

## SSAB Boron 33

## General Product Description

SSAB Boron 33 is steel for quench- and press hardening. The degree of hardness and toughness that can be achieved after heat-treatment will provide the final products with wear- and shock resistance properties that assure longer lifetime.

### Dimension Range

SSAB Boron 33 is available in thickness range 2.00-16.00 mm and widths up to 1800 mm as coils, slit coils and CTL. Lengths up to 16 meters as cut to length.

## Mechanical Properties (typical values)

Condition	Yield strength (MPa)	Tensile strength (MPa)	Elongation A (%)	Hardness (HBW)
Hot rolled	420	620	20	190
Hot rolled annealed	365	560	24	175
Hot rolled water quenched	1270	1830	7	565
Hot rolled oil quenched	1030	1500	8	460

### BENDING RADIUS

Minimum bending radius of hot rolled SSAB Boron 33 strip products is 2 x sheet thickness. A tighter bending radius, 1 x sheet thickness, can be guaranteed for the annealed strip products. For further information, please contact SSAB's Technical Customer Service at [techsupport@ssab.com](mailto:techsupport@ssab.com).

### Materials testing

A test certificate according to EN 10204/2.2 (chemical composition) is part of the delivery.

A test certificate according to EN 10204/3.1 can be provided by special agreement only.

## Chemical Composition

Condition	C (%)	Si (%)	Mn (%)	S (max %)	P (max %)	Cr (%)	B (%)
Hot Rolled Strip	0.31- 0.36	0.10- 0.30	1.20- 1.40	0.010	0.020	0.10- 0.40	0.0008- 0.0050

The steel is grain refined.

### Carbon Equivalent Values

Condition	Hot Rolled Strip
Typical CEV	0.59

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

## Tolerances

SSAB Boron steels are delivered with SSAB Boron tolerances which meet and exceed the requirements in corresponding EN standards. Tighter tolerances are available on request.

### Thickness

Hot rolled coils and sheet products: according to SSAB Boron thickness tolerances that exceed EN 10051 and correspond to 2/3 of EN 10051:2010 as default value.

### **Length and width**

Hot rolled coils and sheets with mill edges: SSAB Boron width tolerances are corresponding to -0/+20 mm.

Hot rolled coils and sheets with cut edges: SSAB Boron width tolerances are corresponding to -0/+2 mm.

### **Shape**

Hot rolled coils and sheets: SSAB Boron is delivered with shape tolerances according to EN 10051:2010. Tighter shape tolerances are available on request.

### **Flatness**

Hot rolled sheets: SSAB Boron tolerances correspond to SSAB Flatness Guarantees Class B. SSAB Boron tolerances guarantee a maximum flatness deviation of 6 mm/m in addition to the EN 10051:2010 flatness requirements. Flatness guarantees only apply for cut to length sheets.

### **Surface Properties**

Hot rolled strip products products: According to EN 10 163-2 Class A, Subclass 3.

## **Delivery Conditions**

Hot rolled coils and sheets are delivered in as-rolled or by separate agreement annealed condition.

### **SURFACE CONDITION**

Hot rolled strip products are available in non-pickled, pickled dry or pickled & oiled condition.

## **Fabrication and Other Recommendations**

For information concerning fabrication, see SSAB's brochures on [www.ssab.com](http://www.ssab.com) or consult Tech Support, [techsupport@ssab.com](mailto:techsupport@ssab.com).

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

## **Contact Information**

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