

Weldox 1100

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High Strength Steel

Weldox 1100 is a general structural steel with a minimum yield strength of 1100 MPa (160 ksi). Values in brackets are in imperial units for information only.

Applications Load carrying structures having very high demands on low weight.

Designation Weldox 1100E with guaranteed impact toughness at -40° C (-40° F).
Weldox 1100F with guaranteed impact toughness at -60° C (-76° F).

Chemical composition (ladle analysis)

C*	Si*	Mn*	P	S	B*	Nb*	Cr*	V*	Cu	Ti*	Al* total	Mo*	Ni*	N
max %	max %	max %	max %	max %	max %	max %	max %	max %	max %	max %	min %	max %	max %	max %
0.21	0.50	1.40	0.020	0.005	0.005	0.04	0.80	0.08	0.10	0.02	0.020	0.70	3.0	0.010

*Intentional alloying elements. The steel is grain-refined

	Plate thickness	CEV Typical values %	CET Typical values %	
Weldox 1100E	8 mm (0.314")	0.59	0.35	
	20 mm (0.786")	0.71	0.41	
Weldox 1100F	8 mm (0.314")	0.68	0.38	
	20 mm (0.786")	0.71	0.41	

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

$$CET = C + \frac{Mn+Mo}{10} + \frac{Cr+Cu}{20} + \frac{Ni}{40}$$

Mechanical properties

Plate thickness mm (inch)	Yield strength ¹⁾ R _{p0.2} min MPa ²⁾ (ksi)	Tensile strength ¹⁾ R _m MPa ²⁾ (ksi)	Elongation ¹⁾ A ₅ min %	A ₅₀ min ³⁾ %
4,0 - 4,9 (0.157-0.193)	1100 (160)	1250-1550 (181-225)	8	10
5,0 - 25,0 (0.196-0.982)	1100 (160)	1250-1550 (181-225)	10	10

¹⁾ For transverse test pieces

²⁾ 1 MPa = 1 N/mm²

³⁾ Only after special agreement

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Impact properties

Steel grade and quality	Test temperature °C (°F)	Impact energy ¹⁾ for test on transverse Charpy V 10x10 test specimen ²⁾ min, J (ft-lbf)
Weldox 1100E	-40 (-40)	27 (20)
Weldox 1100F	-60 (-76)	27 (20)

¹⁾ Unless otherwise agreed, transverse impact testing according to EN 10025 option 30 will apply.

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

Testing

Testing according to EN 10025.

Delivery condition

Q Quenched or quenched and tempered at our discretion.

Dimensions

Weldox 1100 is supplied in plate thicknesses of 4-25 mm (0.157-0.982").

More detailed information on dimensions is provided in our brochure 41-General Product Information Weldox, Hardox, Armox and Toolox-UK.

Tolerances

- All plates are produced with AccuRollTech™ thickness precision guarantee.

AccuRollTech™ meets the requirements of EN 10 029, but offers more narrow tolerances.

- Tolerances on flatness according to Class N (Normal tolerances) according to our brochure.

More detailed information is given in our brochure 41-General Product Information Weldox, Hardox, Armox and Toolox-UK as well as at www.weldox.com

Surface condition

According to EN 10163-2, Class A, Subclass 1 (repair by welding is allowed).

General technical delivery requirements

According to our brochure 41-General Product Information Weldox, Hardox, Armox and Toolox-UK.

Heat treatment and fabrication

Weldox 1100 has obtained its mechanical properties by a quenching process.

Weldox 1100 is not suited for applications requiring hot working at temperatures above 200°C (390°F) since the material may then lose its guaranteed properties.

For information concerning welding and fabrication, see our brochures on www.weldox.com or consult our Technical Customer Service.

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.

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