



ensutec | Environment and Surface Technologies

# There is room for improvement!

Improve your transfer efficiency with the  
airmatic functional earthing system!



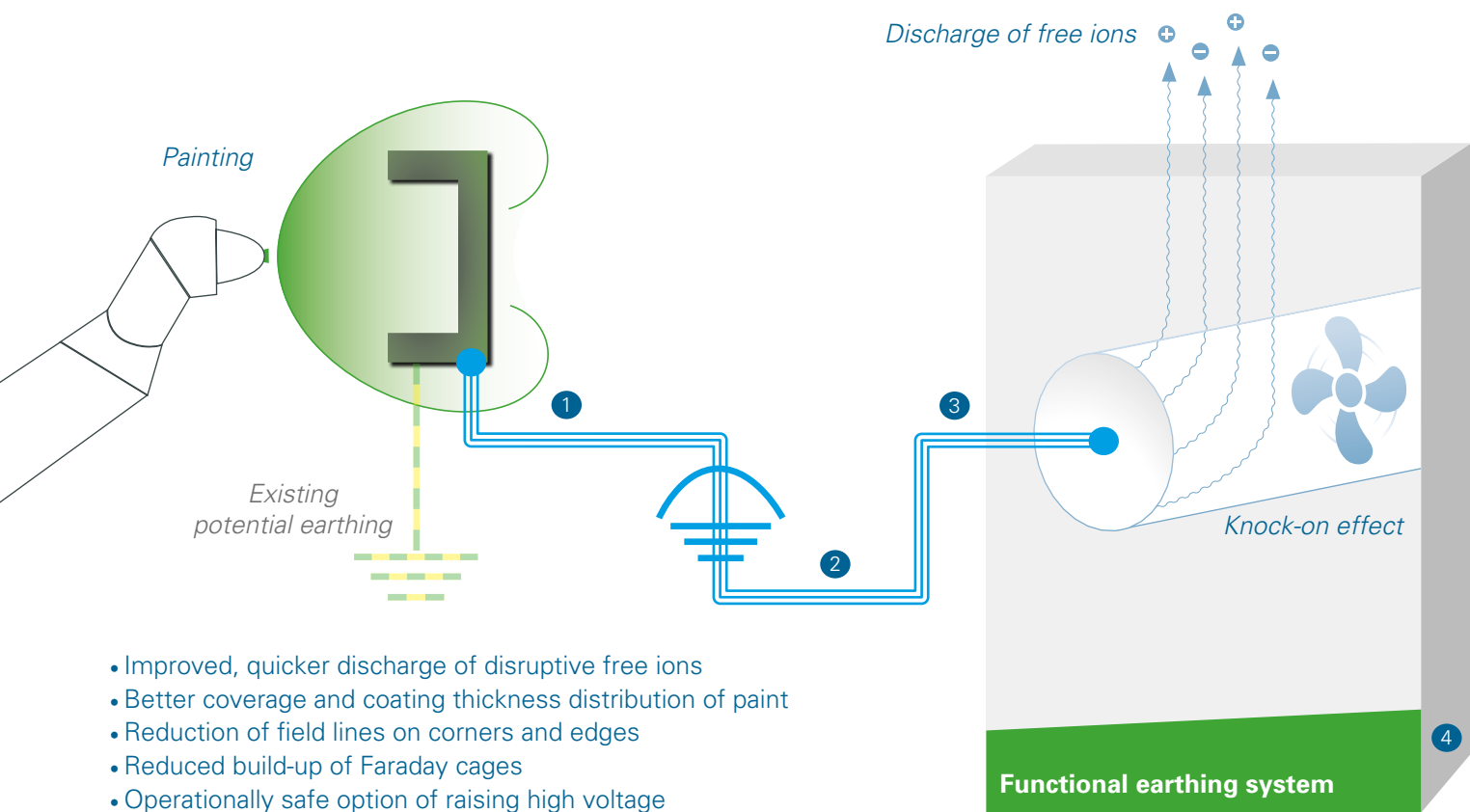
airmatic functional earthing system as additional optimisation  
for your electrostatic coating application.



