

## General Product Description

Strenx® 960 is a structural steel that guarantees a minimum yield strength of up to 960 MPa depending on thickness.

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

Strenx® 960 benefits include:

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

## Dimension Range

Strenx® 960 is available in plate thicknesses of 4 – 100 mm. Strenx® 960 is available in widths up to 3350 mm and lengths up to 14630 mm depending on thickness. More detailed information on dimensions is provided in the dimension program

## Mechanical Properties

Thickness (mm)	Yield strength $R_{p0.2}$ (min MPa)	Tensile strength $R_m$ (MPa)	Elongation $A_5$ (min %)
4.0- 53.0	960	980- 1150	12
53.1- 100	850	900- 1100	10

For transverse test pieces.

## Impact Properties

Grade	Min transverse test, impact energy, Charpy V 10x10 mm tests specimens <sup>2)</sup>	Exceeds the requirements for
Strenx® 960 E	40 J/- 40 °C	S960QL

<sup>2)</sup> Unless otherwise agreed, transverse impact testing according to EN 10025-6 option 30 will apply. For thicknesses between 6- 11.9 mm, sub-size Charpy V-specimens are used. The specified minimum value is then proportional to the cross-sectional area of the specimen compared to a full-size specimen (10 x 10 mm).

## Chemical Composition (ladle analysis)

C <sup>1)</sup> (max %)	Si <sup>1)</sup> (max %)	Mn <sup>1)</sup> (max %)	P (max %)	S (max %)	Cr <sup>1)</sup> (max %)	Cu <sup>1)</sup> (max %)	Ni <sup>1)</sup> (max %)	Mo <sup>1)</sup> (max %)	B <sup>1)</sup> (max %)
0.20	0.50	1.60	0.020	0.010	0.80	0.3	2.0	0.70	0.005

The steel is grain refined. <sup>1)</sup> Intentional alloying elements.

## Maximum Carbon equivalent CET(CEV)

Thickness (mm)	4.0 - 34.9	35.0 - 100.0
CET(CEV)	0.38 (0.58)	0.41 (0.67)

$$CET = C + \frac{Mn + Mo}{10} + \frac{Cr + Cu}{20} + \frac{Ni}{40}$$

$$CEV = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Cu + Ni}{15}$$

## Tolerances

More details are given in SSAB's brochures 41-General product information Strenx®, Hardox®, Armox and Toolox-UK and Strenx® Guarantees or on [www.ssab.com](http://www.ssab.com).

### Thickness

Tolerances according to Strenx® Thickness Guarantees. Strenx® Guarantees meets the requirements of EN 10 029 Class A, but offers narrower tolerances.

### Length and Width

According to SSAB's dimension program. Tolerances conform with EN 10 029.

### Shape

SSAB offers tolerances according to EN 10 029

### Flatness

Tolerances according to Strenx® Flatness Guarantee Class C, which are more narrow than EN 10 029 Class N.

### Surface Properties

According to EN 10 163-2 Class A, Subclass 3.

### Bending

Tolerances according to Strenx® Bending Guarantee Class B.

## Delivery Conditions

The delivery condition is Q+T (Quenched and Tempered). The plates are delivered with sheared or thermally cut edges. Untrimmed edges after agreement. Delivery requirements can be found in SSAB's brochure 41-General product information Strenx®, Hardox®, Armox and Toolox-UK or on [www.ssab.com](http://www.ssab.com).

## Fabrication and Other Recommendations

### **Welding, bending and machining**

Recommendations are found in SSAB's brochures at [www.ssab.com](http://www.ssab.com) or consult Tech Support, [techsupport@ssab.com](mailto:techsupport@ssab.com).

Strenx® 960 has obtained its mechanical properties by quenching and subsequent tempering. The properties of the delivery condition cannot be retained after exposure to temperatures in excess of 550°C.

Appropriate health and safety precautions must be taken when welding, cutting, grinding or otherwise working on this product. Grinding, especially of primer coated plates, may produce dust with a high particle concentration.

## Contact Information

[www.ssab.com/contact](http://www.ssab.com/contact)