ 2 kV Antistatic
Cigarette-burn resistance	EN 1399	A ≥ 4, B ≥ 3
Shore A hardness	ISO 7619	≥ 75

\*Caution ketone / aromatic solvents. Please contact Altro for further technical advice regarding staining and chemical resistance

# Kit and logo solutions

## Pre-cut flooring kits

Our pre-cut flooring kits allow you to minimise installation time and waste, reducing interior assembly and maintenance time. Using a floorplan of the intended application area, we use our in-house technology to prepare your order to the exact dimensions required before delivering convenient pre-cut pieces, saving you time and effort. Especially useful for those tricky confined areas with turns, twists and undulations, Altro flooring kits can be easily laid and welded to provide the most direct route to installation success.

## Logos and signage

The accuracy of our cutting technology also enables us to offer the production of intricate detailing that can be inlaid directly into the floor. From universal signage and wayfinding solutions through to exact recreations of your company logo, precision-cut icons and sign designs will save you time and make your rail installations stand out.



“Altro flooring is easy to use because it can be provided to us in pre-cut kits, all the ancillary items like the adhesives are easily available and everything is always delivered on time. Altro’s kit-cutting service has always met all of our expectations, so it’s brilliant.”

Steve Warren,  
Head of Procurement at Chrysalis Rail

Bicycle area logo cut using Altro Transflor Tungsten in Supercell and Safety White

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# Self-adhesive solutions

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## Installation advantages

Designed specifically to remove the need for manual adhesive application and curing times, Altro self-adhesive flooring provides further time-saving possibilities. The pressure-sensitive backing is available with Altro Transflor Tungsten and offers enhanced efficiencies without compromising performance. Once positioned and bonded, our self-adhesive flooring can be welded and walked on immediately, allowing interior assembly and refurbishment to continue without delay. The solution works with all commonly used subfloors, providing consistent results every time. It can also be used with pre-cut kits to achieve even greater efficiencies. Altro is the only manufacturer with the capability to offer both solutions in-house for consistent quality control.

## Clean and lightweight

The benefits of self-adhesive flooring are not only limited to time savings. The intuitive system is easy to use, requires no specialist tools, and by removing the need for adhesive mixing and application, reduces mess. Better still, the eradication of manual adhesive processes reduces VOC emissions to ensure a cleaner interior air quality for your installation team. Meanwhile, the uniform application of adhesive applied to the backing results in an adhesive weight saving of 60% per m<sup>2</sup> compared to the recommended applications of polyurethane and contact adhesives.

### Did you know?

Altro self-adhesive solutions perform consistently across all common subfloor variants.



A self-adhesive installation method allows for greatly enhanced installation efficiencies.



Expert advice ensures optimum installations

## Technical support

### Installation advice

To gain the best possible performance from your Altro flooring, it's paramount that it's installed correctly. Our highly-skilled technical services team can offer free expert advice to help ensure fitters know how to achieve the best possible results, not only over the phone, but in our dedicated training school. Visit our website to find out more.

🌐 <https://www.altro.co.uk/Support/Installation-training>

### Continued support

When you invest in Altro flooring for your project, you enter into a partnership that we take seriously. We're available to advise and instruct on technical areas to provide guidance and facilitate product longevity. Whether you have a situation with a subfloor, a question on cleaning or you're wondering about a weld, get in touch – we're here to help.



#### Did you know?

Altro offer a wide range of weld rods in different colours and profiles to help you achieve the best possible finish.

# Cleaning and maintenance

## Save time

Altro appreciate that a clean interior is a pleasant and welcoming one, so ease of cleanability is at the forefront of our considerations when developing our products. Our rail products are produced with Altro Easyclean technology, giving our floors maximum protection against stains, dirt retention and facilitating easier cleaning.

## Maintain appearance

Altro recommend using AltroClean 44 to get the best results when cleaning our rail floors. A daily clean with a mop and bucket will help to keep floors in top condition. We also recommend a monthly deep clean, where the detergent is left on the floor and agitated with a deck brush before being rinsed thoroughly.