# ensutec<sup>TM</sup>

Environment and Surface Technologies

**Effective!**  
Advantages of the airmatic functional earthing system.



**1** Connection of functional earthing system to painting booth



**2** Cabling to earthing cabinet



**3** Connection to earthing cabinet



**4** Earthing cabinet

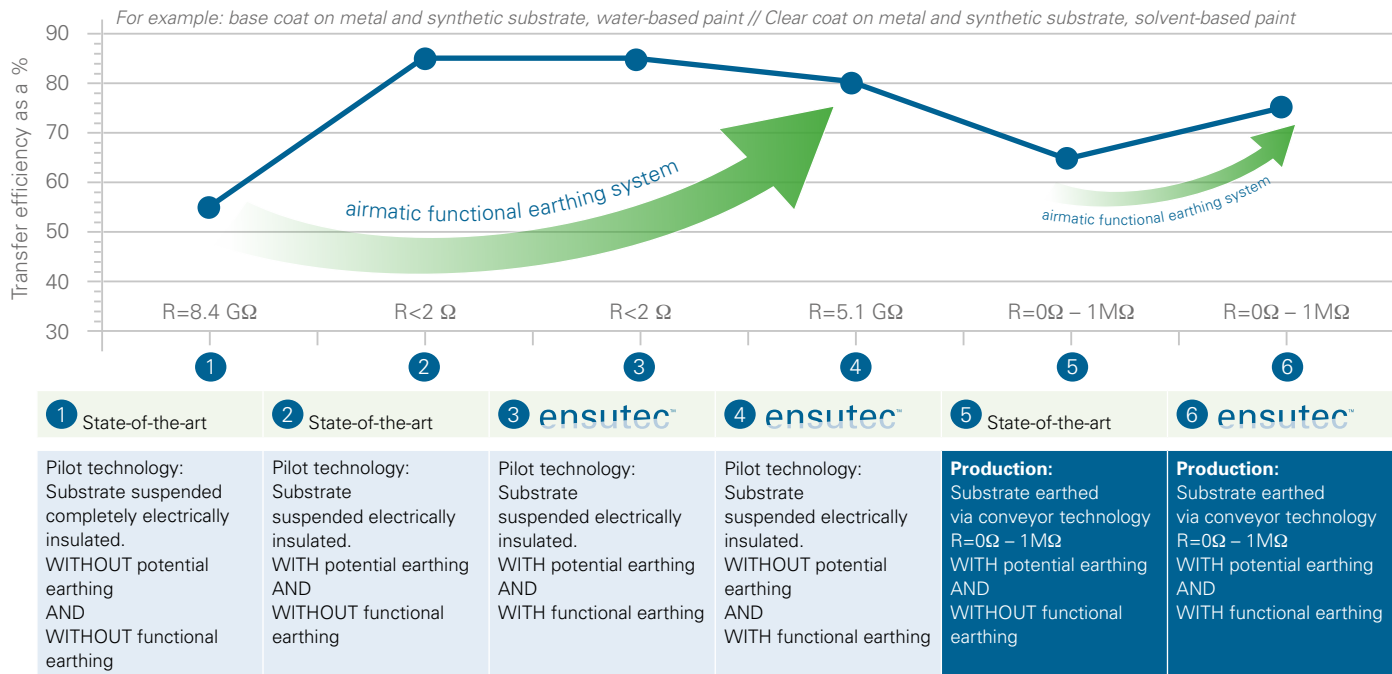
**Innovative!**  
airmatic functional earthing system and protective earthing.

The airmatic functional earthing system improves electromagnetic compatibility. It contributes to the trouble-free operation of plants and systems and the compatibility of the equipment with the electromagnetic environment, while taking account of interference- and environment-based frequencies and creating a reference potential. The airmatic functional earthing system is an additional installation component and does not assume a protective earthing function.

**Target-oriented!**  
Tasks and areas of application for the airmatic functional earthing system.

The airmatic functional earthing system increases transfer efficiency – while at the same time improving coverage, penetration and overall coating thickness distribution. It is a functional component and plays a key role in optimising the regular operation of electrostatic application.

