

# Toolox<sup>®</sup> 44

## General Product Description

The pre-hardened steel for extrusion dies and engineering components.

Toolox<sup>®</sup> 44 pre-hardened steel is suitable for extrusion dies and engineering components that require high strength. It possesses good workshop properties.

Toolox<sup>®</sup> 44 is a pre-hardened engineering and tool steel. Despite its high hardness, Toolox<sup>®</sup> 44 combines very good machinability with dimensional stability during machining.

Its nominal 450 HBW/45 HRC hardness makes Toolox<sup>®</sup> 44 your ideal choice for demanding mold and die applications. The high steel cleanliness gives Toolox 44 very good polishing, A2 gloss, and texturing capabilities.

In applications that demand additional surface hardness to counteract wear, you can nitride and PVD coat Toolox<sup>®</sup> 44 to customize the mold or die properties. Surface engineering can be carried out as long as the deposition temperature does not exceed 590°C (1,094°F).

## Dimension Range

Toolox<sup>®</sup> 44 is available as plates in thicknesses between 6 - 130 mm. Other dimensions can be available on request.

## Mechanical Properties

Thickness (mm)	Hardness <sup>1)</sup> (HBW)
6 - 130	410 - 475

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

## Impact Properties

Test temperature	Min. impact energy, Charpy-V, transverse direction <sup>2)</sup> J
20 °C	18

<sup>2)</sup> Impact testing according to EN 10 025, EN ISO 148.

## Ultrasonic testing

Ultrasonic inspection is carried out according to : EN 10 160 with extra demands according to specification SSAB V6.

## Tolerances

More details are given in SSAB's brochure Toolox<sup>®</sup> Guarantees or at [www.toolox.com](http://www.toolox.com).

## Thickness

Tolerances according to Toolox® Thickness Guarantee. Toolox® Guarantees meets the requirements of EN 10 029 Class C but offers more narrow tolerances.

## Length and Width

Tolerances according to EN 10 029.

## Flatness

Tolerances are according to Toolox® Flatness Guarantees, which are more restrictive than EN 10 029 Class N (steel type L).

## Surface Properties

Surface properties of Toolox 44 are according to EN 10 163-2 Class B, Subclass 3.

## 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 Toolox® Guarantees or on [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 44 is not intended for further heat treatment. If Toolox 44 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.

## Contact Information

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