For more information on cleaning, we have a range of helpful materials on our website to help with your cleaning conundrums:

Cleaning for transport floors guidance:

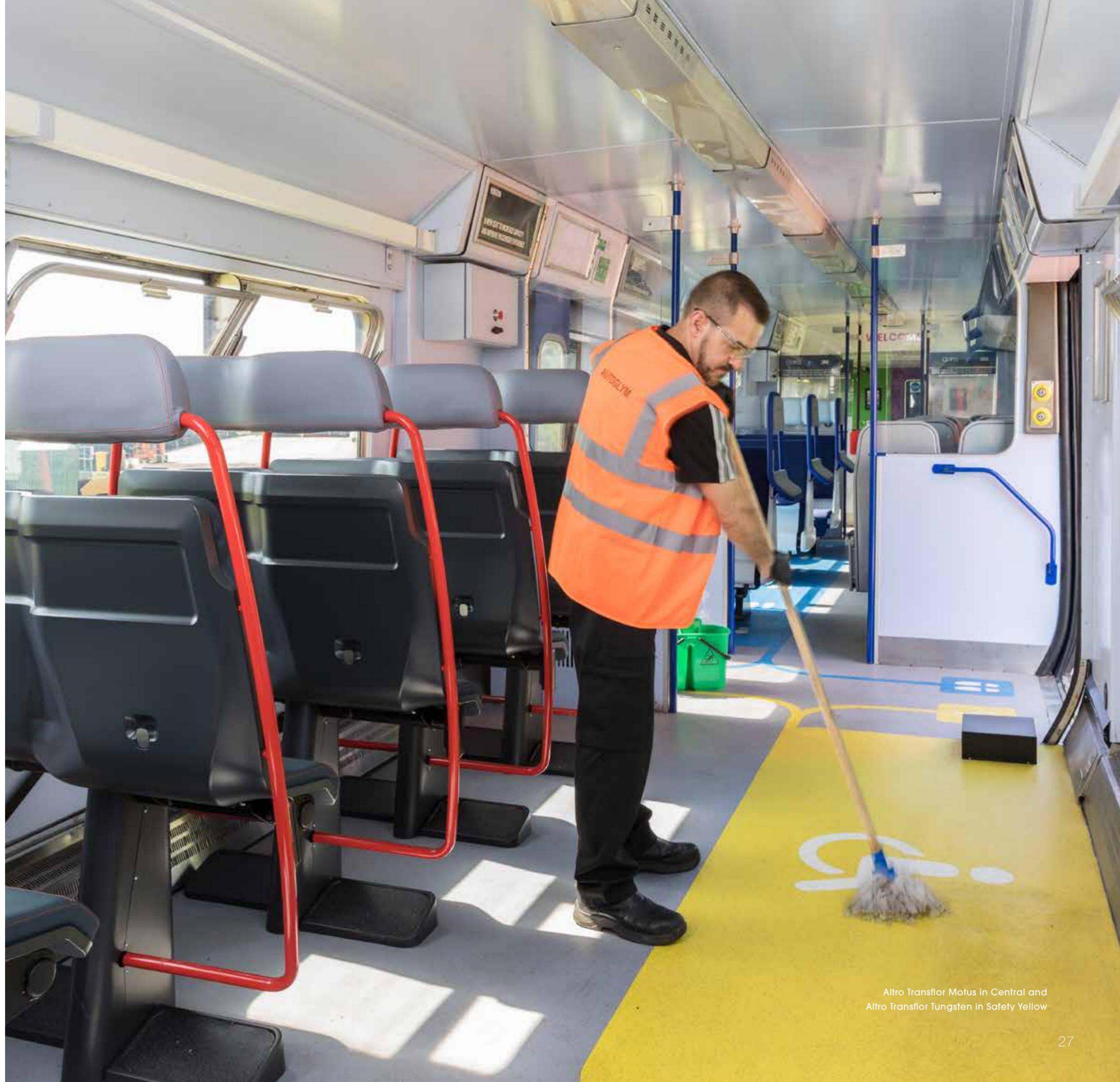
[www.altro.co.uk/Cleaning-for-transport-floors](http://www.altro.co.uk/Cleaning-for-transport-floors)

