



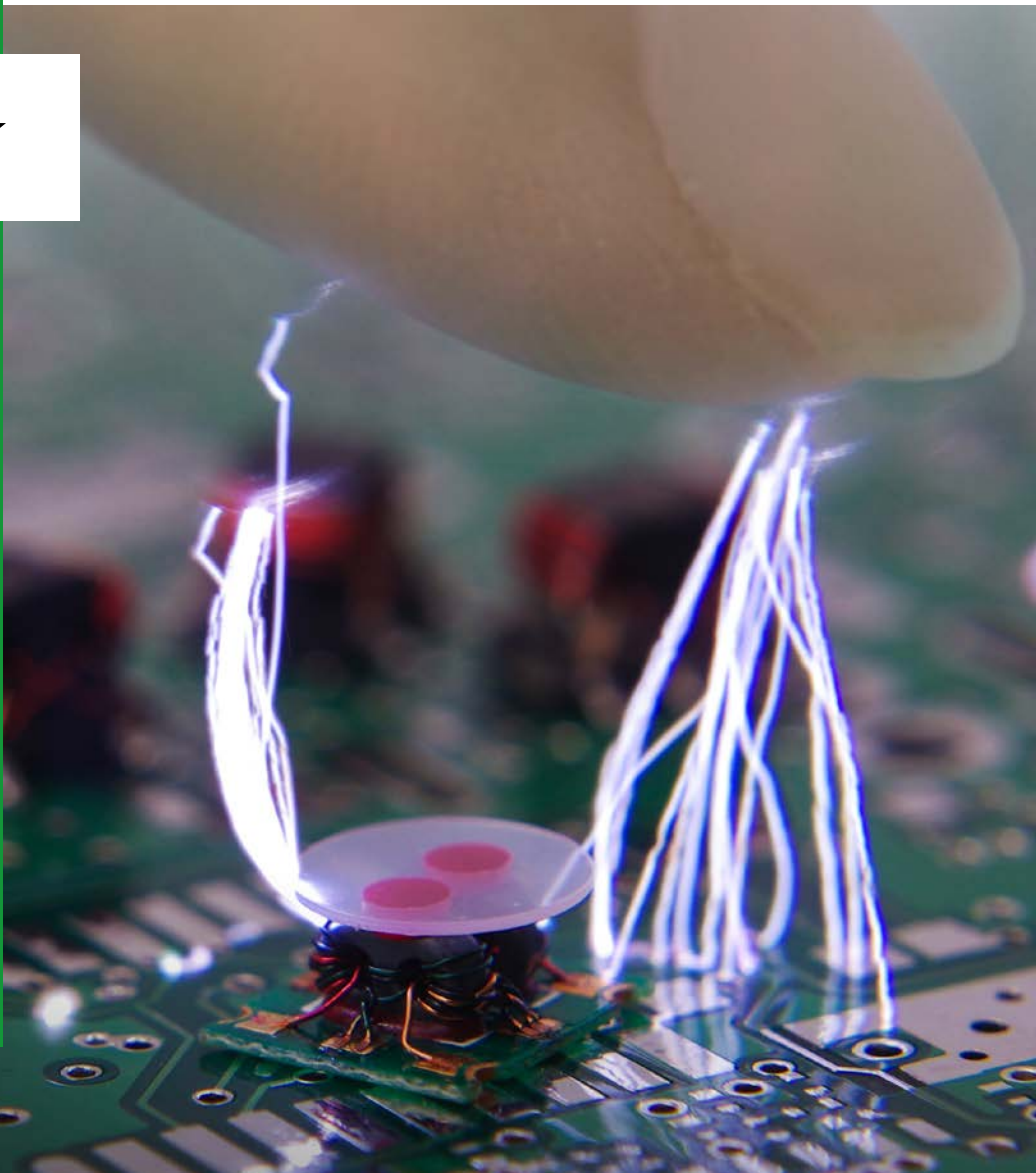
Fortelock

ESD Flooring for Professionals



ESD Antistatic Flooring

are an important aspect in ensuring safety and protection against electrostatic discharge in industrial and commercial premises. Their efficiency and reliability are critical because electrostatic charging can cause damage to electronic equipment, endanger the health and safety of workers, and can also have a negative impact on manufacturing processes. That is why we place great emphasis on the quality of our ESD tiles and their efficiency in all conditions.

