

# siegling extremultus

flat belts



## FLASH STAR

A FIRM GRIP ON STATIC ELECTRICITY

Polyester fabric tension member with conductive elements

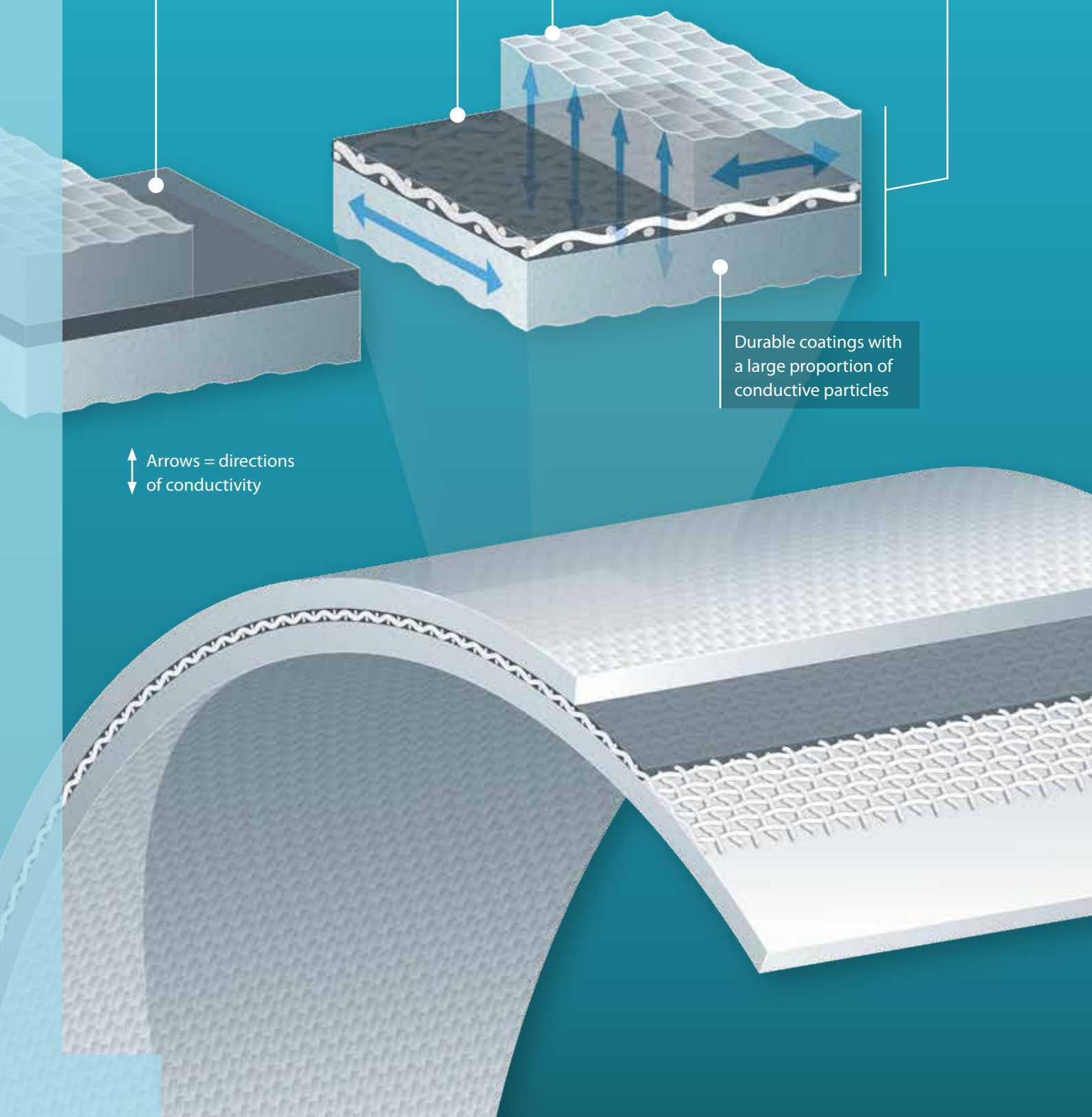
Application-driven surface patterns

Alternative tension member material: polyamide sheet or elastic urethane

The whole belt is conductive in all three directions

Durable coatings with a large proportion of conductive particles

↑↓ Arrows = directions of conductivity



# FLASH STAR – A FIRM GRIP ON STATIC ELECTRICITY

Flash Star flat belts play a major role in containing static electricity in power transmission and conveying systems. With excellent conductivity in all three directions, they help to ensure ESD\* compliance of the machinery and to prevent unwelcome side effects.

