TruSTRENGTH 100 Flat Bar

Product and Application

TruSTRENGTH structural steel flats heat treated to 100 ksi yield strength, as well as other mechanical testing requirements. After heat treatment, product is intended for use in applications requiring a combination of high strength, weldability and toughness.

Available in thickness 1/4” - 2”, widths 3” - 12” and lengths up to 56’.

Mechanical Properties

Yield Strength (0.2%)	100 ksi (689 MPa)
Tensile Strength	110 - 135 ksi (758 - 931 MPa)
Elongation in 2”	18%
Reduction of Area	40%
Charpy V-Notch @ -40° F	20 ft-lbs (27.1 J), average of 3 specimens, longitudinal
Methods	Mechanical tests in accordance with ASTM A370, latest revision
Frequency	Per heat, per size and per load

* Minimum values unless otherwise noted.

Dimensional Tolerances

Cross-Sectional Dimensions	Per ASTM A6, Table 26 (flats)
Length	Per ASTM A6, Table 30
Width	Per ASTM A6
Straightness	1/8” in 5’ maximum deviation

Chemical Composition

	C	Mn	P	S	Si	Cu	Ni	Cr	Mo
Min	0.14	0.90	-	-	0.15	-	-	-	-
Max	0.22	1.55	0.035	0.040	0.40	0.50	0.50	0.70	0.50
CE* (typical):			0.58		*Carbon Equivalency calculated using the following formula: CEV = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15				

Recommended Welding Practices

TruSTRENGTH 100 flat bar can be welded by conventional processes such as SMAW, SAW and GMAW, provided the weld procedures used are suitable for this grade and design of the welded structure. Proper weld procedures should include the following:

1. Low Hydrogen conditions must be used.
2. Preheating to 200-500 °F is required for heavy section (>0.750”), and is recommended for thinner sections to eliminate moisture.
3. Slow cooling rates should be avoided to prevent low toughness in the heat-affected zone (HAZ).

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

Standard Delivery Conditions

Test Reports	Supplied with shipment for each production lot in the shipment. Reports include description of product and heat treatment processing, and heat number, heat treatment lot and chemical analysis of all elements listed from ladle analysis.

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