

Product and Application

TruSHIELD 500 armor plate, formerly Aegis Shield 500, provides excellent ballistic performance and an outstanding weight-to-ballistic-protection ratio. This quenched and tempered product excels in downstream fabrication processes like bending, laser cutting and plasma cutting. This product is used widely in the commercial vehicle armoring, explosion protection, military equipment and commercial body armor applications.

Available in thicknesses up to 0.500", widths up to 60" and lengths up to 288".

Mechanical Properties

Surface Hardness	470 - 535 HBW (aim 500 HBW)
Yield Strength	220 ksi (1517 MPa)
Tensile Strength	235 ksi (1620 MPa)
Charpy Impacts (typical @ -40° F)	28 ft-lbs (38 J), 22 ft-lbs (29.8 J) transverse
Bend Radius	4T (transverse), 3.5T (longitudinal) at 0.250" (6.35 mm) thick or less. Larger radius recommended for thicker plates.

Typical mechanical testing values other than Brinell hardness listed for information only and are not performed unless specified at time of order. Charpy Impact specimens, when performed, are subsize on thicknesses < 0.375". Charpy Impact values listed are adjusted to full size equivalent. Hardness tested on each plate, but not reported.

Dimensional Tolerances

Flatness	Flatness tolerances meet 1/2 ASTM A6, Table 14, latest revision. TruFLAT guarantee of 1/4 ASTM A6 for 0.300" and thinner.
Thickness	+/- 0.012" to nominal thickness
Length and Width	Length and width tolerances meet ASTM A6, latest revision.

TRUFLAT™

Chemical Composition

	C	Mn	P	S	Si	Cu	Ni	Cr	Mo
Max	0.33	1.20	0.020	0.015	0.45	0.25	0.80	0.70	0.45
CEV (typical):	0.61			CEV = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15					
CET (typical):	0.42			CET = C + (Mn+Mo)/10 + (Cr+Cu)/20 + Ni/40					
CEq (typical):	0.43			CEq= C + Si/25 + (Mn+Cu)/16 + Ni/40 + Cr/10 + Mo/15 + V/10					

Ballistic Performance

In appropriate thickness, TruSHIELD 500 meets various protection levels for NIJ, EN 1063, EN1522, UL 752 and VPAM. May also be dual certified.

Fabrication, Bending, Post-Delivery Heating and Welding

Bending	Free bending should be performed utilizing maximum allowable bend radius to prevent cracking. TruSHIELD 500 plates 0.250" (6.35 mm) thick and less can be bent using a transverse radius of 4T and a longitudinal radius of 3.5T. Larger bend radius is recommended for thicker plates. Transverse radius is the bend line parallel to rolling direction.
Post-Delivery Heating	TruSHIELD 500 armor plate achieves its properties through quenching and tempering processes. Heating in fabrication (such as post-weld stress relieving) or in service must not exceed 400° F without risk of lowering the strength and hardness of the material.
Welding	TruSHIELD 500 armor plates can be welded by conventional processes such as SMAW, SAW and GMAW, provided that the weld procedures used are suitable for this grade and design of the welded structure, using low hydrogen conditions.

*These statements are general guidelines. CMC Impact Metals is not responsible for the results of any welding work performed.

Standard Delivery Conditions

Surface Finish	Shot blasting and rust preventative applications are available. Please inquire.
Test Reports	Supplied with shipment for each production lot in the shipment. Reports include product description, heat number, chemical analysis and Brinell hardness value.