ARMOX®
PROTECTION PLATE

Armox 440T

General Product Description

Blast protection plate.

Armox® 440T combines excellent penetration and shock resistance.

It offers vehicle designers new ways to increase protection using lighter weight designs.

Benefits of using Armox 440T include:

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

Armox 440T is not intended for further heat treatment.

Dimension range

Armox 440T is available in thicknesses between 4.0 and 80.0 mm.

Mechanical Properties

Plate thickness (mm)	Hardness (HBW)	Charpy-V[1], 10x10 mm test specimen[2] Min	Yield Strength $R_{p0.2}$ (min MPa)	Tensile Strength R_m (MPa)	Elongation A_5 (min %)	Elongation A_{50} (min %)
4.0- 30.0	420- 480	45 J/- 40°C	1100	1250- 1550	10	12
30.1- 50.0	420- 480	45 J/- 40°C	1050	1250- 1550	10	12
50.1- 80.0	420- 480	45 J/- 40°C	1000	1250- 1550	10	12

[1] Average of three tests. Transverse to rolling direction. Single value min. 70 % of specified average.
[2] For plate thicknesses under 12 mm sub-size Charpy-V specimen are used. The specified minimum value is then propotional to the specimen cross-section.

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 thicknesses from 6 mm.

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

Ultrasonic testing

According to EN ISO 10 160 Class E_3S_3.

Chemical Composition (ladle analysis)

C *) (max %)	Si *) (max %)	Mn *) (max %)	P (max %)	S (max %)	Cr *) (max %)	Ni *) (max %)	Mo *) (max %)	B *) (max %)
0.21	0.5	1.2	0.010	0.003	1.0	2.5	0.7	0.005

The steel is grain-refined. *) Intentional alloying elements.

Tolerances

More details are given in SSAB´s brochure 41-General product information Strenx, Hardox, Armox and Toolox-UK or on www.ssab.com.

SSAB

Thickness

Plate thickness (mm)	Tolerances (mm)
4.0- 12.9	- 0.0 / + 0.6
13.0- 20.0	- 0.0 / + 0.8
20.1- 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 10 029 or to SSAB´s standard after agreement.
- Dimensional tolerances for plate with mill edge according to special agreement.

Shape

Tolerances according to EN 10 029.

Flatness

Tolerances according to SSAB´s flatness tolerances which are more restrictive than EN 10 029 Class N (steel type L).

Surface Properties

According to EN 10 163-2 Class B Subclass 3.

Delivery Conditions

The delivery condition is QT (Quenched and Tempered). Delivery requirements can be found in SSAB's brochure 41-General Plate product information Strenx, Hardox, Armox and Toolox-UK or 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 or consult Tech Support, techsupport@ssab.com.

Armox 440T is not intened 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