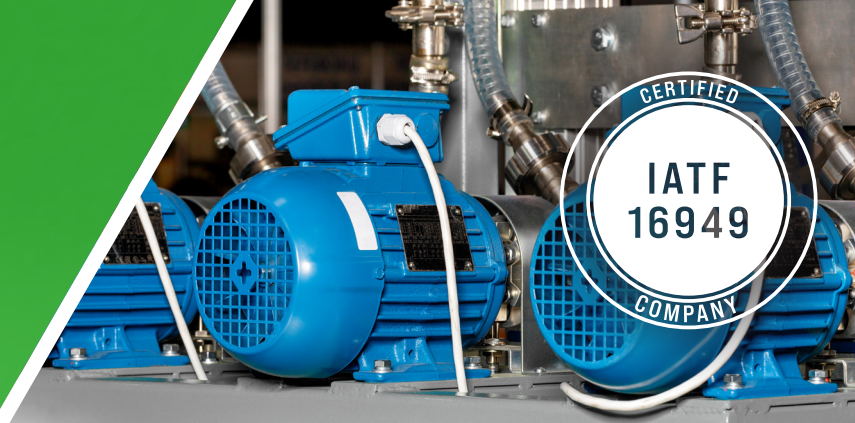


# SIWATT

ELECTRICAL STEEL

## FULLY-PROCESSED M-GRADES



### BRAND OVERVIEW

**SIWATT non-oriented electrical steel** is the perfect fit for various applications involving production, conversion, and the use of electricity. It is a product that continues to evolve, with ongoing advancements in non-oriented grades with lower core losses.

What sets SIWATT apart is its excellent soft magnetic properties, great magnetising ability, high magnetic permeability, and low magnetic losses. The fully-processed electrical steels are available with insulation on both sides to achieve the desired higher surface insulation resistance and improved punchability. A well-chosen process of decarburising and final annealing assures excellent electromagnetic properties.

### APPLICATIONS

Wind power, automotive industry, industrial motors, home appliances

### 7 REASONS TO CHOOSE SIWATT

- low core losses
- high permeability
- great weldability
- excellent stamping properties
- narrow dimensional tolerances
- various varnish options
- sustainable material choice

## GRADES

| 0.35 mm         | 0.50 mm         | 0.65 mm         |
|-----------------|-----------------|-----------------|
| SIWATT M235-35A | SIWATT M250-50A | SIWATT M310-65A |
| SIWATT M250-35A | SIWATT M270-50A | SIWATT M330-65A |
| SIWATT M270-35A | SIWATT M310-50A | SIWATT M350-65A |
| SIWATT M300-35A | SIWATT M330-50A | SIWATT M400-65A |
| SIWATT M330-35A | SIWATT M350-50A | SIWATT M470-65A |
|                 | SIWATT M400-50A | SIWATT M530-65A |
|                 | SIWATT M470-50A | SIWATT M600-65A |
|                 | SIWATT M530-50A | SIWATT M700-65A |
|                 | SIWATT M600-50A | SIWATT M800-65A |
|                 | SIWATT M700-50A |                 |
|                 | SIWATT M800-50A |                 |

## STRIPS

### Dimensions and weights

|                               |           | Outside diameter<br>[mm] | Coil weight<br>[kg/mm of width] |
|-------------------------------|-----------|--------------------------|---------------------------------|
| Coil width [mm]               | 30–1000   | Entire coil              | 1100–1300                       |
| Inside nominal diameter [mm]  | 508       | ½ coil                   | 870–1000                        |
| Outside nominal diameter [mm] | max. 1300 | ⅓ coil                   | 770–850                         |
|                               |           |                          | 2–2.9                           |

### Tolerances

| Tolerance on nominal width |           | Tolerance on nominal thickness |           |      |
|----------------------------|-----------|--------------------------------|-----------|------|
| Nominal width              | Tolerance | Nominal thickness              | Tolerance |      |
| [mm]                       | [mm]      | [mm]                           | [mm]      | [%]  |
| w ≤ 150                    | +0.2<br>0 | 0.35                           | ±0.03     | [±8] |
| 150 < w ≤ 300              | +0.3<br>0 | 0.50                           | ±0.04     | [±8] |
| 300 < w ≤ 600              | +0.5<br>0 | 0.65                           | ±0.04     | [±6] |
| 600 < w ≤ 1000             | +1.0<br>0 | 1.00                           | ±0.06     | [±6] |