Pictorial cleaning guide:

[www.altro.co.uk/Support/Technical-documents/Cleaning-and-maintenance](http://www.altro.co.uk/Support/Technical-documents/Cleaning-and-maintenance)

Cleaning guidance video:

[www.altro.co.uk/Video/Transport-cleaning](http://www.altro.co.uk/Video/Transport-cleaning)



Altro Transflor Motus in Central and  
Altro Transflor Tungsten in Safety Yellow

# Accessories

## Adhesives and weld rods

To help achieve an optimum installation, Altro can supply or recommend a comprehensive range of adhesives to ensure a long-lasting, high performing bond is achieved. Alternatively, you can select your preferred flooring in a self-adhesive format (see page 22).

Our extensive range of weld rods mean that areas of the floor can be joined with water tight seals. Available in an array of colours, these not only look great, but protect the sub-floor from the ingress of dirt and water.

## Tools and trims

A range of tools are also available to aid fitters with the installation process. We can suggest the right instruments to suit any project. And with the flooring fitted and welded to perfection, we can also offer a broad selection of nosings and trims, to create a truly professional finish.

Recommended for Altro Transflor Tungsten:

1. AltroFix 19Plus - 1.5kg, 3kg, 6kg  
1.5kg - Coverage 6-7m<sup>2</sup>  
3kg - Coverage 12-14m<sup>2</sup>  
6kg - Coverage 24-28m<sup>2</sup>
2. AltroClean 44 - 1 litre or 5 litres
3. Altro Transflor weld rod 50m coil, weld rods are available to match or contrast with your chosen floor product
4. i. Router handles  
ii. Router blades (pack of 8)
5. Cable cutting slide
6. Spatula
7. Weld nozzles: coving and high speed available
8. Groove blades - u shape (pack of 10)
9. High speed weld gun 110v or 220v
10. Dolphin knives  
i. Hooked heavy duty blades (box of 100)  
ii. Concave heavy duty blades (box of 100)

Please consult your sales representative for more information.



Recommended tools and accessories

# Sustainability

Hundreds of thousands of people travel by train every day as a more environmentally friendly option than driving, so we believe that we should make every effort to help make train travel as sustainable as possible. We believe that fitting vehicles with sustainably-conscious components shows a demonstrable commitment to the environment.

## Recycling

Our commitment to sustainability has also enabled us to become the first manufacturer to recycle traditional safety flooring in-house. Altro flooring even contains recycled particulates including post-consumer recycled glass, which would otherwise be destined for landfill.

At Altro, sustainability drives the choices we make. It starts with the environmentally friendly raw materials we choose to go into our products which enable us to produce orthophthalate-free vinyl floors containing bio-plasticisers.

## Why choose Altro

- high performance durability to protect your vehicles
- fire and toxicity compliant flooring solutions
- intelligently engineered products to keep your passengers safe
- creative freedom to enhance passenger experience
- innovative solutions to support installation and maintenance
- dedicated service and technical support



### Did you know?

Since 2014 we've achieved 0% waste-to-landfill.



“Altro’s textured, slip resistant design provides safety to passengers and remains easy to clean. My experience has shown that using Altro Transflor safety flooring is an effective way to help contribute to the reduction of slip, trip and fall accidents.”

Sue Stewart,  
Transportation industry safety consultant, US.

Altro's in-house recycling facility

## Samples

If colour choice is critical, please  
request a sample of the material

☎ 01462 707600

✉ [samples@altro.co.uk](mailto:samples@altro.co.uk)



Altro Limited, Works Road, Letchworth Garden City, Hertfordshire SG6 1NW, UK

☎ 01462 707600 ✉ [enquiries@altro.com](mailto:enquiries@altro.com)



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