



ensutec | Environment and Surface Technologies

There is room for improvement!

Improve your transfer efficiency with the airmatic functional earthing system!



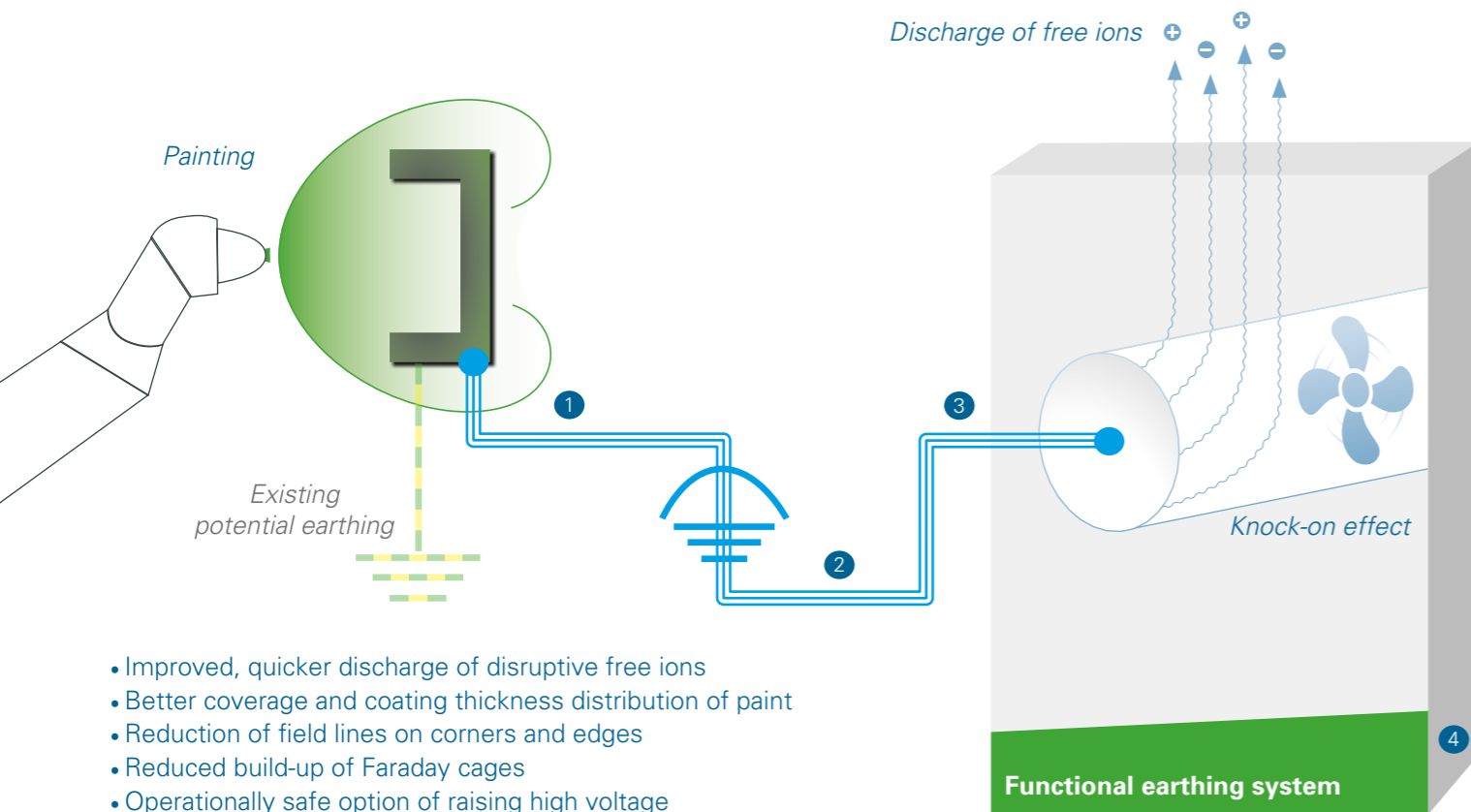
airmatic functional earthing system as additional optimisation for your electrostatic coating application.



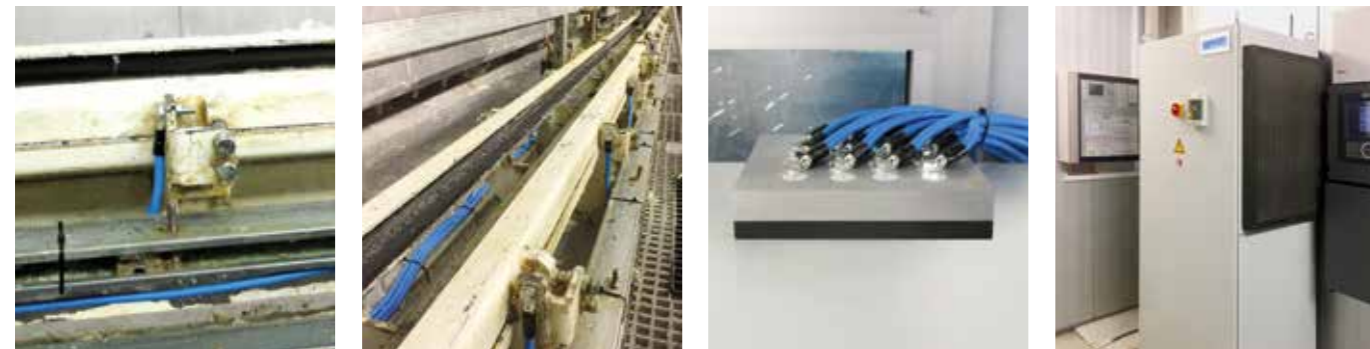
ensutecTM
Environment and Surface Technologies

Effective!

