

Bus: floors guide

Transforming spaces in the global bus industry

altro.com

Introduction

Altro have been creating and manufacturing high quality transport flooring for almost 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 bus and coach builders and operators globally, we aim to create environments for passengers which are inviting and safe.

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

We partner with manufacturers and operators to provide solutions designed to enhance passenger experience and add efficiencies to assembly and maintenance.

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

We share our customers' vision of making vehicles and fleets a more appealing, convenient and environmentally-conscious way to travel, so you can deliver the on board experience modern passengers demand.



Performance

Like any interior component, Altro transport flooring is designed to be visually appealing, however design is just one area of consideration. All of our transport floors are intelligently engineered throughout the entire thickness of the floor to provide maximum performance.

Slip-resistant

Our products contain a variety of aggregates which are embedded into the flooring to provide excellent slip resistance. This means that, for the lifetime for the vehicle, passenger footing is safeguarded to ensure they can move through a vehicle safely no matter what the outside weather conditions may be.

Durable

Buses incur extremely high levels of concentrated foot traffic, so hard-wearing durability is a necessity of any floor. Altro's highly resilient transport floors are designed to withstand the most demanding service regimes – a quality backed up by guarantees that cover the life expectancy of the vehicle.

Lightweight

Reducing the weight of our bus flooring products, whilst still maintaining the safety aspects that we pride ourselves on, continues to be our highest priority. We've engineered our floors to be lighter than before, without compromising on safety.

Impermeable

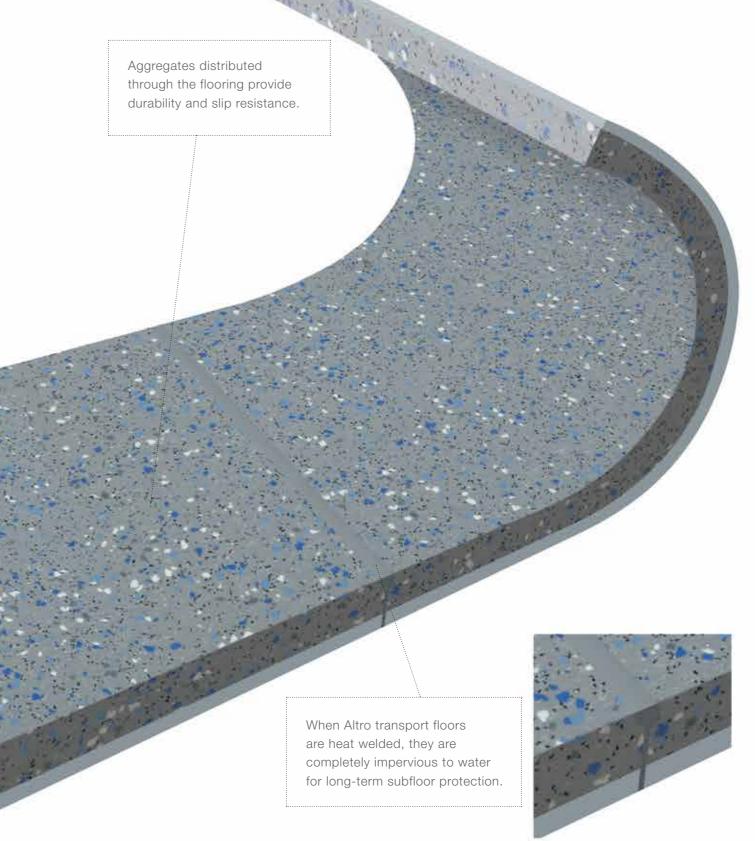
Even if contaminants are brought on board a vehicle, Altro transport floors continue to perform. The construction of our products, combined with heat welded installation techniques, makes them impervious to the ingress of water and dirt, protecting vehicle subfloors from damage and preventing the need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

Colour retentive

All Altro bus 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?

Many Altro products contain up to 20% recycled material and we are the first manufacturer with an in-house safety flooring recycling system.



Did you know? According to Transport for London, slips, trips and falls accounted for 56% of injuries on London buses in 2017. Altro Transflor Figura™ 06

Passenger safety

Passengers using public transport naturally expect to travel in comfort and safety. With legal practitioners offering settlements of as much as £13,250 for personal injury claims, it's not just your reputation at stake if your chosen floor falls short of safety standards. As the inventors of safety flooring, Altro create products that directly address the costly risks presented by potential slips and falls.