## SHEETS

|                          |           |
|--------------------------|-----------|
| Cut length [mm]          | 600–6000  |
| Cut length tolerance [%] | +0.5<br>0 |
| Width of sheet [mm]      | 1000      |
| Package weight [kg]      | max. 3000 |

Dimensional and geometrical tolerances are in accordance with standards EN 10106 and EN 10251.

### Insulation coatings

| AISI Designation ASTM A976                                                         | C-3                     | C-5                                  | C-6                     | Backlack              |
|------------------------------------------------------------------------------------|-------------------------|--------------------------------------|-------------------------|-----------------------|
| Thermal class (IEC 60085)                                                          | H                       | N                                    | H                       | H                     |
| Thickness of layer on each side [µm] (ISO 2178)                                    | 0.5–3                   | 0.5–3                                | 2–4                     | 2–5                   |
| Composition                                                                        | Organic without fillers | Organic/inorganic                    | Organic with fillers    | Organic epoxy coating |
| Surface insulation resistance <sup>1</sup> [Ohm cm <sup>2</sup> /lam.] (ASTM A717) | < 20                    | < 70                                 | 10–200                  | > 100                 |
| Heat resistance [°C]                                                               | 180 <sup>2</sup>        | 210 <sup>2</sup><br>850 <sup>3</sup> | 180 <sup>2</sup>        | 180 <sup>2</sup>      |
| Influence on punchability                                                          | Very favourable         | Favourable                           | Favourable              | Favourable            |
| Influence on weldability                                                           | Conditional             | Good                                 | Conditional             | n. a.                 |
| Resistance to mediums <sup>4</sup>                                                 | Good                    | Good                                 | Good                    | /                     |
| Colour <sup>5</sup>                                                                | Yellow                  | Light grey to green                  | Light grey to dark grey | Transparent           |

<sup>1</sup> Surface insulation resistance depends on coating thickness.

<sup>2</sup> In air for a long time (testing for 20,000 hours at a given temperature in accordance with IEC 60085).

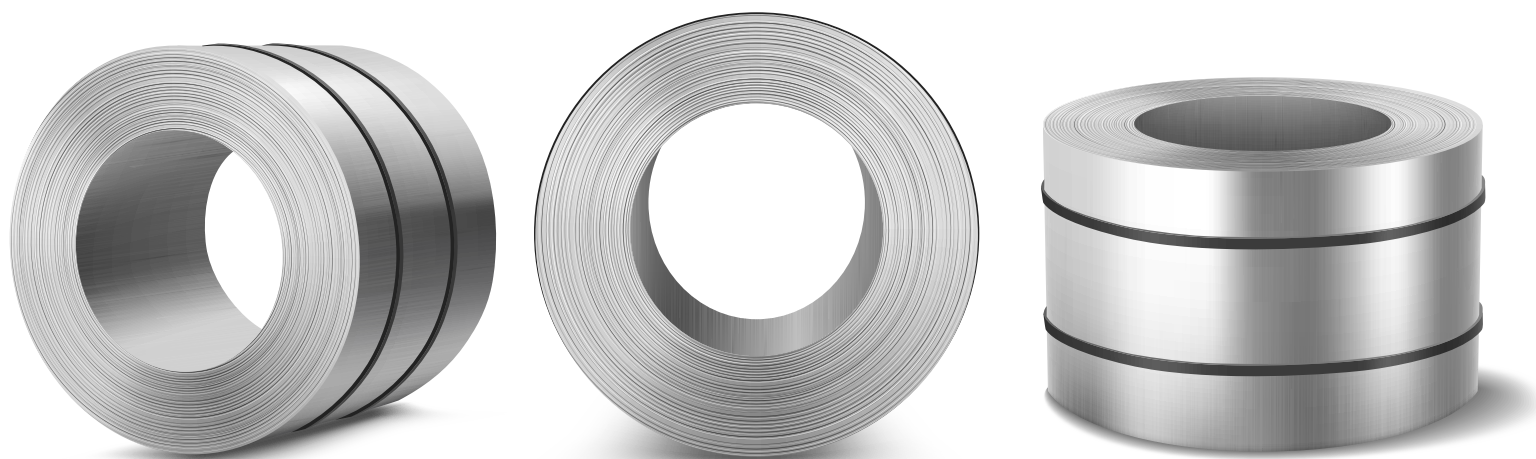
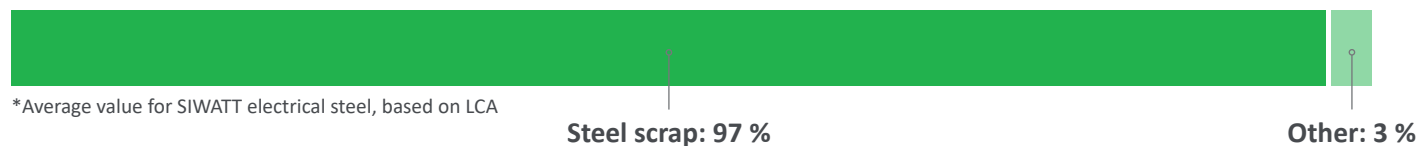
<sup>3</sup> In a protective gas atmosphere (as stress-relief annealing).