If you use power transmission and conveyor belts, it's impossible to avoid static electricity building up. This phenomenon is called triboelectric charging. It occurs when different materials come into contact with one another and then separate again. During conveying, the products concerned can also have the same impact.

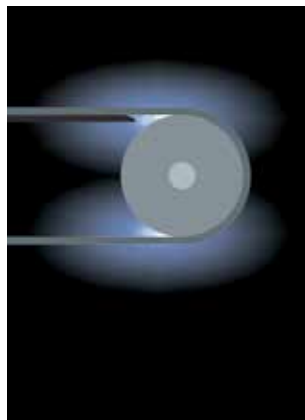
Flash Star flat belts make designing ESD-compliant machinery easier. Typical consequences of electrostatic build-up and uncontrolled discharge can be as follows:

- malfunctions when processing foil and paper products because they stick to one another or to the belt
- soiling due to dust, lint etc.
- electric shocks
- damage to electronic components (i.e. the products conveyed and machine components)
- fires and explosions

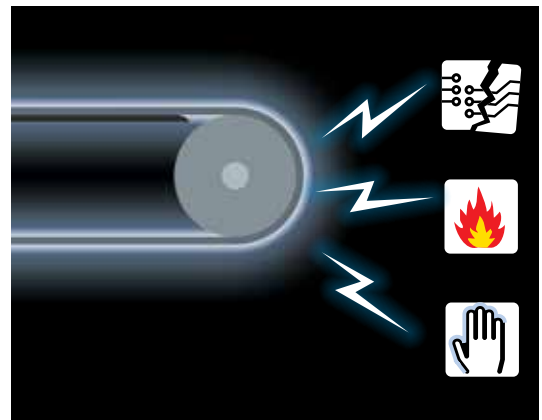
Electrostatic build-up from the products conveyed.



Electrostatic build-up due to triboelectric charging.

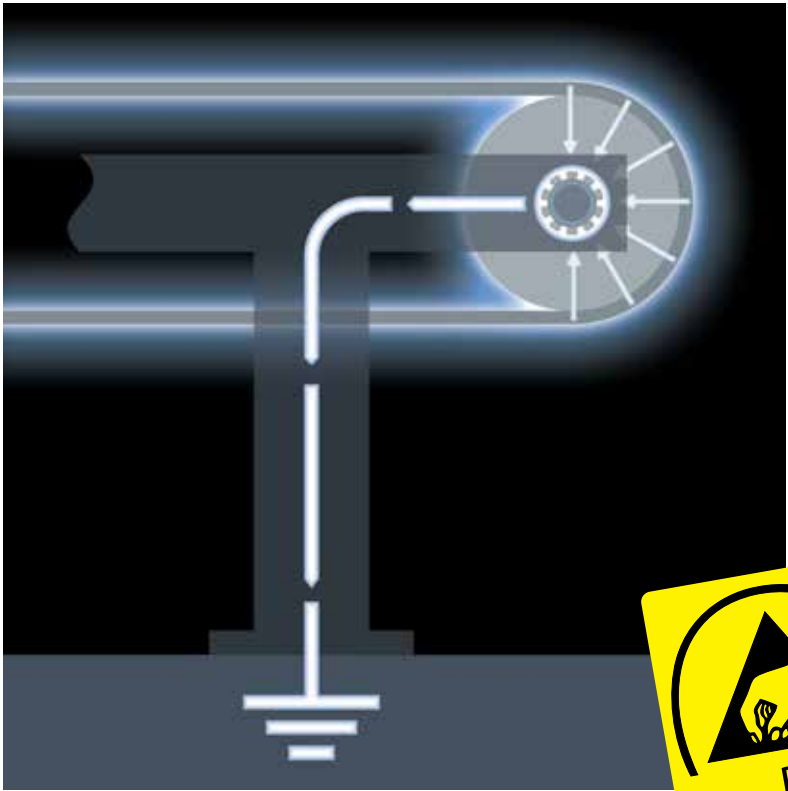


Hazards due to uncontrolled discharge of static electricity.