Our products are designed to protect against the effects that external contaminants and general surface wear can commonly have on passenger safety. Exposure to contaminants such as water, ice, dust and even spillages is unavoidable for any vehicle with passengers boarding from different climates and environments. So Altro 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 floors are able to penetrate surface contaminants to maintain the contact between the floor and the shoe.

Sustained performance

With busy routes subject to frequent stops and passengers standing while the vehicle is in motion, effective slip-resistance is essential. Many alternative materials depend on grooved surfaces to provide this. However, these are prone to wear and, in certain cases, require regular maintenance to ensure performance. The natural resilience of the mineral aggregates used in Altro transport floors actually enhances durability and provides slip-resistance for the life of the product.

Passenger experience

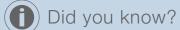
Create an impression

First impressions count, so Altro's established product ranges have been designed to enable you to create interior spaces that positively shape passengers' perceptions of your brand. Working closely with manufacturers and operators, we create inviting interior spaces, which offer comfort and visual appeal. So when passengers ride your bus, they ride in style.

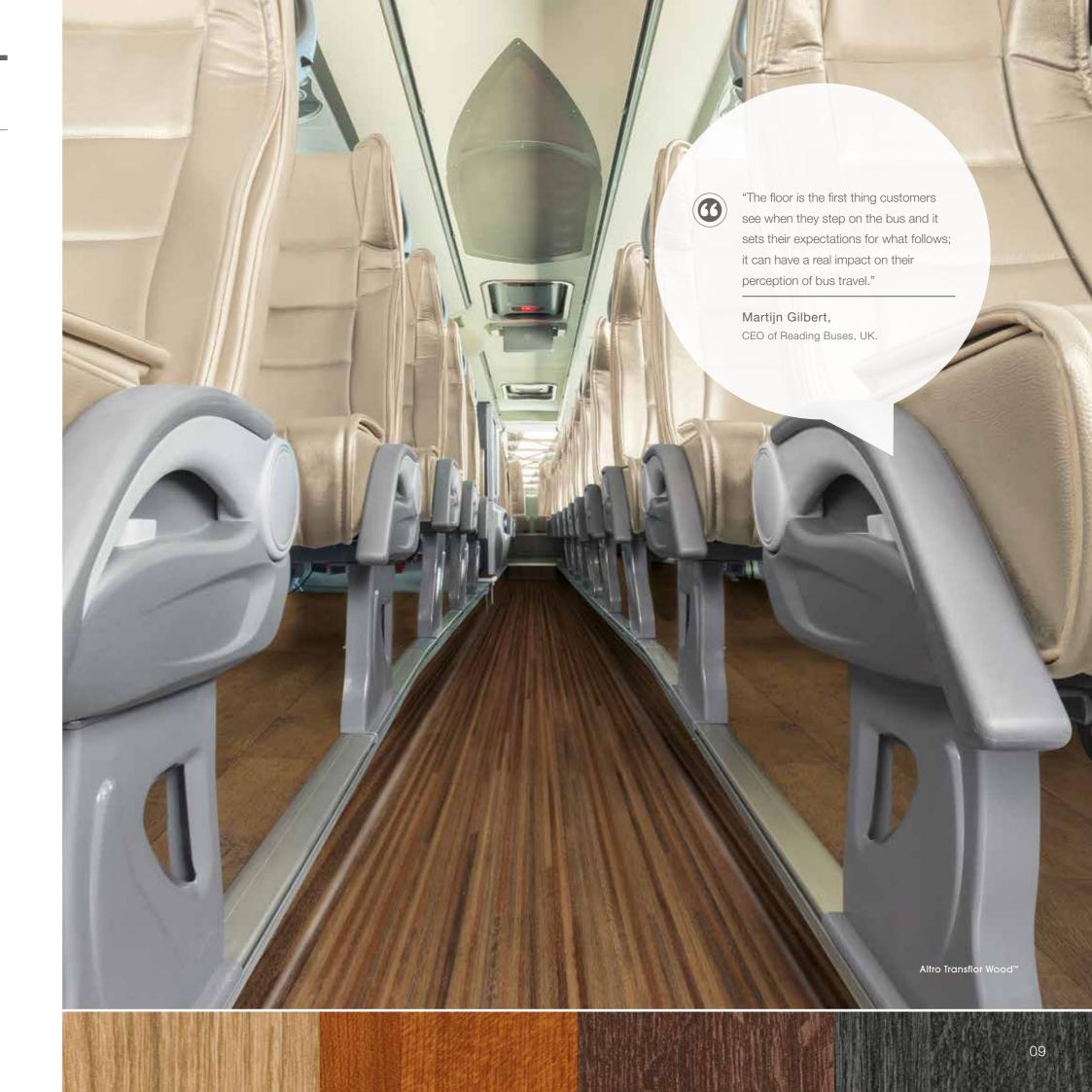
Creative freedom

Each range of Altro bus 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 also offer practical choices to support cleaning regimes for high foot traffic areas, enhancing longevity. And if you want to achieve something different, our ability to work with clients to create special colours opens up a world of possibilities.*