Advantages of the airmatic functional earthing system.



- Improved, quicker discharge of disruptive free ions
- Better coverage and coating thickness distribution of paint
- Reduction of field lines on corners and edges
- Reduced build-up of Faraday cages
- Operationally safe option of raising high voltage



- 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.

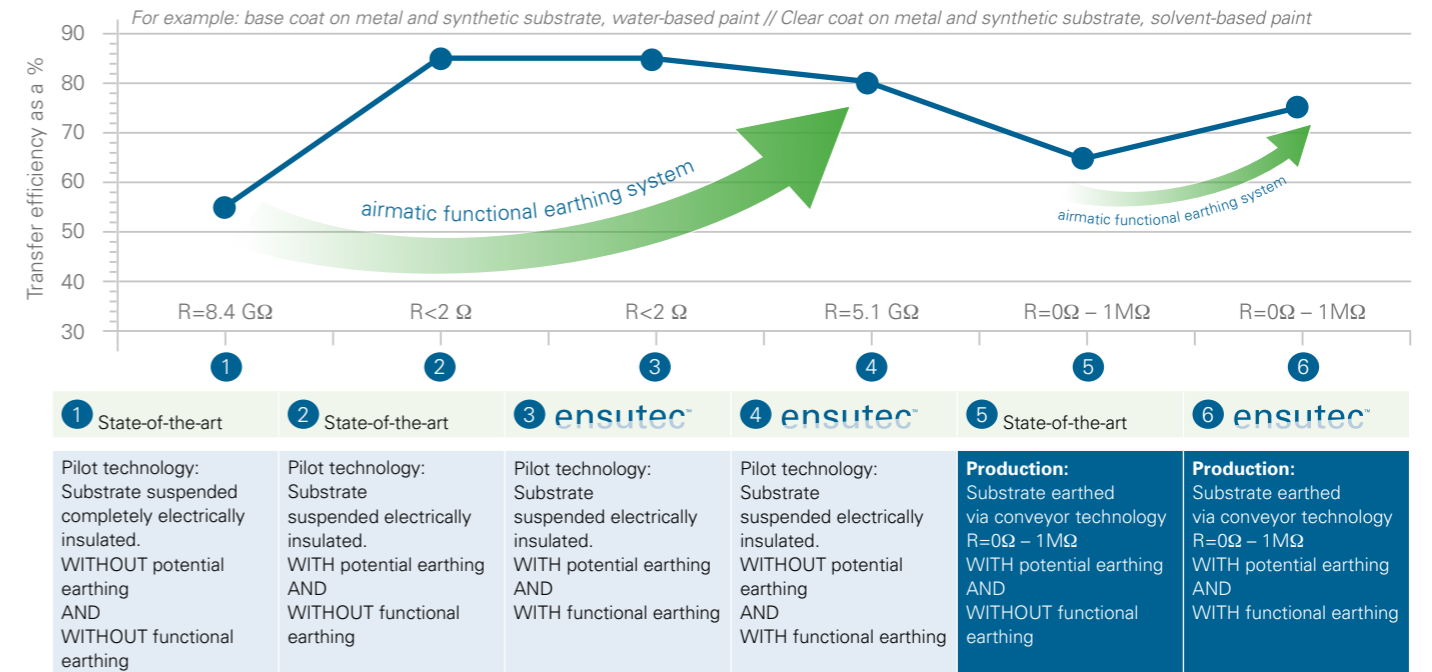
Target-oriented!

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.



1	2	3	4	5	6
State-of-the-art	State-of-the-art	ensutec	ensutec	State-of-the-art	ensutec
Pilot technology: Substrate suspended completely electrically insulated. WITHOUT potential earthing AND WITHOUT functional earthing	Pilot technology: Substrate suspended electrically insulated. WITH potential earthing AND WITHOUT functional earthing	Pilot technology: Substrate suspended electrically insulated. WITH potential earthing AND WITH functional earthing	Pilot technology: Substrate suspended electrically insulated. WITHOUT potential earthing AND WITH functional earthing	Production: Substrate earthed via conveyor technology R=0Ω – 1MΩ WITH potential earthing AND WITHOUT functional earthing	Production: Substrate earthed via conveyor technology R=0Ω – 1MΩ WITH potential earthing AND WITH functional earthing

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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