\* ESD = Electrostatic discharge

# FLASH STAR – CONDUCTIVITY RIGHT THROUGH THE BELT TOO



Conductivity right through the belt significantly enhances the controlled discharge of static electricity. Electricity in the belt is discharged directly via electrically conductive components on the machinery (e.g. rollers, supports). Extra mechanical components like metallic idlers, or brushes to discharge the build-up of static electricity aren't necessary.



ESD-protected product: this product can discharge electrostatic build-up in a controlled manner. The belt's resistance is under  $10^9 \Omega$  and compensates for differences in electricity potential in a short space of time.

## The properties

conductive in all three directions, even through the belt

supports the controlled discharge of static electricity

minimises the risk of uncontrolled discharge

also available in High Grip and Medium Grip versions

## The advantages

improves discharge, facilitates ESD-compliant machinery design

enhances process reliability and safety, e.g. for paper and foil

prevents electric shocks, sparks and damage to electronic components

a wide range of applications

# The Flash Star range

The Flash Star range

|   | Article number | Total thickness approx.<br>[mm] | d <sub>min</sub> [mm]* | Specific shaft load **<br>[N/mm belt width] | Elongation at fitting<br>[% of belt length] | Weight approx. [kg/m²] | Permitted operating<br>temperature [°C] | Special characteristics<br>and applications |                    |               |            |
|---|----------------|---------------------------------|------------------------|---|---|------------------------|---|---|--------------------|---------------|------------|
|   |                |                                 |                        |   |   |                        |   | Electrostatic property                      | Folder gluer belts | Machine tapes | Drag belts |
| E line (with polyester tension member)      |                |                                 |                        |   |   |                        |   |   |                    |               |            |
| RR 4E-14 HC+ FSTR grey                      | 822151         | 1.35                            | 14                     | 4   | 0.3 – 2.0                                   | 1.40                   | -20/+70                                 | HC+   | ●                  | ●             |            |
| RR 4E-HC+ NSTR/NSTR grey                    | 822154         | 1.35                            | 14                     | 4   | 0.3 – 2.0                                   | 1.40                   | -20/+70                                 | HC+   |                    | ●             |            |
| RR 12E-14 HC+ FSTR grey                     | 822156         | 1.40                            | 14                     | 12  | 0.3 – 2.0                                   | 1.45                   | -20/+70                                 | HC+   |                    | ●             |            |
| TR 20E-23 HC+ FBRC/FSTR black/grey          | 822171         | 2.30                            | 40                     | 20  | 0.3 – 2.0                                   | 2.45                   | -20/+70                                 | HC+   |                    | ●             |            |
| UR 8E-12 HC+ FSTR green/grey                | 822173         | 1.20                            | 14                     | 8   | 0.3 – 2.0                                   | 1.25                   | -20/+70                                 | HC+   |                    | ●             | ●          |
| UR 8E-15 HC+ FSTR/NSTR green/grey           | 822174         | 1.50                            | 14                     | 8   | 0.3 – 2.0                                   | 1.60                   | -20/+70                                 | HC+   |                    | ●             | ●          |
| P line (with polyamide tension member)      |                |                                 |                        |   |   |                        |   |   |                    |               |            |
| NN 4P-HC+ grey                              | 855635         | 1.60                            | 20                     | 4   | 0.6–1.5                                     | 1.30                   | -20/+80                                 | HC+   | ●                  | ●             |            |
| Elastic line (with urethane tension member) |                |                                 |                        |   |   |                        |   |   |                    |               |            |
| UU 20U-HC+ FSTR/FSTR black                  | 855631         | 1.10                            | 20                     | 0.25  | 3.0 – 8.0                                   | 1.20                   | -20/+60                                 | HC+   |                    | ●             | ●          |
| UR 40U-HC+ GSTR/NSTR black/grey             | 855636         | 1.45                            | 14                     | 0.8   | 3.0 – 8.0                                   | 1.45                   | -20/+60                                 | HC+   | ●                  | ●             | ●          |

