

ESD Interlocking Floor Tiles

TECHNICAL DATASHEET

E500/ESD

Description

These electrostatic dissipative, Interlocking ESD Floor Tiles are ideal for both commercial and industrial use; including, production plants, electronics and telecommunication factories, healthcare environments, cleanrooms, etc. These tiles offer high performance and protect microelectronics, static-sensitive devices and explosives from damage caused by static discharge. The tiles are a tough, flexible and modern flooring solution. They create a safe conductive floor surface that can be used as your primary ground and offer an anticipated service life of 25+ years. The tiles are manufactured from a hard-wearing PVC material and have a dovetail joint, allowing the tiles to interlock easily.

Features

- ⚡ Suitable for industrial and commercial use.
- ⚡ Install without downtime.
- ⚡ Excellent anti-slip properties.
- ⚡ Anticipated service life of 25+ years.
- ⚡ Exceptional durability - Resistant to impact, vibration and abrasion.
- ⚡ Very quick and easy to install - no adhesive required.
- ⚡ Environmentally friendly - 100% recyclable and zero VOC emissions.
- ⚡ Manufactured using an injection-moulding process during which thousands of tiny stainless steel fibres are added to the compound.
- ⚡ Good chemical resistance - Resists most chemicals and fluids.
- ⚡ Manufactured in the UK with ISO 9001 Accreditation.
- ⚡ Easy to maintain and clean.
- ⚡ Reduces worker fatigue.



Images are for illustration purposes only. Colours may vary.



Meets BS EN 61340-5-1 and IEC 61340 standards.



Compliant to RoHS and REACH standards

Installation Instructions

The principal benefit of this system is the speed and ease of installation. The tiles can be laid over any hard surface even if it is damp, uneven or contaminated. Installation can usually be fitted around your normal working activities ensuring minimal disruption to production.

Applications

- Offices
- Cleanrooms
- Server Rooms
- Data Centres
- Electronic Factories
- Healthcare Environments

All our ESD Floor installations can be quoted as a package tailor made to your ESD needs.



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		Smooth
Slip Resistance:	EN 14041:2004 DIN 51130:2004	Pass R10
Fire Performance:	BS 476: Part 7 DIN 13501: 2004	Class 1 Spread of Flame Bfl-S1 Does not support combustion
Stain Resistance:	EN 423	Good
Abrasion Wear Resistance:	EN 13845 EN 649	50K Cycles Group T
Mechanical Resistance:	DIN 53516	17N/mm ²
Resistance to Hot Objects/Solder:		Good
Thickness of Wear Layer:	EN 429	6 to 10mm
Hardness:	ISO 868	89-92 Shore A
Impact Resistance:	EN 13329-549	549kg/cm ²
Noise Reduction:	EN 140-8	>46db
Thermal Insulation:		1.1 m ² K/W
Determination of Length, Squareness & Straightness:	BS EN 428:1993	<0.13% / 0.5mm max.
Chemical Resistance:	EN 13529	Good resistance to most commonly used chemicals. Common acid oils & gas oil - No deterioration / Not Resistant to prolonged contact
Colour Fastness:	EN 50105-BO21	5



EN/ISO 61340/5, EN 1081,
EN1815 & EN6356
ESD Flooring - Resistance to Ground



EN/ISO 61340/5, EN 1081,
EN1815 & EN6356
ESD Flooring - Surface Resistance



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	5mm	7mm
Dimensions:	500mm x 500mm	500mm x 500mm
Thickness:	4.5mm +/- 0.3mm	6.8mm +/- 0.3mm
Weight:	5.44kgs/m ²	8.86kgs/m ²
Guarantee:	10 Years	10 Years
Anticipated Service Life:	25 Years +	25 Years +
Material:	PVC	PVC
Joint:	Dovetail	Dovetail

Testing Your ESD Floor / The System

There are multiple factors that can impact on the results that you will get, such as humidity, temperature, cleaning methods, dust and dirt on the floor, and how well hydrated the individual undertaking the test is. To achieve both a floor that is safe for the manufacture of components that are susceptible to damage from electro-static discharge and that is also safe for the individual to work on you **MUST** view the system as an entirety:

- The floor should have a resistance ideally between $5 \times 10^{(4)}$ or 50,000W and not exceed $1 \times 10^{(6)}$ or 1MegW. This allows a margin for error in the event of low humidity or dirt build up on the floor. This will ensure that individual working on the floor will safely discharge any electrical charge that they may build up whilst working within the area covered by your ESD floor.
- The floor should be grounded using a grounding cord with a 1Meg, in the event of an electrical short circuit the resistor will blow and the route to ground will be cut ensuring the safety of the individual.
- The floor must be viewed as part of an ESD system, the floor, the footwear and the individual have to be tested in conjunction with the objective that the overall resistance of the system does not exceed $3.5 \times 10^{(7)}$ or 35MegW.

