Uncoated Steel
Data Sheet

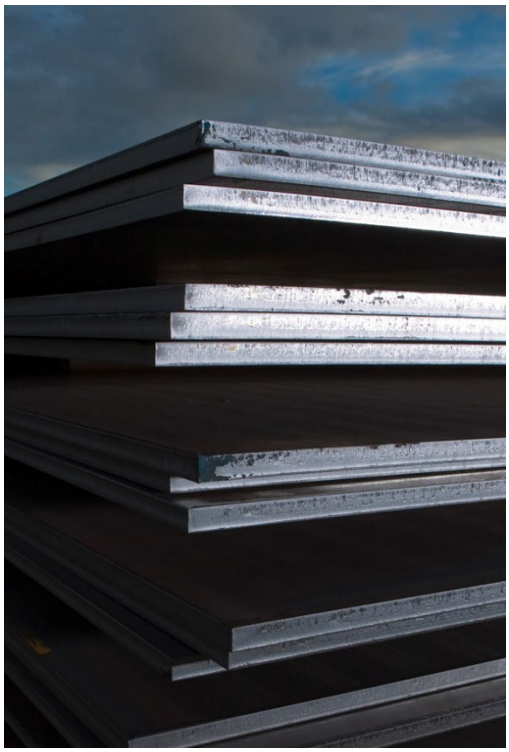
September 2026 - This literature supersedes all previous issues

XLERPLATE® steel

AS/NZS 3678 – 450

General description

A high strength structural steel with nominal yield strength of 450MPa.



Typical uses

General fabrication

Structural members

Bridges

Storage tanks

Features & benefits

Guaranteed minimum strength levels

Excellent weldability

Excellent formability

ACRS accreditation (ACRS Certificate No. 120802)

Warnings

This material should be used in conjunction with the appropriate structural design and welding standards.

Maximum recommended temperature for hot forming is 620ºC. If heated above 620ºC, mechanical properties may deteriorate.

Material should be stored under cover to avoid issues with storage related corrosion.

Australian and International Standards

AS/NZS 3678:2016
AS/NZS 1365:1996 (R2016)
ISO 9001:2015 Quality System Certified

Normal / optional supply conditions

	Normal	Optional
Thickness Range	10mm – 50mm	-
Availability	By enquiry only	-
Edge Condition	Trimmed	-
Tolerances	AS/NZS 1365:1996 (R2016)	-
Ultrasonic Inspection	-	AS 1710:2007 (R2017)
Surface Inspection	BlueScope	Third party
Certification	BlueScope	Third party endorsed

Optional supply conditions may be subject to dimensional restrictions

Chemical composition

Element	Guaranteed Maximum %
Carbon	0.22
Silicon	0.55
Manganese	1.80
Phosphorus	0.040
Sulfur	0.030
Chromium	0.25
Nickel	0.50
Copper	0.60
Molybdenum	0.35
Aluminium	0.10
Niobium**	0.060
Titanium	0.040
CEQ (IIW)	0.48

All values shown refer to the relevant Australian Standard unless otherwise stated

$$CEQ(IIW) = C + \frac{Mn}{6} + \frac{(Cr + Mo + V)}{5} + \frac{(Cu + Ni)}{15}$$

** Niobium + Vanadium + Titanium ≤ 0.15%

Mechanical properties

Tensile Properties (Transverse)		Thickness (mm)			
		10 ≤ t ≤ 12	**12 < t ≤ 20**	**20 < t ≤ 32**	**32 < t ≤ 50**
Yield Strength (MPa)	Guaranteed Min	450	450	420	400
Tensile Strength (MPa)	Guaranteed Min	520	520	500	500
Elongation 5.65$\sqrt{S_0}$ (%)	Guaranteed Min	16	16	18	18

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Formability	Thickness (mm)	Longitudinal	Transverse
Recommended min inside Radius	t ≤ 10	3.0t	2.0t
	10 < t ≤ 20	4.5t	3.0t
	t > 20	Hot Forming	

This product is not suitable for hot forming above 620ºC

Fire hazard properties

Test & Evaluation Method	Result
Combustibility test for materials (AS 1530.1-1994 (R2016))	Not deemed combustible (steel substrate) #

These test results relate only to the behaviour of the test specimens of the material under the particular conditions of the test and they are not intended to be the sole criterion for assessing the potential fire hazard of the material in use.

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