

## Product and Application

TruSTRENGTH 140 plate provides excellent properties in strength and toughness. This quenched and tempered product excels in downstream fabrication processes like bending, machining laser cutting, plasma cutting and welding. This product is used widely in construction and forestry equipment, mining, cranes, heavy-duty transport equipment, railcars and various applications requiring a high strength-to-weight ratio.

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

## Mechanical Properties

Yield Strength (min.)	140 ksi (965 MPa)
Tensile Strength (min.)	150 ksi (1034 MPa)
Elongation	11%
Reduction of Area	40%
Charpy V-Notch @ -40° F	32 ft-lbs (43.4 J) longitudinal, 25 ft-lbs (33.9 J) transverse
Charpy V-Notch @ -40° F (min.)	15 ft-lbs (20.3 J) transverse
Bend Radius	3T (transverse and longitudinal). Larger bend radius recommended for thicker plates.

*Typical values unless otherwise noted.*

Different Charpy Impact test temperatures may be specified, with mechanical tests conducted in accordance with ASTM

A370, latest revision. Tensile and Charpy Impact tests conducted per heat/heat treat lot. Hardness also taken on each plate, but not reported.

## Dimensional Tolerances

**Flatness** Flatness tolerances meet 1/2 of ASTM A6, Table 14, latest revision. TruFLAT tolerance of 1/4 ASTM A6 for 0.300" and thinner.

**TRUFLAT™**

**Thickness** +/- 0.012" to nominal thickness

**Length and Width** Length and width tolerances meet ASTM A6, latest revision

## Chemical Composition

	C	Mn	P	S	Si	Cu	Ni	Cr	Mo
<b>Max</b>	0.24	1.60	0.020	0.015	0.34	0.25	0.45	0.65	0.30
CEV (typical):			0.58		CEV = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15				
CET (typical):			0.40		CET=C + (Mn+Mo)/10 + (Cr+Cu)/20 + Ni/40				
CEq (typical):			0.39		CEq= C + Si/25 + (Mn+Cu)/16 + Ni/40 + Cr/10 + Mo/15 + V/10				

## Fabrication, Bending, Post-Delivery Heating and Welding

**Bending** Free bending should be performed utilizing maximum allowable bend radius to prevent cracking. TruSTRENGTH 140 plates can be bent using a minimum radius of 3T in the transverse and longitudinal direction. Larger bend radius is recommended for thicker plates. Transverse radius is the bend line parallel to rolling direction.

**Welding** TruSTRENGTH 140 plate 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. Contact your CMC Impact Metals representative to receive more detailed technical information about any fabrication or machining processes.

## 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.