



## TOOLOX 33 BARS

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### GENERAL PRODUCT DESCRIPTION

Prehardened, precise, predictable steel, now in round bars

Toolox® 33 round bars are prehardened, ready-to-use quenched and tempered tool steels that come in a wide range of diameters from small to large.

Suitable for engineering applications in tool holders and in different types of shafts and rolls, the diameter dimensions also provide a better solution for round parts in tooling applications like molding and in dies for aluminium die casting.

#### Dimension Range

Toolox 33 round bars is available in diameters 21- 141 mm. Other dimensions can be available on request.

### MECHANICAL PROPERTIES

Diameter (mm)	Hardness <sup>1)</sup> (HBW)
21- 141	275- 325

<sup>1)</sup> Hardness is measured, according to EN ISO 6506-1, on a milled surface 0.5 - 2 mm below the plate surface.

Bar Hardness is measured on a milled surface, with indents positioned as impact test according to EN 10 083.

#### Impact Properties

Test temperature	Impact energy, Charpy-V, Min J <sup>2)</sup>
20 °C	35 min J

<sup>2)</sup> Impact testing according to EN 10 083.

#### Ultrasonic testing

Ultrasonic inspection is carried out according to : EN 10 308 with extra demands according to specification SSAB V6.

### TOLERANCES

More details are given in SSAB's brochure 41-General product information Strenx, Hardox, Armox and Toolox-UK and also available on [www.toolox.com](http://www.toolox.com).

#### Diameter and Length

Tolerances according to EN 10 060.

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## **Straightness**

Straightness according to EN 10 060.

## **Surface Properties**

Peeled surface.

## **DELIVERY CONDITIONS**

Quenched and Tempered at a minimum temperature of 590 °C.

On delivery from SSAB the plates meet the following specifications:

- free from mill scale
- not repair welded

Delivery requirements can be found in SSAB's brochure 41-General product information Strenx, Hardox, Armox and Toolox-UK or [www.toolox.com](http://www.toolox.com).

## **FABRICATION AND OTHER RECOMMENDATIONS**

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

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

Toolox 33 is not intended for further heat treatment. If Toolox 33 is heated above 590 °C after delivery from SSAB no guarantees for the properties of the steel are given.

Nitriding or surface coating may be carried out if the temperature is below 590 °C.

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



The UK English version of this document shall prevail in case of discrepancy. Download the latest version of this document at [www.ssab.com](http://www.ssab.com)

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