

High Strength Steel

Weldox 100 is a structural steel with a minimum yield strength of 100 ksi. Weldox 100 meets the requirements of ASTM A 514S, for thicknesses up to 2 1/2 in.

Applications Load carrying structures having high demands on low weight.

Chemical composition
(ladle analysis)

C	Si*	Mn*	P	S	B*	Nb*	Cr*	V*	Cu*	Ti*	Al*	Mo*	Ni*	N	CEV typical value ¹⁾
max	max	max	max	max	max	max	max	max	max	min	total	max	max	max	
%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
0.11	0.15	1.10	0.020	0.010	0.001	0.04	0.70	0.06	0.30	0.04	0.015	0.10	2.0	0.010	
-0.20	-0.45	-1.50			-0.005							-0.60			

The steel is grain-refined. CEV typical value for information
¹⁾ For plate thicknesses – 3/16 in CEV 0,46
 For plate thicknesses (3/16) – 1 1/4 in CEV 0,41
 For plate thicknesses (1 1/4) – 1 3/4 in CEV 0,46
 For plate thicknesses (1 3/4) – 4 in CEV 0,56
 For plate thicknesses (4) – 5 in CEV 0,64

$$CEV = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$$

* Intentional alloying elements.

Mechanical properties	Plate thickness in	Yield strength R _{p0.2} min ksi	Tensile strength R _m ksi	Elongation ¹⁾ A ₅₀ min %	Reduction of Area min, %
	(3/16) – 1 3/16	100	110–130	16	35
	(1 3/16) – 2 1/2	100	110–130	16	45
	(2 1/2) – 4	94	110–130	14	45
	(4) – 5	91	102–130	14	45

¹⁾ For transverse test pieces.

Impact Properties	Steel grade	Test temperature °F(°C)	Impact energy ¹⁾ for test on transverse Charpy V test pieces min, ft-lb(J)
	WELDOX 100	-40 (-40)	10x10 specimen ²⁾ 20 (27)

¹⁾ Average of three tests.

Single value min 70% of specified average.

²⁾ For plate thicknesses under 12 mm subsize Charpy V-specimens are used. The specified minimum value is then proportional to the specimens cross-section.

Testing Impact testing according to ASTM A6, per heat and 50 metric tons.

Delivery Condition	Quenched and tempered, Q
Dimensions	WELDOX 100 is supplied in plate thicknesses of 3/16–5 inches. More detailed information on dimensions is provided in our brochure 041-General Product Information Weldox, Hardox, Armox and Toolox-UK. Plate with thickness between 4–5 inches after specific agreement.
Tolerances	<ul style="list-style-type: none">– Tolerances on thickness according to ASTM A6.– Tolerances on flatness according to SSAB internal requirements, Class N. <p>The SSAB requirements for Class N will at least be twice as good as the requirements for flatness in ASTM A6.</p>
Surface finish	According to ASTM A6.
General technical delivery requirements	According to our brochure 41-General Product Information Weldox, Hardox, Armox and Toolox-UK.
Heat treatment and fabrication	<p>Weldox 100 has obtained its mechanical properties by a quenching and tempering process.</p> <p>Weldox 100 is not suited for applications requiring hot working at temperatures above 1076 °F (580 °C) since the material may then lose its guaranteed properties.</p> <p>For information concerning welding and fabrication, see our brochures on www.weldox.com or consult our Technical Customer Service.</p> <p>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.</p>