

AS/NZS 3678 - 400

XLERPLATE® steel

DATE: AUGUST 2009

PRODUCT DESCRIPTION

- A high strength structural steel product with nominal yield strength of 400 MPa

SUPPLY CONDITIONS

- Thickness Range: 10mm – 80mm
- Availability: By enquiry only
- Edge Condition: Trimmed
- Tolerances: AS1365
- Ultrasonic Inspection: AS1710 available
- Surface Inspection: BlueScope Steel (third party available)
- Certification: BlueScope Steel (third party endorsed available)

TYPICAL USES

- General fabrication
- Structural members
- High-rise buildings
- Bridges
- Storage tanks

FEATURES & BENEFITS

- Guaranteed minimum strength levels
- Excellent weldability
- Good formability

WARNINGS

- This material should be used in conjunction with the appropriate structural design and welding standards.
- Maximum recommended temperature for hot forming 620°C. If heated above 620°C, mechanical properties may deteriorate.
- Where impact testing is required refer to AS/NZS 3678 - 400L15.

NEAREST OVERSEAS SPECIFICATIONS

ASTM A572-50 ISO 630-E355B JISG 3106-SM490A EN 10025-2-S355JR

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CHEMICAL COMPOSITION			
Element	Guaranteed Maximum % Min ⁽²⁾	Typical % / Thickness (mm)	
		10 ≤ t ≤ 40	40 < t ≤ 80 ⁽³⁾
Carbon	0.22	0.09	0.13
Silicon	0.55	0.35	0.45
Manganese	1.70	1.50	1.50
Phosphorus	0.040	0.020	0.020
Sulfur	0.030	0.010	0.003
Aluminium	0.100	0.030	0.035
Niobium ⁽⁴⁾	0.150	0.025	0.015
Titanium	0.040	0.018	0.018
CEQ (IIW) ⁽¹⁾	0.48	0.35	0.41

$$(1) \text{ CEQ (IIW)} = C + \frac{\text{Mn}}{6} + \frac{(\text{Cr} + \text{Mo} + \text{V})}{5} + \frac{(\text{Cu} + \text{Ni})}{15}$$

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

(3) Additional alloys of 0.2 Ni and 0.3 Cu

(4) Niobium + Vanadium + Titanium ≤ 0.15%

MECHANICAL PROPERTIES						
Tensile Properties (Transverse)		Thickness Range (mm)				
		8	8 < t ≤ 12	12 ≤ t ≤ 20	20 < t ≤ 40	40 < t ≤ 80
Guaranteed Min.	Yield Strength (MPa)	400	400	380	360	360
	Tensile Strength (MPa)	480	480	480	480	480
	Elong. on 5.65 √ So (%)	18	18	18	18	18
Typical	Yield Strength (MPa)	420 - 540	410 - 460	390 - 450	370 - 440	380 - 450
	Tensile Strength (MPa)	510 - 590	490 - 560	490 - 550	490 - 550	500 - 550
	Elong. on 5.65 √ So (%)	20 - 33	20 - 35	21 - 33	21 - 33	20 - 31
Charpy Impact Properties - Longitudinal at -15°C on 10 x 10mm specimen		Absorbed Energy (joules)				
		Avg. of 3			Ind.	
Typical as rolled		50 - 200			30 - 250	

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WELDABILITY			
	Guaranteed Maximum	Typical % / Thickness (mm)	
		10 ≤ t ≤ 40	40 < t ≤ 80
A Technical Group 5 ⁽⁵⁾	5	3	4

(5) Refer to WTIA Technical Note 1 or AS/NZS1554.1

FORMABILITY (recommended min. inside radii)			HARDNESS	
t < 10mm	Long 3.0T	Trans 2.0T	Typical	
10 < t ≤ 20mm	Long 3.75T	Trans 2.5T	150 - 190 BHN	
t > 20mm	Hot form (max 620°C)			