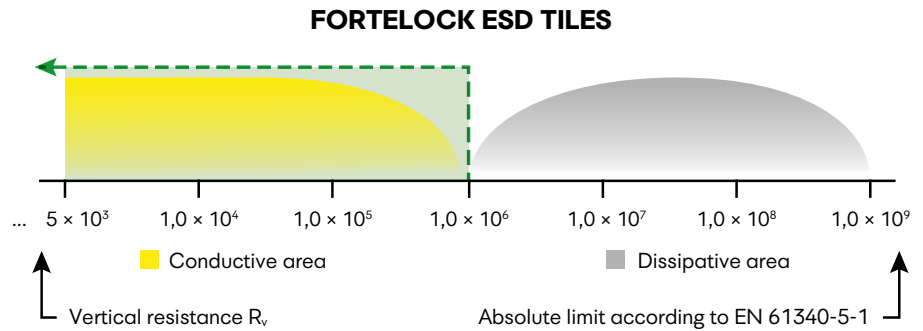


Human activity can generate voltages of up to 35,000 V, but as little as 20 V can damage delicate electronics.

- ✓ They prevent electrostatic charge from building up, thus **protecting the delicate electrical components of your equipment** and preventing high damage.
- ✓ **Especially suitable** for server rooms, data centres, production, storage and testing areas of electronics, financial institutions, telecommunication rooms, scientific laboratories, servicing of electrical equipment, military facilities, call centres and others.
- ✓ Functionality of the tiles throughout the lifetime of the tiles. **Tile warranty up to 12 years.**
- ✓ **The option of installing in parts** saves you the costs associated with downtime or cleaning out the space.
- ✓ **Quick and easy installation** saves you the time needed to prepare the floor for your premises.
- ✓ **In-house development, testing and inspection** for the ideal tile efficiency range.
- ✓ **Expert advice and consultation on ESD** issues, selecting the right product specifically for your conditions.

Ideal Efficiency Range

In order to provide the ideal efficiency range, the floor can neither be too conductive nor have too high a resistance. Too much conductivity could endanger the health of the operator and, conversely, too much resistance would not allow static charge to be dissipated effectively. Fortelock tiles have an average resistance of $1 \times 10^6 \Omega$ for an ideal efficiency range. **Sufficient margin allows the tiles to be used in different climatic conditions.**



Fortelock ESD and XL ESD tiles have a vertical resistance of $R < 1.0 \times 10^6 \Omega$.

Unique Production and Testing of Tiles

During the production process, the tiles are monitored and continuously tested. **Every 10th tile** is tested to ensure that all tiles meet the required parameters.

The output inspection verifies the final product and its ability to dissipate electrostatic charge according to established standards and specifications. **Testing is required at multiple locations on the tile**, as the charge dissipation capability is different at each location on the tile. It is important that the average result of the three measurements is in accordance with the standard.

Tested in a Climate Chamber for your Safety

An important aspect is the effect of different climatic conditions on the performance of antistatic plastic floors. Temperature changes, humidity and other climatic factors have a major impact on their effectiveness.

We Test the Total System Resistance Floor-Shoe-Person

Testing different types of footwear and people is essential as electrostatic charging can also be affected by what people are wearing and how they move around the floor. Different types of footwear and shoe finishes affect the conductivity of the system.



- ◀ We test the effectiveness of ESD tiles at multiple locations on randomly selected tiles periodically during production.



- ◀ A climate chamber where we test the performance of the tiles in relative humidity conditions from 15 to 90%.



In conjunction with ESD footwear, Fortelock tiles are fully compliant with the requirements specified in EN 61340-5-1:

- System resistance R_g (person, footwear, floor $< 1.0 \times 10^9 \Omega$)
- Voltage generated by the body: $< 100 \text{ V}$.

- ◀ Measurement of system resistance between the person using the floor, the footwear and the floor.

The Main Advantages of Fortelock ESD Tiles:

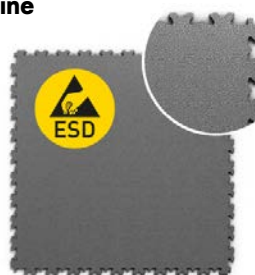
1. The tiles can be **quickly** and **easily** laid on any flat surface without **interrupting** operation. You don't have to make lengthy and complicated moves of room equipment and wait for days or weeks for surface treatment.
2. They **meet the strict criteria of** European standards for ESD flooring.
3. In conjunction with ESD footwear, the tiles are fully compliant with the requirements of EN 61340-5-1.
4. They undergo a thorough **input and output control** in order to guarantee the required functional parameters.
5. They have a **wide range of functionality** with respect to the humidity and temperature of the operating environment.
6. The system electrical resistance (floor, footwear, person) is a maximum of $10^9 \Omega$, which ensures effective static charge dissipation. At the same time, they have a sufficient reserve in case of boundary conditions of temperature and humidity.
7. **Tile performance tested** at relative humidity and air temperature boundary conditions – from 15% to 90% relative humidity, at temperatures from 10°C to 40°C .
8. **Low installation and repair costs** compared to other types of ESD systems.
9. They ensure efficient and effective dissipation of electrical voltage **throughout their service life**. Their effectiveness does not diminish over time.