*Conditions apply



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



Applications

To address the broad range of vehicles that operate in the global bus industry, Altro have created a variety of products and solutions that can be flexibly used regardless of a vehicle's size, shape or intended use. Considering all aspects of installation, appearance, performance and maintenance, we can support manufacturers and operators to achieve the best results for their particular requirements.



1. Nosings and trims

Our range of nosings and trims are ideal for emphasising high risk areas to passengers. Providing a distinct contrast in colour for maximum visibility, stair nosings also protect floors from daily wear.

For more information on accessories turn to page 32.

2. Logos

Using our precision kit-cutting technology, we are able to create detailed signage and logos that can be inlaid into your vehicle floors. These can be installed in a variety of application areas throughout your vehicle, ensuring passengers are visually informed of specific on-board features or even your company branding.

For more information on logos turn to page 22.

3. Contrasting colours

The varied colour palettes employed across our established ranges allow you to be creative in the design of your interiors. Using different combinations to complement each other, or to create a bold contrast, is a great way to distinguish your fleet and raise passenger perception of your brand. Contrasting colours are also an effective means of highlighting designated zones on board, such as wheelchair access and areas for push chairs / strollers.

For more information on colours turn to pages 12 - 19.

4. Weld rods

Heat welded joints /seams provide an impervious barrier with which to protect vehicle subfloors from the potentially damaging ingress of water and dirt. Altro can supply a wide range of weld rods that can be colour matched to our flooring products, used in contrast or as subtle accent colours.

For more information on accessories turn to page 32.

5. Flooring kits

Altro's cutting services aim to make installations as simple and time efficient as possible. Created from vehicular floor plans, flooring sections are supplied to exact dimensions to reduce manual processes and limit any potential waste.

For more information on flooring kits turn to page 22.

6. Self-adhesive

Developed to enhance installation efficiencies, self-adhesive flooring offers a range of benefits. Available as both rolls and pre-cut kits, self-adhesive floors are ideal for installation projects subject to challenging time constraints.

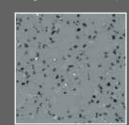
For more information on self-adhesive solutions turn to page 24.

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Altro Transflor Meta™ 12

Altro Transflor Meta™

We've refreshed our colour palette and cut 10% off the weight of Altro Transflor Meta, giving you reduced weight without compromising on safety.



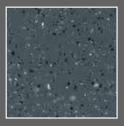
Pewter Grey TFM2289 (2.2 mm) TFM2789 (2.7 mm) WR81 / A1M81 / LRV 25



TFM27903 (2.7 mm) WR82 / A1M82 / LRV 16



TFM27421 (2.7mm) WR72 / A1M72 / LRV 8



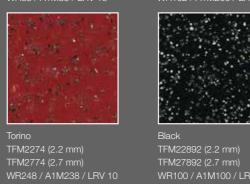
TFM2202 (2.2 mm)
TFM2702 (2.7 mm)
WR83 / A1M83 / LRV 15



TFM22913 (2.2 mm)
TFM27913 (2.7 mm)
WR102 / A1M200 / LRV 9



TFM2206 (2.2 mm) TFM2706 (2.7 mm) WR39 / A1M73 / LRV 7













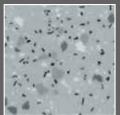




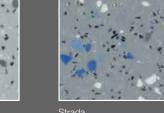


Altro Transflor Chroma™

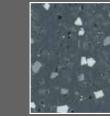
Altro Transflor Chroma is now 10% lighter, and with a revitalised palette of 18 colours, you won't have to compromise on design or performance.



