

Strenx® 960 HR W

General Product Description

The high-strength, corrosion resistant structural steel at 960 MPa.

Strenx® 960 HR W is a hot-rolled weathering steel made for cold forming, with a minimum yield strength of 960 MPa for stronger and lighter structures.

Strenx® 960 HR W meets and exceeds the requirements of S960MC in EN 10149-2. With its corrosion resistant properties, the weathering steel Strenx® 960 HR W minimizes the need for maintenance and corrosion-prevention treatment, contributing significantly to low maintenance costs throughout the product lifecycle. Typical applications include advanced lifting devices such as mobile cranes, containers, railway wagons and lighter transport solutions and components.

Dimension Range

Strenx® 960 HR W is available as cut to length sheets in thicknesses of 3.0 - 6.1 mm, widths up to 1860 mm and in lengths up to 12.3 m.

Mechanical Properties

Thickness (mm)	Yield strength R _{eH} ¹⁾ (min MPa)	Tensile strength R _m (MPa)	Elongation A ₅ (min %)	Min. inner bending radius for a 90° bend ²⁾
3.0 - 6.1	960	980 - 1250	7	3.5 x t

The mechanical properties are tested in the longitudinal direction.

¹⁾ If R_{eH} is not applicable then R_{p0.2} is used.

²⁾ For both longitudinal and transverse direction.

Impact Properties

Product	Min. impact energy for longitudinal testing, Charpy V 10x10 mm test specimen ¹⁾
Strenx® 960 HR W	27 J / -40 °C

¹⁾ Impact testing according to EN 10149-2 (-20 °C / minimum 40J) is available if specified at the time of order.

Impact testing according to EN ISO 148-1 is performed on thicknesses ≥ 5mm. The specified minimum value corresponds to a full-size specimen.

Chemical Composition (ladle analysis)

C (max %)	Si (max %)	Mn (max %)	P (max %)	S (max %)	Cr (max %)	Cu (max %)	Ni (max %)
0.12	0.30	1.20	0.02	0.010	1.60	0.70	0.50

The steel is grain refined.

Carbon Equivalent CET(CEV)

Thickness (mm)	3.0 - 6.1
Typ CET(CEV)	0.29 (0.54)

$$CET = C + \frac{Mn + Mo}{10} + \frac{Cr + Cu}{20} + \frac{Ni}{40} \quad CEV = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Cu + Ni}{15}$$

Tolerances

More details are given in SSAB's brochure Strenx® Guarantees or on www.ssab.com.

Thickness

Tolerances according to Strenx® Thickness Guarantee.

Strenx® Guarantees offer considerably narrower thickness tolerances compared to EN 10051.

Length and Width

Width and length tolerances according to SSAB standard.

SSAB standard offer narrower width and length tolerances compared to EN 10051.

Length tolerances only apply for cut to length sheets.

Shape

Tolerances according to EN 10051. Narrower tolerances according to the SSAB standard are available on request.

Flatness

Tolerances according to Strenx® Flatness Guarantee Class A.

Strenx® Flatness Guarantee offer narrower tolerances compared to EN 10051.

Flatness guarantees only apply for cut to length sheets.

Surface Properties

According to EN 10163-2 Class A, Subclass 3.

Delivery Conditions

Delivery requirements can be found in SSAB's brochure Strenx® Guarantees or www.ssab.com.

Fabrication and Other Recommendations

Welding, bending and machining

Strenx® 960 HR W has good welding, cold forming and cutting performance.

Strenx® 960 HR W is not suited for applications requiring hot working or heat treatments at temperatures above 400°C since the material then may lose its guaranteed properties.

The Weldability of Strenx® 960 HR W is good. The requirements of the mechanical properties over the weld depends on the application and further information regarding optimal values can be given by technical customer support.

Painting of Strenx® weather resistant steel is easy and will result in good paint adhesion. This can further increase the maintenance interval of the component. In order to ensure the uniform colour of the patina, all impurities must be cleaned from the steel surface. Organic impurities such as oil or protective greases must be removed by washing with suitable solvent.

Surface oxidation, oxides or rust can be removed by either shot-blasting or pickling. This will also accelerate the patina formation process. Shot-blasting is not recommended for thicknesses below 4 mm. The surface of a clean weathering steel surface can be pre-patinated by allowing the surface to get wet and dry in repeated intervals.

For information concerning fabrication, see SSAB's brochures on www.ssab.com or consult Tech Support.

Appropriate health and safety precautions must be taken when bending, welding, cutting, grinding or otherwise working on the products.

Contact Information

www.ssab.com/contact