Strenx® 960 Plus

General Product Description

Strenx® 960 Plus is a structural steel that guarantees a minimum yield strength of 960 MPa.

Strenx® 960 Plus meets the requirements of EN 10 025-6 for the S960QL grade. Typical applications include demanding load-bearing structures.

Benefits include:

- High impact toughness which provides for good resistance to fractures.
- Superior bendability and surface quality.
- Weldability with excellent HAZ strength and toughness.
- Exceptional consistency within a sheet guaranteed by close tolerances.

Dimension Range

Strenx® 960 Plus is available as cut to length sheets in thicknesses of 2.0 - 8.0 mm. Strenx® 960 Plus is available in widths up to 1600 mm and lengths up to 16000 mm depending on thickness. Please contact your sales representative for more information regarding dimensions.

Mechanical Properties

Thickness (mm)	Yield strength R_{eH} [1] (min MPa)	Tensile strength R_m (MPa)	Elongation A_{80} (min %)	Elongation A_5 (min %)	Min. inner bending radius for a 90° bend
2.00 - 2.99	960	980 - 1150	7	–	3.5 x t
3.00 - 8.00	960	980 - 1150	–	10	3.5 x t

The mechanical properties are tested and guaranteed in both longitudinal and transverse direction.

[1] If R_{eH} is not applicable then $R_{p0.2}$ is used.

Impact Properties

Grade	Min. impact energy for longitudinal testing, Charpy V 10x10 mm test specimen	Min impact energy for transversal testing, Charpy V 10x10 mm test specimen
Strenx® 960 Plus [1]	30 J / -40 °C	27 J / -40 °C

[1] Impact testing according to EN ISO 148-1 is performed on thicknesses ≥ 6mm. For thicknesses between 6.0 - 8.0 mm, sub-size Charpy V-specimens are used. The specified min value is then proportional to the cross-sectional area of the specimen compared to a full-size specimen (10x10 mm).

Chemical Composition (ladle analysis)

C (max %)	Si (max %)	Mn (max %)	P (max %)	S (max %)
0.18	0.50	1.70	0.020	0.010

The steel is grain refined.

Carbon Equivalent CET(CEV)

Thickness (mm)	2.00 - 8.00
Typ CET(CEV)	0.34 (0.50)

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

Tolerances

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

Thickness

Tolerances according to Strenx® Thickness Guarantees.

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

Length and Width

Width and length tolerances according to SSAB standard.

The 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 Guarantees Class A.

Strenx® Flatness Guarantees 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

The delivery condition is Q+T (Quenched and Tempered). Strenx® Plus is supplied in as rolled surface condition, pickled surface is available in a limited thickness range.

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

Fabrication and Other Recommendations

Welding, bending and machining

Strenx® Plus has very good weldability with good toughness and strength in the welds. Strenx® Plus has good forming and cutting performance.

Strenx® Plus 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.

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

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