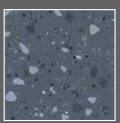
WR04 / A1M85 / LRV 35

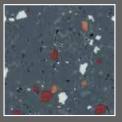


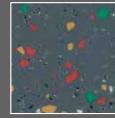
TFCR2763 (2.7 mm) WR81 / A1M81 / LRV 26



WR83 / A1M83 / LRV 14







Cayman TFCR2261 (2.2 mm)

TFCR2761 (2.7 mm)

WR83 / A1M83 / LRV 14

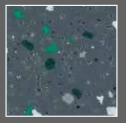
TFCR2702 (2.7 mm) WR83 / A1M83 / LRV 14



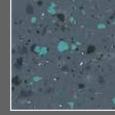
TFCR2703 (2.7 mm) WR72 / A1M72 / LRV 8



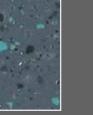
TFCR27904 (2.7 mm) WR474 / A1M308 / LRV 12



TFCR2782 (2.7 mm) WR83 / A1M83 / LRV 14

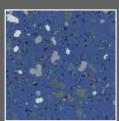


TFCR2233 (2.2 mm) TFCR2733 (2.7 mm) WR83 / A1M83 / LRV 15





TFCR22908 (2.2 mm) TFCR27908 (2.7mm) WR101 / A1M72 / LRV 10



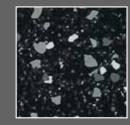
WR249 / A1M249 / LRV 15



TFCR22914 (2.2 mm) TFCR27914 (2.7 mm) WR102 / A1M200 / LRV 9



TFCR2260 (2.2 mm)
TFCR2760 (2.7 mm) WR231 / A1M73 / LRV 11



TFCR2272 (2.2 mm) TFCR2772 (2.7 mm) WR100 / A1M100 / LRV 7



Sprint TFCR2274 (2.2 mm)



Frontier TFCR22905 (2.2 mm)

LRV = Light Reflectance Value A1M = Mastic



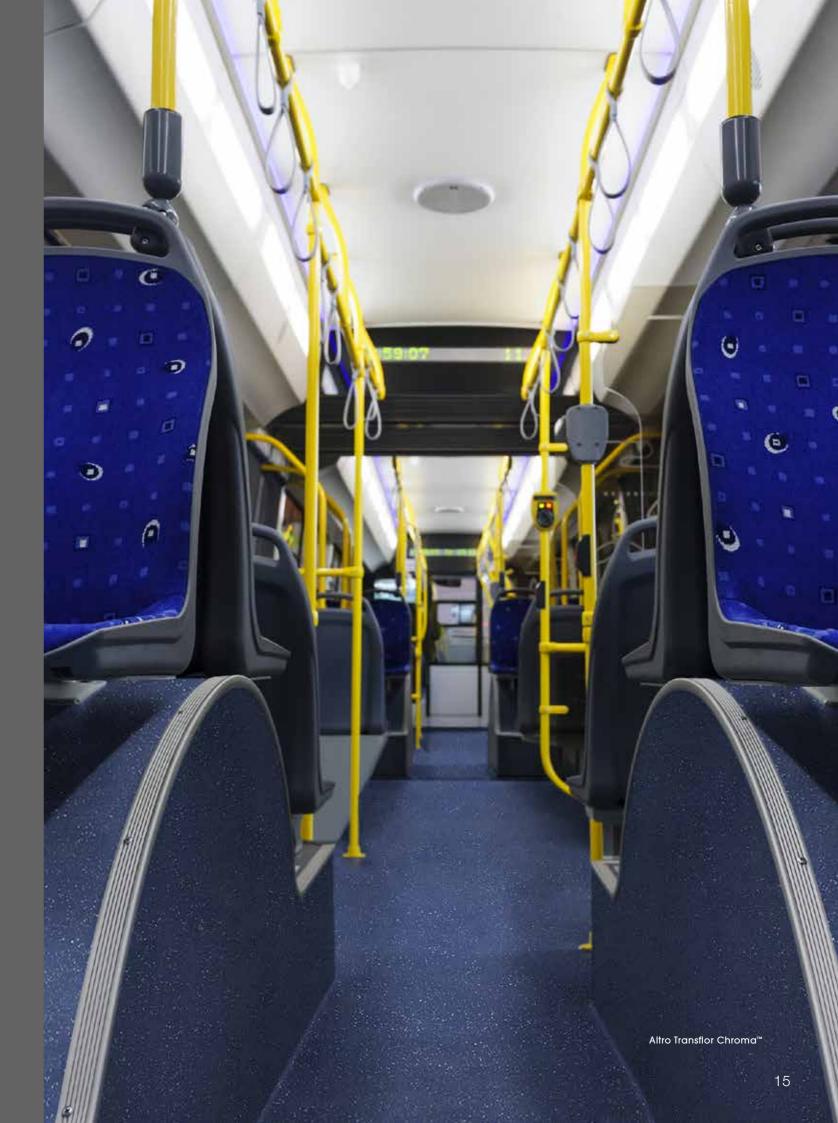








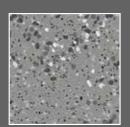




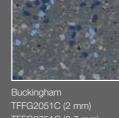


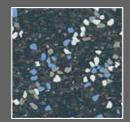
Altro Transflor Figura™

Looking to inject some colour and high design into your fleet? Look no further than Altro Figura.

