



Steel that strengthens your defence

ARMAPRO 500 is an armour plate with high hardness (500 HBN) and excellent ballistic resistance properties, strength, and workability. It is available in a wide range of dimensions from 3 mm to 25 mm thickness, 1,500 mm to 3,000 mm width, and length between 3 metres and 12 metres, and given that it works across a wide range of applications, it is guaranteed to keep you safe and secure.

Product Description

- Superior fabrication properties
- Sturdy steel made to last
- Ballistic protection
- Lightweight design that offers flexibility without compromising on protection

Product Applications



Mechanical Properties

Nominal thickness (mm)	Hardness ⁽¹⁾ (HBW)	YS (MPa)	UTS (MPa)	% Elongation (GL=50mm)	Charpy 'V' Notch at -40°C ⁽²⁾ (Avg. Value in joules)
3.0–25.0	480–540	≥1,250	≥1,450	≥ 8	≥ 25

1) Hardness is measured on 0.3–2.0 mm below plate surface after milling

2) Sample orientation transverse to rolling direction. Single value min. 70% of specified average

Tolerances

Thickness tolerance as per EN 10029:2010, Width as per EN 10029:2010, Flatness as per EN 10029 Class N:2010, and Surface quality as per EN 10163-2 Class B, Sub Class 3.

Ultrasonic testing according to EN 10160 class S1E1 on each plate.

Chemical Composition (Ladle Analysis)*

C	Mn	S	Si	Cr	Ni	Mo	CE**
0.32	1.20	0.010	0.70	1.80	1.80	0.70	0.70

**CE (Carbon equivalent) = $C + Mn/6 + (Cr+Mo+V)/5 + (Cu+Ni)/15$

*Typical maximum values in % weight

Ballistic Testing

Standard*	Type of Bullet	Velocity (minimum)	Nominal Plate Thickness
NIJ Level – III	7.62 x 51 M80 NATO Ball	838±15m/sec	6.00 mm
NIJ Level – IV	0.30 Caliber AP M2	868±15m/sec	14.50 mm
STANAG 4569 Level – I	5.56 x 45 mm NATO Ball (M193)	937±20m/sec	9.20 mm
	5.56 x 45 mm NATO Ball (SS109)	900±20m/sec	6.50 mm
	7.62 x 51 mm NATO Ball (M80)	833±20m/sec	6.50 mm
STANAG 4569 Level – II	7.62 x 39 API BZ	695±20m/sec	12.20 mm
EN1522 FB6	7.62 x 51 M80 NATO Ball	830±10m/sec	6.0 mm
EN1522 FB7	7.62 x 51 P80 NATO AP	820±10m/sec	14.5 mm

6.0 mm tested successfully as per VPAM PM7. *Other ballistic requirements to be agreed upon, on a case to case basis

Cold Forming

Sample Orientation	Bend Angle	Bend Radius
Transverse to rolling direction	90°	6xt
Longitudinal to rolling direction	90°	6xt

(t = Plate thickness)

Getting the best results from ARMAPRO 500

Welding and Cutting

The properties of ARMAPRO 500 cannot be retained after exposure to temperatures in excess of 170°C. It is not intended for further heat treatment and is commonly welded using normal welding techniques, i.e., GMAW & SMAW.

Water jet cutting is always preferred to maintain the properties of the steel; however, laser and plasma cutting can also be used. Mechanical cutting can be done with cutting tools that are sufficiently hard and the equipment should be rigid.

Essar Steel

Essar Steel India is one of India's leading integrated steel producers with an annual production capability of 10 million tonnes that is supported by a 20-million-tonne pellet-making capability. The state-of-the-art facilities comprise iron ore beneficiation, pellet-making, iron-making, steel-making, and downstream facilities, including a cold rolling mill, a galvanizing and pre-coated facility, an extra-wide plate mill, three pipe mills with coating facilities, and steel-processing facilities.

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