

GENERAL DESCRIPTION

A structural steel plate product suitable for low temperature applications with nominal yield strength of 350MPa and guaranteed impact properties at –15°C

AUSTRALIAN STANDARDS

AS/NZS 3678: 2011

AS/NZS 1365: 1996

TYPICAL USES

- General fabrication
- Structural members
- Bridges
- Storage tanks

FEATURES & BENEFITS

- Guaranteed minimum strength levels
- Guaranteed low temperature properties
- Excellent weldability
- Good 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 620°C. If heated above 620°C, mechanical properties may deteriorate
- An untrimmed (Mill) edge may contain surface discontinuities associated with the rolling process (refer to Clause 9 of AS/NZS 3678:2011). The plate supplied may include an amount outside of the nominal ordered width, in accordance with relevant Australian Standards. The area of the supplied plate which is outside of the nominal (customer ordered) width must not be used. Customers are advised to remove an equal width from each side of the plate when trimming

NORMAL / OPTIONAL SUPPLY CONDITIONS

	Normal	Optional
Thickness Range	5mm – 80mm	>80 to 100mm by enquiry only
Availability	Refer to XLERPLATE® steel size schedule 2	
Edge Condition	Untrimmed (Mill Edge)*	Trimmed
Tolerances	AS/NZS 1365: 1996	
Ultrasonic Inspection		AS 1710: 2007
Surface Inspection	BlueScope Steel	Third party
Certification	BlueScope Steel	Third party endorsed

Optional supply conditions may be subject to dimensional restrictions

* Plates less than 8mm in thickness are supplied with trimmed edges

CHEMICAL COMPOSITION

Element	Guaranteed Maximum %	Typical % Thickness (mm)				
		t = 5	5 < t < 8	8 ≤ t ≤ 25	25 < t ≤ 80	80 < t ≤ 100
Carbon	0.22	0.155	0.14	0.15	0.09	0.13
Silicon	0.55	0.15	0.20	0.30	0.35	0.45
Manganese	1.70	0.65	1.10	1.20	1.50	1.50
Phosphorus	0.040	0.020	0.020	0.020	0.020	0.020
Sulfur	0.030	0.010	0.010	0.010	0.010	0.003
Chrome	0.25	0.023	0.023	0.023	0.027	0.023
Nickel	0.50	0.021	0.021	0.021	0.027	0.20
Copper	0.40	0.017	0.017	0.017	0.017	0.30
Molybdenum	0.35	0.002	0.002	0.002	0.002	0.002
Aluminium	0.100	0.030	0.035	0.030	0.035	0.035
Niobium*	0.150	-	-	-	0.024	0.015
Titanium	0.040	-	0.018	0.018	0.018	0.018
CEQ (IIW)	0.48	0.27	0.33	0.36	0.35	0.41

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)					
		t ≤ 8	8 < t ≤ 12	12 < t ≤ 20	20 < t ≤ 25	25 < t ≤ 80	80 < t ≤ 100
Yield Strength (MPa)	Guaranteed Min	360	360	350	340	340	330
	Typical	370 - 540	360 - 470	350 - 430	350 - 440	340 - 470	330 - 440
Tensile Strength (MPa)	Guaranteed Min	450	450	450	450	450	450
	Typical	490 - 580	480 - 550	470 - 540	470 - 550	460 - 550	510 - 570
Elong. On 5.65√S ₀ (%)	Guaranteed Min	20	20	20	20	20	20
	Typical	20 - 38	22 - 39	23 - 37	23 - 36	23 - 36	28 - 36

Charpy Impact Properties	Longitudinal at -15°C on 10 x 10mm specimen	Absorbed Energy (joules)	
		Av. of 3	Ind.
	Guaranteed Min.	27	20
	Typical	50 - 200	35 - 250

WELDABILITY

Group	Guaranteed Maximum	Typical Group Thickness (mm)		
		8 ≤ t ≤ 25	25 < t ≤ 80	80 < t ≤ 100
Group 5	5	3	3	4

Refer to WTIA Technical Note 1 or AS/NZS 1554.1

FORMABILITY

Thickness (mm)	Long	Trans
t ≤ 6	2.25t	1.5t
6 < t ≤ 20	3.0t	2.0t
20 < t ≤ 25	3.75t	2.5t
t > 25	Hot form (max 620°C)	

Recommended min. inside radii

HARDNESS

Typical
140 – 180 BHN