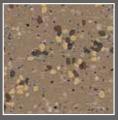


Imperial TFFG2052C (2 mm) TFFG2752C (2.7 mm) WR81 / A1M81 / LRV 25

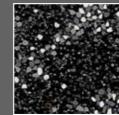




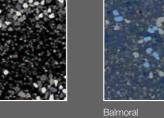
Chambord TFFG2053C (2 mm)



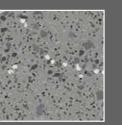
TFFG2756C (2.7 mm) WR63 / A1M239 / LRV 21



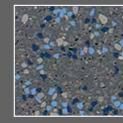
TFFG2755C (2.7 mm) WR100 / A1M100 / LRV 7



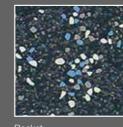
TFFG2754C (2.7 mm) WR231 / A1M73 / LRV 11



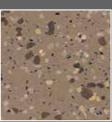
Sparkler TFFG2002F (2 mm) TFFG2702F (2.7 mm) WR81 / A1M81 / LRV 25



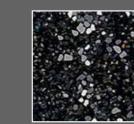
TFFG2006F (2 mm)
TFFG2706F (2.7 mm)
WR83 / A1M83 / LRV 15



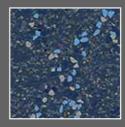
TFFG2004F (2 mm)
TFFG2704F (2.7 mm)
WR72 / A1M72 / LRV 8



Boom TFFG2001F (2 mm) TFFG2701F (2.7 mm) WR63 / A1M239 / LRV 21



TFFG2005F (2 mm) TFFG2705F (2.7 mm) WR100 / A1M100 / LRV 7



Laser TFFG2003F (2 mm) TFFG2703F (2.7 mm) WR231 / A1M73 / LRV 11















Altro Transflor Wood™

Combining timeless style with contemporary design, Altro Transflor Wood adds visual elegance and practical performance to bus and coach interiors.



Oak Traditions TFWSA2213F WR353 / A1M225 / LRV 25



TFWSA2219F



TFWSA2223F WR471 / A1M337 / LRV 16



WR470 / A1M83 / LRV 11



Seasoned Cherry TFWSA2209F



TFWSA2207F



TFWSA2214F



TFWSA2212F



TFWSA2203F WR337 / A1M337 / LRV 17



TFWSA2202F WR336 / A1M239 / LRV 22



TFWSA2216F WR348 / A1M348 / LRV 7

TFWSA2226F WR232 / A1M100 / LRV 14











Technical table

Slip resistance

Wear resistance

Electrical behaviours

| | | Altro Transflor Meta / Altro Transflor Chroma 2.2 mm |
|-----------|------------------------|--|
| ring type | EN 13845 ASTM F1303 | Safety flooring |
| | | Dry - very slip resistant |

EN 13893 EN 13845

ASTM D2047

EN ISO 24344

ASTM C501

EN 1815

≥ 36

≥ 0.6

over 50,000 cycles

PTV

| | DIN 51130 | R10 |
|------------|--------------|-----------------|
| Thickness | EN ISO 24346 | 2.2 mm / 0.088" |
| Wear layer | EN ISO 24340 | 1.2 mm / 0.047" |

| | ASTM F1303 | |
|--------|--------------|-----------------------------------|
| | | |
| Weight | EN ISO 23997 | 2.5 kg/m ² / 5.15lb/sy |

| Roll dimensions | FN ISO 24341 | 2 m x 20 m - 40 m ² 6'7" x 65'7" |
|-----------------|------------------------------|--|
| Light fastness | EN ISO 105-B02 ASTM F1515 | ≥ 6 |
| | EN 13845 | ≤ 10% particles lost |

| Indentation | ASTM F970 | ≤ 0.10 mm |
|-------------|-----------|-----------|
| | DIN 5510 | SF3 |