Technical Parameters

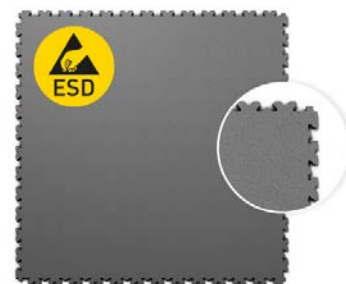
	Standard	Fortelock PVC tiles	
		ESD	XL ESD
Size of tile with lock	–	510.5 x 510.5 mm	653 x 653 mm
Actual coverage size	–	496.5 x 496.5 mm	639 x 639 mm
Weight ($\pm 10\%$)	–	2.4 kg	2.4 kg
Chemical resistance	ČSN EN ISO 26987	good	
Reaction to fire	ČSN EN 13501-1+A1	$B_{fl} - s1$	
Slip resistance	DIN 51130:2014-02	R10	
Electrical resistance (floor, shoe, person system)	ČSN EN 61340-4-5	$<10^9 \Omega^{(1)}$	
Electrical resistance	ČSN EN 61340-4-1	$<10^6 \Omega$	
Electrostatic properties	EN 1815	$<2 \text{ kV}$	
	ČSN EN 61340-4-5	$<100 \text{ V}^{(1)}$	
Protection against electrostatic discharges	ČSN EN 61340-5-1	OK	

¹⁾ Measured with ESD footwear (ABEBA and UVEX type). Due to the way the tiles are manufactured by injection moulding and the resulting different electrical properties at different points in the tiles, the values given are the average of the measurements.

Product line



Fortelock ESD



Fortelock XL ESD

Colour



Black



Graphite



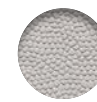
Grey



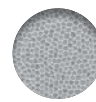
Blue



Green



Skin



Snake Skin

Pattern

References:



▲ Design workshops.



▲ IT headquarters of a manufacturing company.

Certificates:



Fraunhofer

TESTED[®] DEVICE

Fortemix, s.r.o.

Fortelock

Report No. FO 2103-1219

Single product
Electrical
Behavior

Qualification Certificate

This is to certify that the product mentioned above, provided by

Fortemix, s.r.o.

Paskov, Czech Republic

has been awarded a Fraunhofer certificate TESTED DEVICE
bearing the report number FO 2103-1219.

The flooring Fortelock (color: graphite gray), footwear and person system has been tested for its resistance to ground and body voltage according to DIN EN 61340-4-5 and qualified according to DIN EN 61340-5-1.

The obtained data on resistance to ground and body voltage are within the limits specified in DIN EN 61340-5-1.

	Operating voltage [V]	Max. value	Compliance with limit value as per DIN EN 61340-5-1
Resistance to ground (R_g)	100	$3.4 \times 10^6 \Omega$	fulfilled
Body voltage positive	--	25.2 V	fulfilled
Body voltage negative	--	-24.5 V	fulfilled

This document only applies to the named product in its original state and is valid for a period of 5 years from the date the first document was issued. The document can be verified under www.tested-device.com.

Detailed information and parameters of the test environment can be found in the Fraunhofer IPA test report.

FO 2103-1219

Report No. first document

Stuttgart, April 1, 2021

Place, date of first document issued

--

Report No. current document

--

Place, current date

on behalf of

Dr.-Ing. Frank Bürger, Project Manager Fraunhofer IPA



Fraunhofer
IPA



ABE.TEC
Inspection Body No. 4065

Accredited Inspection Body No. 4065 Company ABE.TEC, s.r.o. issued for:

Fortemix s.r.o.
Kirilovova 812, 739 21 Paskov, Czech Republic
Company No.: 268 68 211

on the basis of Inspection Report No. 07/18 of the executed inspection dated 21. 11. 2018

Certificate

No. 07/18

confirming that the subject:

Tile Fortelock ESD

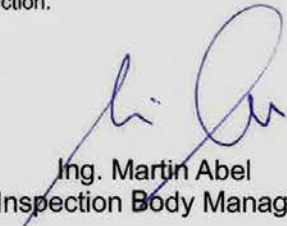
is in compliance

with the requirements of the Standard ČSN EN 61340-5-1 ed.3
Electrostatics - Protection of electronic devices from electrostatic
phenomena, General requirements - requirement Working Surfaces

Inspection results were obtained under the conditions and procedures specified in the inspection report and relate only to the time and place of the inspection.

Date of issue: 21. 11. 2018




Ing. Martin Abel
Inspection Body Manager