**Comparison of transfer efficiency**  
with and without airmatic functional earthing system.



Increased production transfer efficiency by about **10–20%**

**Optimisation report “electrostatic high-speed rotary atomiser”**  
6 weeks to a result...

| Test, Date | Robots                                                                                                         | HV [kV] | Rotations [RPM] | Material [ml] | Pressure 1 [bar] | Pressure 2 [bar] | Coating thickness [µm] | Skid No. | Comments                                                                                                              |
|------------|----------------------------------------------------------------------------------------------------------------|---------|-----------------|---------------|------------------|------------------|------------------------|----------|-----------------------------------------------------------------------------------------------------------------------|
| 04.06.2017 | Installing and commissioning the airmatic functional earthing system: test day with 10 paint trials at 2 skids |         |                 |               |                  |                  |                        |          |                                                                                                                       |
| 00         | R1                                                                                                             | 65      | 38,000          | 250           | 0.8              | 1.0              | 30–34                  | 261, 262 | Robots R1 and R2 completely optimised beforehand up to borderline paint capability; High voltage cannot be increased. |
|            | R2                                                                                                             | 65      | 38,000          | 250           | 0.8              | 1.0              |                        |          |                                                                                                                       |
| 22.06.2017 | Functional earthing system after 2 weeks of operation: test day with 5 paint trials at 2 skids                 |         |                 |               |                  |                  |                        |          |                                                                                                                       |
| 22.06.2017 | Coating thicknesses raised by about 5 µm–6 µm; about 2–3% more sagging noticeable; less “orange peel”;         |         |                 |               |                  |                  |                        |          |                                                                                                                       |
| 13         | R1                                                                                                             | 74      | 38,000          | 250           | 0.8              | 1.0              | 36–38                  | 269, 270 | Paint quantity reduced to 225 ml; raised High voltage can be increased by 15%                                         |
|            | R2                                                                                                             | 74      | 38,000          | 250           | 0.8              | 1.0              |                        |          |                                                                                                                       |
| 03.07.2017 | Functional earthing system after 4 weeks of operation: test day with 10 paint trials at 2 skids                |         |                 |               |                  |                  |                        |          |                                                                                                                       |
| 03.07.2017 | Coating thicknesses increased by about 8 µm–14 µm; more sagging noticeable;                                    |         |                 |               |                  |                  |                        |          |                                                                                                                       |
| 25         | R1                                                                                                             | 74      | 38,000          | 225           | 0.8              | 1.0              | 42–44                  | 301, 302 | Paint quantity reduced to 190 ml;                                                                                     |
|            | R2                                                                                                             | 74      | 38,000          | 225           | 0.8              | 1.0              |                        |          |                                                                                                                       |
| 20.07.2017 | Functional earthing system after about 6 weeks of operation                                                    |         |                 |               |                  |                  |                        |          |                                                                                                                       |
| 20.07.2017 | Paint quantity reduced on standard coating thicknesses as per customer requirement                             |         |                 |               |                  |                  |                        |          |                                                                                                                       |
| 27         | R1                                                                                                             | 74      | 38,000          | 190           | 0.8              | 1.0              | 32–35                  | 35, 36   | Paint quantity and coating thicknesses OK – Application technology set to optimum                                     |
|            | R2                                                                                                             | 74      | 38,000          | 190           | 0.8              | 1.0              |                        |          |                                                                                                                       |

Paint saving about **25%**

**Advantageous!**  
Cuts costs and helps the environment.

- 10 to 20 % paint saving
- Increased First Run Rate (FRQ)
- Improved operational safety through reduced spark flashover
- Reduced overspray
- Increased intrinsic value of systems technology (TPM)
- Reduced “environmental and disposal costs”

**Improves quality!**  
Fewer rejects.

- Better coating thickness distribution
- Better paint flow
- Better penetration
- Fewer thick edges, thin places and runs
- Increased transfer efficiency

## Take advantage of the airmatic functional earthing system!

Install the **airmatic functional earthing system** in addition to your existing electrostatic paint application technology. Optimise the high voltage during running operational production and reduce your paint consumption through improved transfer efficiency.



### Flacons, Glass bottles

- Glass
- Water-based paint
- Solvent-based paint
- Powder

### Automotive, Supplier

- Synthetics
- Water-based paint
- Solvent-based paint

### Automotive, OEM

- Metal
- Water-based paint
- Solvent-based paint

### Powder coating

- Metal/glass
- Powder coating

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