| | ECE-R118 | Pass |
|------------------|-----------------------|---------|
| Fire performance | UIC 564-2 | Class A |
| | FMVSS 302 / CMVSS 302 | Pass |
| | ASTM E648 | Class 1 |

| Chemical resistance* | EN ISO 26987 | Good |
|----------------------|--------------|------|
| | | : |

| Castor chair abrasion | EN 425 | Pass |
|-----------------------|--------|------|
| | | |

| Sound insulation | ISO 140-8 | 5dB (2.2 mm) |
|------------------|-----------|--------------|

| Altro Transflor Meta / Altro Transflor Chroma 2.7 mm | Altro Transflor Figura 2 mm | Altro Transflor Figura 2.7 mm | Altro Transflor Wood 2.2 mm |
|--|---|---|---|
| Safety flooring | Safety flooring | Safety flooring | Safety flooring |
| Dry - very slip resistant Wet - slip resistant | Dry - very slip resistant Wet - slip resistant | Dry - very slip resistant Wet - slip resistant | Dry - very slip resistant Wet - slip resistant DS ESf |
| ≥ 36 | ≥ 36 | ≥ 36 | ≥ 36 |
| ≥ 0.6 | ≥ 0.6 | ≥ 0.6 | ≥ 0.6 |
| R10 | R10 | R10 | R10 |
| 2.7 mm / 0.108" | 2 mm / 0.08" | 2.7 mm / 0.108" | 2.2 mm / 0.088" |
| 1.4 mm / 0.055" | 1 mm / 0.039" | 1.4 mm / 0.055" | 0.7 mm / 0.027" |
| Pass | Pass | Pass | Pass |
| 3.1 kg/m ² / 6.25lb/sy | 2.3 kg/m² / 4.23lb/sy | 3.1 kg/m² / 5.71lb/sy | 2.68 kg/m² / 4.93lb/sy |
| 2 m x 20 m - 40 m ² 6'7" x 65'7" | 2 m x 20 m - 40 m ² 6'7" x 65'7" | 2 m x 20 m - 40 m ² 6'7" x 65'7" | 2 m x 20 m - 40 m ² 6'7" x 65'7" |
| ≥ 6 | ≥ 6 | ≥ 6 | ≥ 6 |
| ≤ 10% particles lost over 50,000 cycles | ≤ 10% particles lost over 50,000 cycles | ≤ 10% particles lost over 50,000 cycles | ≤ 10% particles lost over 50,000 cycles |
| ≤ 0.10 mm | ≤ 0.10 mm | ≤ 0.10 mm | ≤ 0.10 mm |
| SF3 Pass | SF3 Pass | SF3 Pass | Pass |
| Class A | Class A | Class A | |
| Pass | Pass | Pass | Pass |
| Class 1 | Class 1 | Class 1 | |
| Good | Good | Good | Good |
| Pass | Pass | Pass | Pass |
| - | ≤ 2kV Antistatic | ≤ 2kV Antistatic | ≤ 2kV Antistatic |
| 5dB (2.2 mm) | 4dB (2 mm) | 4dB (2 mm) | - |