**Please note:** the values stated are nominal and can fluctuate in a belt whose width is a result of production processes. Our products are constantly adapted to market requirements. Consequently, changes in technical parameters can occasionally occur. **Therefore, please see the current product data sheets for specific information on designs and calculations.**

### Type code

|   |   |    |   |   |     |             |            |                                      |
|---|---|----|---|---|-----|-------------|------------|--------------------------------------|
| R | R | 4  | E | - | HC+ | NSTR / NSTR | grey       |                                      |
| N | N | 4  | P | - | HC+ |             | grey       |                                      |
| U | R | 40 | U | - | HC+ | GSTR / NSTR | black/grey |                                      |
|   |   |    |   |   |     |             |            | Food properties                      |
|   |   |    |   |   |     |             |            | Colour top face                      |
|   |   |    |   |   |     |             |            | Colour overall or underside          |
|   |   |    |   |   |     |             |            | Surface pattern top face             |
|   |   |    |   |   |     |             |            | Surface pattern overall or underside |
|   |   |    |   |   |     |             |            | Electrostatic property               |
|   |   |    |   |   |     |             |            | Total thickness [1/10 mm]            |
|   |   |    |   |   |     |             |            | Material of tension member           |
|   |   |    |   |   |     |             |            | Type number                          |
|   |   |    |   |   |     |             |            | Coating top face                     |
|   |   |    |   |   |     |             |            | Coating underside                    |

### Legend

- The values stated were identified in standard ambient conditions (23 °C, 50 % rel. humidity)
- \* Lower temperatures require larger drum diameters. For the Polyamid line, this also applies in the case of low humidity.
- \*\* Relaxed specific shaft load at 1 % elongation at fitting and 180° arc of contact in N/mm belt width.
- E** = Polyester  
**N** = Polyester web  
**P** = Polyamide P  
**R** = High Grip or Medium Grip  
**U** = Polyurethane
- HC+** = Conductive belt surfaces + conductive over the thickness
- FSTR** = Fine texture  
**GSTR** = Coarse texture  
**NSTR** = Normal texture

## Classification of our products' electrostatic characteristics

(Measurements compliant with DIN EN ISO 21178)

|   |
|---|
| <b>Non-antistatic (NA)</b><br>Belt material with isolating properties.  |
| <b>Antistatic (no special abbreviation)</b><br>Belt material with electrically conductive components within the belt or on the surface.<br>Conductivity of the whole belt lengthways $R_{Di} < 3 \cdot 10^8 \Omega$ . |
| <b>Highly conductive (HC)</b><br>Conductive top face, usually conductive underside too.<br>Must be antistatic as well.<br>Conductive on the surface lengthways $R_{0B} < 3 \cdot 10^8 \Omega$ .                       |
| <b>Highly conductive plus (HC+)</b><br>Conductive top face, underside and through the belt too.<br>Has to be highly conductive on both sides.<br>Conductive right through the belt $R_D < 10^9 \Omega$ .              |

Flash Star





## Siegling – total belting solutions

Committed staff, quality oriented organization and production processes ensure the constantly high standards of our products and services.

Forbo Movement Systems complies with total quality management principles. Our quality management system has ISO 9001 certification at all production and fabrication sites. What's more, many sites have ISO 14001 environmental management certification.



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### Our service – anytime, anywhere

Forbo Movement Systems employs around 2,500 people in its group of companies. Our products are manufactured in ten production facilities across the world. You can find companies and agencies with warehouses and workshops in over 80 countries. Service points are located in more than 300 places worldwide.

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