<sup>4</sup> It relates to the resistance to most different lubricants, refrigerating mediums and oils. The varnish producer tests the resistance to the specific medium only upon the customer's requirement.

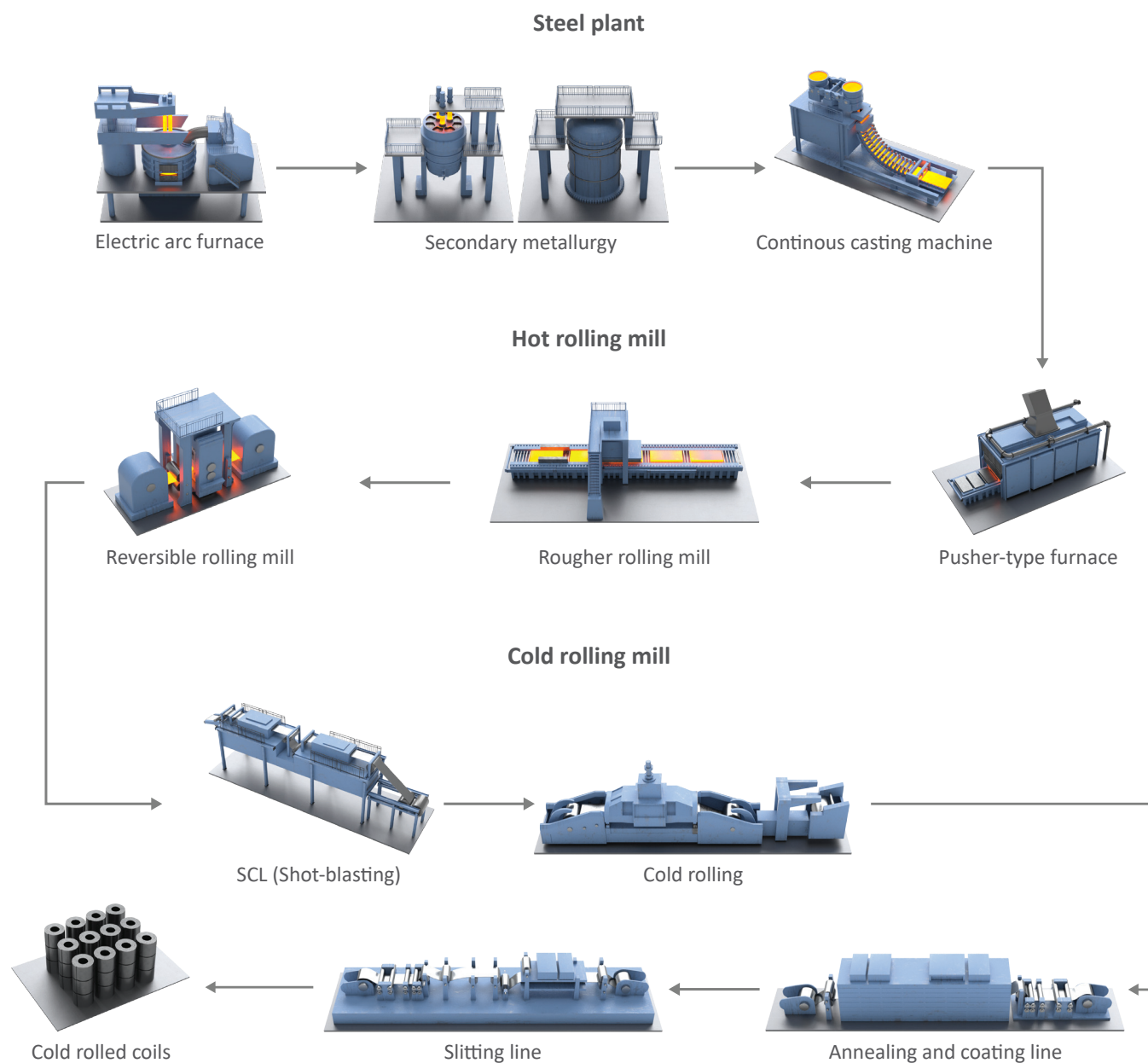
<sup>5</sup> Colour shades depend on the coating thickness and the type of varnish employed.

