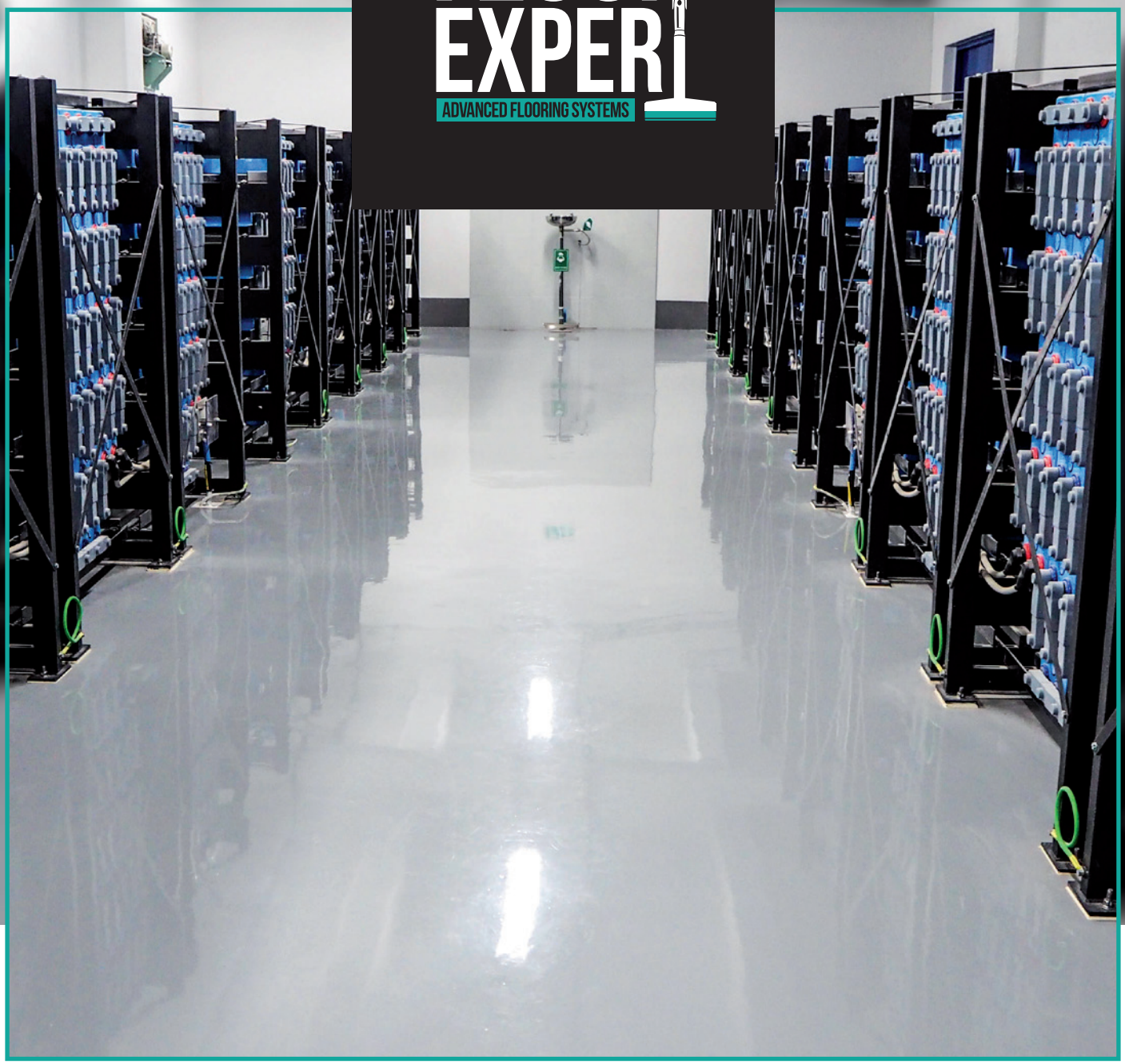
FLOOR EXPERT

ADVANCED FLOORING SYSTEMS



FLOOR EXPERT ESD FLOORING SYSTEMS

Chromos

NOVELTY IN THE PROGRAM

With the desire to cover a significant and growing field of application related to protection against electrostatic phenomena, we have developed Floor expert ESD systems, which have been tested by the authorized institute Cascade Metrology and fully meet the requirements of EN 61340-5-1 standard (Electrostatics -- Part 5-1: Protection of electronic devices against electrostatic phenomena -- General requirements).

The basis for this application is the numerous dangers arising from the discharge of static electricity:

- charged surfaces attract small particles (dust), which can cause problems in places like clean rooms
- when electrostatic potential discharges and causes sparks, there is a real danger of explosion in atmospheres containing solvents or dust (solvent storages, fertilizer storages, or mills)
- electronics manufacturing is at the most risk of damage caused by electrostatic discharge (or ESD). Sensitive components becoming welded together or burning through poses a significant problem in this area.

Floor coatings are particularly important as they conduct/dissipate all the charge generated in ESD areas into the ground. ESD areas should also be equipped with dissipative tables, chairs, footwear, clothes, earthing wrist straps, ionizers etc.

NORMS AND GUIDELINES

TRGS 727 (Technical rules for hazardous substances)

These Technical Rules are valid for evaluation and avoiding the dangers of ignition due to electrostatic charges in explosion-endangered areas and for the selection and implementation of protection measures which prevent these dangers.