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

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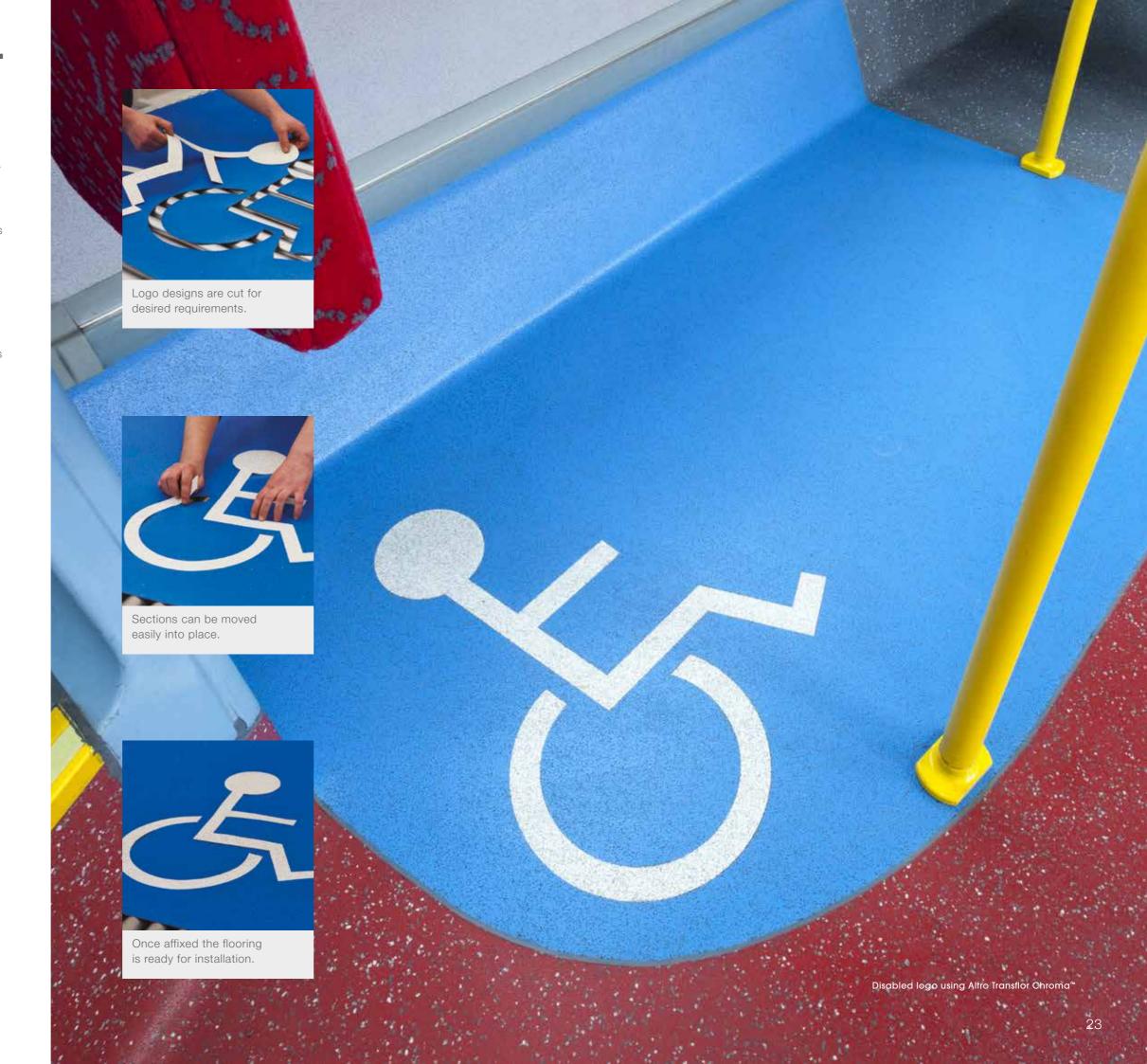
Kit cutting and logos

Pre-cut flooring kits

With time pressure being a constant challenge to builders and operators alike, we have developed our kit cutting service to enhance installation efficiencies. Minimising installation time and waste, Altro's precision cut kits simplify the process of fitting a floor, 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 vehicles stand out.



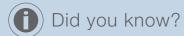
Self-adhesive solutions

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 for all our bus flooring products and offers enhanced efficiencies without compromising performance. Once positioned and bonded, 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 m² compared to the recommended applications of polyurethane and contact adhesives.



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





Technical support

Installation guidance

To gain the best possible performance from your Altro flooring, it's important 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. This not only means that your team develop their own working knowledge and efficiency, but also that any potential failures arising from installation issues are reduced to an absolute minimum.

Continued support

When you invest in Altro flooring for your fleet, 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, if you require advice we're here to listen and 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