Remember that an ESD floor will only work if used in conjunction with ESD shoes or ESD heel straps, without the appropriate footwear the floor will ensure that the individual will not generate more than 100V whilst working on the floor but it will not discharge any electrical charge that the individual has built up via other activities (i.e. handling packaging materials, etc).



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Performance & Test Results

E500/ESD has been independently tested:

- Surface Resistivity: $2.2 \times 10^{(4)}\Omega$ to $3 \times 10^{(6)}\Omega$
- Resistance to ground: $2.9 \times 10^{(4)}\Omega$ to $5.7 \times 10^{(5)}\Omega$
- Walking Test: <100V
- Static Decay at 15% humidity: 0.01 sec

The test results guarantee that E500/ESD complies with British Standard BS EN 61340-5:2001 and IEC 61340.

How The Tile Provides a Path to Ground

Stainless-steel microfibers are added throughout the inner structure of each PVC tile. These microfibres act like conductive veins that draw electric current from the surface of the floor through its entire thickness. No wear layer is required. Conductive Floor Tiles do not lose their ESD properties over time. A tile with a grounding stud is installed every $60m^{(2)}$ and is connected to an Earthing point, allowing static to complete its circuit and flow safely to ground. Conductive Floor Tiles are installed over a grid of conductive tape laid on the subfloor which unifies conductivity through continuously installed tiles.

How Should You Test Your Floor & The System?

Surface Resistance – Using the appropriate test equipment test the floor across two or more tiles and take a minimum of 9 readings across random points. Calculate the average reading from your tests to get an accurate surface resistance reading.

Measuring the resistance between two points on the tiles = Surface Resistance.

Resistance to Ground of the FLOOR – To measure the resistance to ground of the floor tiles in isolation test from the tile to either the grounding stud or the grounding tape (not via the grounding cord because the cord includes a 1 megW resistor). To test the resistance to ground of the entire floor system test place one probe on the floor and connect the other connection to the end of the grounding cord.

Resistance to Ground of the SYSTEM – To measure the resistance to ground of the system (the combination of the person, footwear and floor) hold one probe in the palm of your hand, connect the other probe to your grounding point and test. The results should be from $1 \times 10^{(6)}$ or 1 MegW and not exceed $3.5 \times 10^{(7)}$ or 35MegW.

Walking Test / Human Body Model – Test for tribo-electric charging, to see the approximate body voltage electrical charges generated on the human body while walking or moving across floor use a static field meter whilst wearing the appropriate footwear & test what body voltage is created. The voltage should not exceed 100V.



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Recommended Cleaning Method

Failure to maintain interlocking ESD floor tiles in accordance with recommended procedure can affect the performance of the product. We recommend cleaning the tiles with our Killstat ESD Floor Cleaner.

- 1) Clean the tiles regularly and lightly.
- 2) Use the correct cleaning equipment, either a two component bucket and mop system or rotary scrubber dryer.
- 3) Do not use excessive amounts of water, this will make your job more difficult; damp mopping is the best solution.
- 4) To remove as much dirt and moisture as possible, use an entrance mat.
- 5) Heavily trafficked or highly visible areas need to be cleaned more often than areas which are seldom used, or where appearance is less important.
- 6) Using excellent quality cleaning chemicals and equipment will ensure efficient maintenance.

Maintaining & Finishing

- 1) Leave a minimum of a 5mm gap between the tiles and any fixed point (walls and machinery).
- 2) Undercut wood doorjambs and slip the tiles underneath.
- 3) With metal doorjambs – cut the flooring material to within 5mm & then caulk around the jamb.
- 4) To keep your floor looking good give it a sweep on a regular basis and use a rotary scrubber dryer for routine maintenance.

