

Cortenstahl

1. Material description and grade

Corten steel (also known as weather-resistant structural steel) is a low-alloy steel which exhibits enhanced corrosion resistance due to the deliberate addition of alloying elements such as copper, chromium, nickel and phosphorus. Typical material designations include, amongst others, S355J2W in accordance with EN 10025-5.

The particular advantage of this material lies in the formation of a so-called **protective patina** (rust layer), which develops when exposed to the elements and protects the underlying material from further corrosion.



2. Material characteristics

- High weather resistance without the need for an additional coating
- Formation of a stable, dense patina that provides natural corrosion protection
- Characteristic rust-brown appearance with architecturally intended ageing
- Long service life with minimal maintenance
- Good mechanical strength comparable to that of traditional structural steels

3. Development of the patina

The protective rust layer **does not form immediately**, but is a natural process:

- **Initial phase** (0–3 months): Initial rust formation, sometimes uneven
- **Development phase** (3–12 months): Increasing densification and colour change
- **Stabilisation phase** (approx. 1–2 years): Formation of an even, firmly adhering protective patina

The duration depends heavily on environmental conditions, particularly humidity, weathering and air circulation. Alternating wet and dry conditions accelerate the process.

4. Note on rust staining

During the initial phase of weathering, **discolouration may occur due to rusty water**. Rust particles may become detached and transfer to adjacent materials.

This may particularly affect the following areas:

- Patio slabs
- Natural stone or concrete surfaces
- Surfaces close to the façade

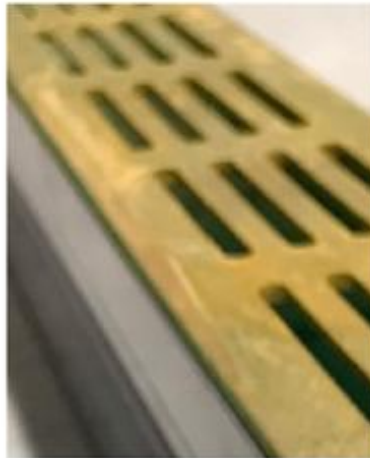
This phenomenon is typical of the material and does not constitute a quality defect; rather, it is part of the natural ageing process.

5. Guidance on planning and use

To minimise any potential damage caused by rust staining, we recommend:

- Use in areas with adequate drainage
- Taking this into account when selecting materials for adjacent surfaces
- Where necessary, structural measures to divert runoff
- Optional protection of sensitive surfaces during the initial phase

Once the patina has fully developed, the tendency for colour transfer is significantly reduced.



Summary

Corten steel is a high-quality, durable material with a distinctive appearance and high resistance to weathering. The initial rusting and possible colour transfer are typical characteristics and go hand in hand with the development of the permanent protective layer.