

## General Product Description

Blast protection plate.

ArmoX<sup>®</sup> 440T combines excellent penetration and shock resistance. It offers vehicle designers new ways to increase protection using lighter weight designs.

Benefits of using ArmoX<sup>®</sup> 440T include:

- Superior workshop properties
- Optimized solutions
- Perfect hardness/toughness balance, for combined penetration and blast protection
- Expertise in ballistic protection from SSAB

ArmoX<sup>®</sup> 440T is not intended for further heat treatment.

## Dimension Range

ArmoX<sup>®</sup> 440T is available in thicknesses between 4.0 and 80.0 mm.

## Mechanical Properties

Thickness (mm)	Hardness (HBW)	Yield strength R <sub>p0.2</sub> (min MPa)	Tensile strength R <sub>m</sub> (MPa)	Elongation A <sub>5</sub> (min %)	Elongation A <sub>50</sub> (min %)
4.0 - 30.0	420 - 480	1100	1250 - 1550	10	12
30.1 - 50.0	420 - 480	1050	1250 - 1550	10	12
50.1 - 80.0	420 - 480	1000	1250 - 1550	10	12

## Mechanical Testing

Brinell hardness test according to EN ISO 6506-1 on each heat treatment individual.

Charpy impact test according to EN ISO 148 on each heat and thickness from 6 mm.

Tensile test according to EN ISO 6892 on each heat and thickness.

## Ultrasonic testing

According to EN 10160 Class E<sub>3</sub>S<sub>3</sub>.

## Impact Properties

Thickness (mm)	Min impact energy for transversal testing, Charpy V 10x10 mm test specimen <sup>1)</sup>
4.0 - 80.0	45 J / -40 °C

<sup>1)</sup> Average of three tests. Transverse to rolling direction. Single value min. 70% of specified average. For plate thicknesses under 12 mm sub-size Charpy-V specimen are used. The specified minimum value is then proportional to the specimen cross-section.

## Chemical Composition (ladle analysis)

C <sup>*)</sup> (max %)	Si <sup>*)</sup> (max %)	Mn <sup>*)</sup> (max %)	P (max %)	S (max %)	Cr <sup>*)</sup> (max %)	Ni <sup>*)</sup> (max %)	Mo <sup>*)</sup> (max %)	B <sup>*)</sup> (max %)
0.21	0.50	1.20	0.010	0.003	1.0	2.50	0.70	0.005

The steel is grain-refined. <sup>\*)</sup> Intentional alloying elements.

## Tolerances

More details are given in SSAB's brochure Armox® Guarantees or on [www.ssab.com](http://www.ssab.com).

### Thickness

Thickness (mm)	Tolerance (mm)
4.0 - 12.9	- 0.0 / + 0.6
13.0 - 20.0	- 0.0 / + 0.8
20.0 - 40.0	- 0.0 / + 1.0
40.1 - 59.9	- 0.0 / + 1.4
60.0 - 80.0	- 0.0 / + 1.6

### Length and Width

According to SSAB's dimension program.

- Tolerances conform to EN 10029 or to SSAB's standard after agreement.
- Dimensional tolerances for plate with mill edge according to special agreement.

### Shape

Tolerances according to EN 10029.

### Flatness

Tolerances according to Armox® flatness guarantees, which are more restrictive than EN 10029 Class N (steel type L).

### Surface Properties

According to EN 10163-2 Class B, Subclass 3.

### Delivery Conditions

The delivery condition is QT (Quenched and Tempered).

Delivery requirements can be found in SSAB's brochure Armox® Guarantees or [www.ssab.com](http://www.ssab.com).

### Fabrication and Other Recommendations

#### Welding, bending and machining

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

Armox® 440T is not intended for further heat treatment. If Armox® 440T is heated above 170 °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 170 °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)