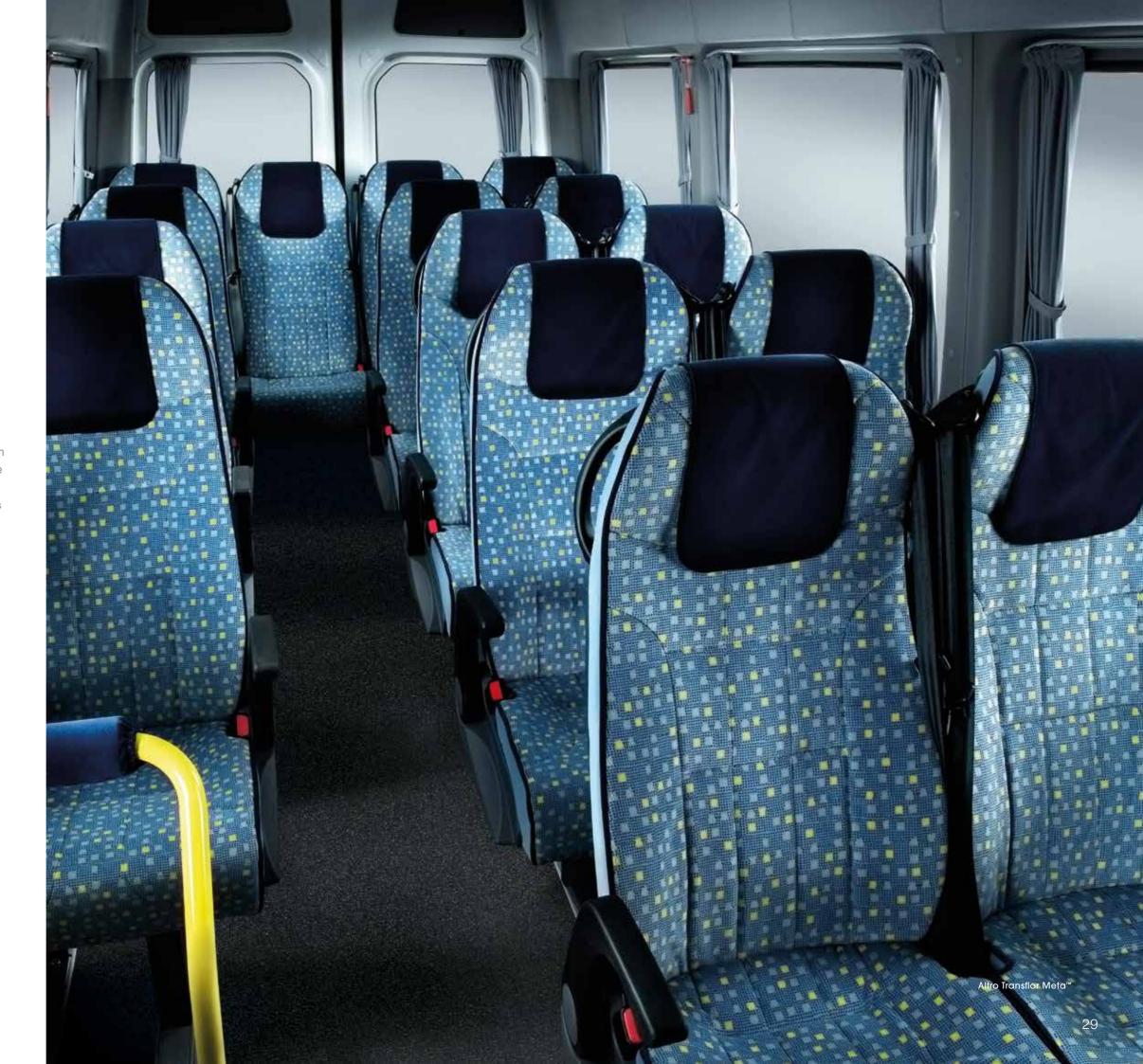
Altro appreciate that the cleaning regimes on busy services are frequently subject to significant time constraints, so this is at the forefront of our considerations when developing products. By producing all our bus products with Altro Easyclean™ technology we aim to assist as effectively as possible, giving our floors maximum protection against stains, dirt retention, and facilitating easier cleaning.

Maintain appearance

Cleaning regimes are further complemented by the random scatter patterns of flooring aggregates. Aside from enhancing slip resistance, our aggregates also distract the eye to break up the appearance of common dirt deposits. This ultimately means that standard daily cleaning regimes are sufficient to ensure the floor retains its appearance between incremental maintenance deep cleans. For the best results on bus floors, Altro recommends the use of AltroClean 44™ or a similar alkaline cleaner.



www.altro.co.uk/Floors/Cleaning-for-transport-floors





Sustainability

With the impact of traffic on the environment being an important contributing factor in attracting new passengers to public transport, fitting vehicles with sustainably-conscious components shows a demonstrable commitment to the environment.

Raw materials

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.

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.

Since 2014 we've achieved 0% waste-to-landfill, an achievement to be proud of. And to further support our ongoing vision – and those of our customers – we engineer our flooring to be as lightweight as possible to reduce vehicle fuel consumption.

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.

- 1. AltroFix 19 Plus 1.5kg, 3kg, 6kg
 - 1.5kg Coverage 6-7m²
 - 3kg Coverage 12-14m²
 - 6kg Coverage 24-28m²
- 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.





Why choose Altro

- high performance durability to protect your vehicles
- intelligently engineered products to keep your passengers safe
- creative freedom to enhance passenger experience
- lightweight products for improved fuel economy
- innovative solutions to support installation and maintenance
- dedicated service and technical support

Samples

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

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