These rules applies for example to:

- warehouses where solvents and powder materials are stored
- ammunition factories and warehouses
- warehouses where fuel materials are stored.

Requirement for floors:

Rg: < 10^8 Ω (DIN EN 61340-4-1:2008)

USAGE IN ESD PROTECTED AREA (EPA)

IEC 61340-5-1:2016 Standard test methods for specific applications – Methods for characterizing the electrostatic protection of footwear and flooring in combination with a person.

For floors, the standard prescribes:

a) Resistance to grounding point:

- ESD protection if the personnel is grounded by the wrist strap: Rg< 10^9 Ω
- ESD protection when the floor is used for grounding the personnel: Rg< 3,5 x 10^7 Ω

b) Maximum generated body voltage: <100 V.

IEC 61340-6-1:2018 ELECTROSTATICS -- PART 6-1: ELECTROSTATIC CONTROL FOR HEALTHCARE -- GENERAL REQUIREMENTS FOR FACILITIES

The norm applies to facilities that provide healthcare including hospitals, care centers and clinics.

Requirements:

a) flooring used to ground personnel and equipment: Rgp < 1 GΩ

b) resistance to groundable point in locations where anesthetics and hyperbaric oxygen systems are used and high electrostatic charging mechanisms are expected: Rgp ⩽ 1 MΩ.

FLOOR EXPERT ESD SYSTEMS OVERWIEW

FLOOR EXPERT EP 211 AS SYSTEM

PROPERTIES:

- Thick layer epoxy solvent-free system
- Very high mechanical resistance
- Complies with TRGS 727
- Meets EN 61340-5-1 (without need for ESD topcoat)
- Meets EN 61340-6-1 (With the exception of locations where anesthetics and hyperbaric oxygen systems are used, and high electrostatic charging mechanisms are expected).

AREA OF APPLICATION:

- Industrial and storage halls (explosion protection)
- Laboratories
- Sterile rooms
- Rooms with very sensitive electronics devices
- Production halls for fine electronics

BASIC LAYER:

- FE EP 101/FE EP 211M

CONDUCTIVE LAYER:

- FE EP 110W EC

FINISHING LAYER:

- FE EP 211 AS

SYSTEM THICKNESS:

- 1,5 -2,0 mm

FLOOR EXPERT EP 311 ESD SYSTEM

PROPERTIES:

- Medium layer epoxy solvent-free system
- Very high mechanical and chemical resistance
- Without carbon fibers
- No need for conductive layer (faster and easier application and renovation)
- Complies with TRGS 727
- Meets EN 61340-5-1 (without need for ESD topcoat)
- Meets EN 61340-6-1 (With the exception of locations where anesthetics and hyperbaric oxygen systems are used, and high electrostatic charging mechanisms are expected).

AREA OF APPLICATION:

- Rooms with very sensitive electronics devices
- Production halls for fine electronics
- Rooms for packaging microelectronics
- Computer spaces
- Industrial and storage halls (explosion protection)
- Laboratories
- Sterile rooms

BASIC LAYER:

- FE EP 101/FE EP 211M

FINISHING LAYER:

- FE EP 311 ESD

SYSTEM THICKNESS:

- 1,0 -1,5 mm

FLOOR EXPERT EP 311 ESD THIXO SYSTEM

PROPERTIES:

- Thin layer epoxy solvent-free system
- Slip resistance R10
- High mechanical and chemical resistance
- Without carbon fibers
- No need for conductive layer (faster and easier application and renovation)
- Complies with TRGS 727
- Meets EN 61340-5-1 (without need for ESD topcoat)
- Meets EN 61340-6-1
  (With the exception of locations where anestethics and hyperbaric oxygen systems are used, and high electrostatic charging mechanisms are expected).

AREA OF APPLICATION:

- Rooms with very sensitive electronics devices
- Production halls for fine electronics
- Rooms for packaging microelectronics
- Computer spaces
- Industrial and storage halls (explosion protection)
- Laboratories
- Sterile rooms

BASIC LAYER:

- FE EP 101/FE EP 211M

FINISHING LAYER:

- FE EP 311 ESD thixo

SYSTEM THICKNESS:

- 0,5 -0,8 mm

NOTES

- According to the test results, these three systems cover a very wide area of application. For certain conditions of exploitation, specific production processes or storage conditions, the investor can specifically define the limits of electrical resistance. In this case, we can adjust the resistance values by adjusting the formulation or changing the system components.
- The usual procedure during project contracting is the creation of a test field on the floor surface of the building, on which the resistance values and voltage generation would be checked (best by a third party).
- Regarding the range of shades, it is important to note that due to the addition of conductive components, it is not possible to obtain a complete match of shades in the finishing coatings, which is especially pronounced with very bright (yellow and orange) tones. On request, we can make dry samples of flooring systems in the requested shades, which should be approved by the investor.
- Regarding the installation of ESD flooring systems, it is intended exclusively for professionals versed in this application. It is important to note that the substrate must be well leveled before installation of the conductive and finishing layers, in order to ensure a uniform thickness of the final layers. We recommend the use of ready-to-use epoxy mortar FE EP 211M.
- When installing ESD flooring systems, the installation of grounding points is necessary. As part of the ESD floor program, Chromos will also offer the Floor expert earthing kit, a set with copper strips and other components.

We remain open to your questions and look forward to future joint projects and cooperation with you.

Chromos

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