

Strenx® 1100 E/F

General Product Description

Strenx® 1100 E/F is a structural steel with a high yield strength at a minimum of 1100 MPa.

Typical applications include demanding load-bearing structures. Despite its strength, the material is surprisingly easy to weld and bend.

Strenx® 1100 E/F benefits include:

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

Dimension Range

Strenx® 1100 E/F is available in plate thicknesses of 4 – 40 mm. Strenx 1100 E/F is available in widths up to 3200 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 - 4.9	1100	1250 - 1550	8
5.0 - 40.0	1100	1250 - 1550	10

For transverse test pieces.

Impact Properties

Grade	Min transverse test, impact energy, Charpy V 10x10 mm tests specimens
Strenx® 1100 E	27 J/ -40°C
Strenx® 1100 F	27 J/ -60°C

Unless otherwise agreed, transverse impact testing according to EN 10 025-6 option 30 will apply. For thicknesses between 6 - 11.9 mm, subsize 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 *) (max %)	Si *) (max %)	Mn *) (max %)	P (max %)	S (max %)	Cr *) (max %)	Cu (max %)	Ni *) (max %)	Mo *) (max %)	B *) (max %)
0.21	0.50	1.40	0.020	0.005	0.80	0.30	3	0.70	0.005

The steel is grain-refined. *) Intentional alloying elements.

Maximum Carbon equivalent CET(CEV)

Thickness (mm)	4.0 - 4.9	5.0 - 7.9	8.0 - 14.9	15.0 - 40.0
1100 E CET(CEV)	0.37 (0.57)	0.38 (0.58)	0.39 (0.62)	0.42 (0.73)
1100 F CET(CEV)	-	0.40 (0.70)	0.40 (0.70)	0.42 (0.73)

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

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

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.

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 to EN 10 029.

Shape

SSAB offers tolerances according to EN 10 029.

Flatness

Tolerances according to Strenx® Flatness Guarantees Class D, which are narrower 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 C.

Delivery Conditions

The delivery condition is Q or QT (Quenched or Quenched and Tempered at our discretion). The plates are delivered with sheared or thermally cut edges. Untrimmed edge 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.

Fabrication and Other Recommendations

Welding, bending and machining

Recommendations are found in SSAB's brochures on www.ssab.com or consult Tech Support, techsupport@ssab.com.

Strenx® 1100 E/F 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 200°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