TOOLOX®
ENGINEERING & TOOL STEEL

Toolox® 44 round bars

General Product Description

Pre-hardened, precise, predictable steel, now in round bars.

Toolox® round bars are pre-hardened, 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® 44 round bars is available in diameters 21.0 - 353.0 mm. Other dimensions can be available on request.

Mechanical Properties

Diameter (mm)	Hardness [1] (HBW)	Yield strength $R_{p0.2}$ (min MPa)	Tensile strength R_m (min MPa)	Elongation A_5 (min %)
21.0 - 141.0	410 - 475	1100	1250	8
142.0 - 353.0	410 - 475	—	—	—

[1] Hardness is measured, according to EN ISO 6506-1, on a milled surface 12.5 mm below the ordered diameter. Bar hardness is measured on a milled surface, with indents positioned as impact test according to EN 10083.

Impact Properties

Diameter (mm)	Min. impact energy for longitudinal testing, Charpy V 10x10 mm test specimen [1]
21.0 - 141.0	18 J / 20 °C
142.0 - 353.0	11 J / 20 °C

[1] Impact testing according to EN 10083.

Ultrasonic testing

Ultrasonic inspection is carried out according to: EN 10308 with extra demands according to specification SSAB V6.

SSAB

Tolerances

Tolerances for Toolox® round bars are according to EN 10060.

For more information concerning dimensions and tolerances, see Toolox® round bars dimensional program: Toolox® engineering & tool steel dimensional program bars or Toolox® Guarantees available at www.ssab.com or www.toolox.com.

Delivery Conditions

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

On delivery from SSAB the round bars meet the following specifications:

- Free from mill scale
- Not repair welded

Delivery requirements can be found in SSAB's brochure Toolox® Guarantees or at www.toolox.com.

Fabrication and Other Recommendations

Welding, bending and machining

For information concerning welding and fabrication, see SSAB's brochures on www.ssab.com or consult Tech Support.

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

Surface Hardening

Toolox® is an excellent steel for different type of surface hardening. The high yield strength and ductility of Toolox make it an ideal base material Microcracks in the hardened layer stops when reaching the base material. Surface hardening such as laser or induction when done in the right way only changes the properties locally. The steel below the hardened layer keeps its original properties intact.

Nitriding and surface coatings represent a very interesting way to increase hardness, lower friction and some cases improve corrosion resistance When done below 590 °C the material properties are not affected.

Contact Information

www.ssab.com/contact

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