### SUPPORTING SUSTAINABLE SOLUTIONS

SIWATT embodies the essence of green steel. Made from recycled steel scrap, SIWATT electrical steel has an exceptionally low carbon footprint, which places it among the most sustainable electrical steels worldwide.



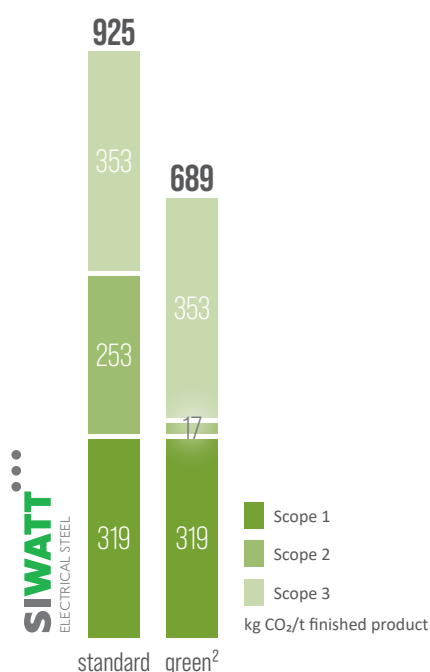
## PRODUCTION PROCESS



**Approvals, standards and certificates**

Scan • Click




green<sup>2</sup>

### Recycled content

Green<sup>2</sup> steel is made from recycled steel scrap, without the use of iron ore.

### 100 % renewable electricity

Green<sup>2</sup> steel is made with 100 % renewable electricity.

### Single site production

Green<sup>2</sup> steel is produced entirely in one location avoiding unnecessary emissions from transporting semi-finished products.

**SIJ Acroni** is the largest steel producer in Slovenia, specializing in producing hot- and cold-rolled flat steel products. We are among the leading European producers of stainless-steel quarto plates and one of the most important producers of tool, electrical, wear-resistant and high-strength structural steels. SIJ Acroni guarantees a constant level of quality by focusing on continuous development and improvement of processes and materials. We are certified according to IATF 16949, ISO 9001, ISO 14001, ISO 45001, ISO 50001, EN ISO/IEC 17025 and ResponsibleSteel. SIJ Acroni is a member of the vertically integrated group SIJ – Slovenian Steel Group.

### Living Circular Economy

We value flexibility and sustainability, which is why we make small batches of high-quality steel products with high added value and a low CO<sub>2</sub> footprint for niche markets. SIJ Acroni is proud to have one of the lowest carbon footprints in the industry.

- 100% of our steel is made from recycled steel scrap in an electric arc furnace. We use magnetic separation to purify and increase the quality of scrap. This helps us reduce our environmental impact and increase the quality of the final product.
- 98% of waste generated during our production process, such as steel scrap and slag, is recycled or otherwise reused.

