

Plate – PL

Structural - S

GENERAL DESCRIPTION

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

AUSTRALIAN STANDARDS

AS/NZS 3678: 2011

AS/NZS 1365: 1996

TYPICAL USES

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

FEATURES & BENEFITS

- Guaranteed minimum strength levels
- 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

NORMAL / OPTIONAL SUPPLY CONDITIONS

	Normal	Optional
Thickness Range	10mm – 40mm	
Availability	By enquiry only	
Edge Condition	Trimmed	
Tolerances	AS/NZS 1365: 1996	
Ultrasonic Inspection		AS 1710: 2007 available
Surface Inspection	BlueScope Steel	Third party
Certification	BlueScope Steel	Third party endorsed

Optional supply conditions may be subject to dimensional restrictions

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CHEMICAL COMPOSITION

Element	Guaranteed Maximum %	Typical % Thickness (mm)
		10 ≤ t ≤ 40
Carbon	0.22	0.13
Silicon	0.55	0.45
Manganese	1.80	1.50
Phosphorus	0.040	0.020
Sulfur	0.030	0.003
Chrome	0.25	0.023
Nickel	0.50	0.20
Copper	0.40	0.30
Molybdenum	0.35	0.002
Aluminium	0.100	0.035
Niobium*	0.150	0.015
Titanium	0.040	0.018
CEQ (IIW)	0.48	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 + Titanium + Vanadium ≤ 0.15%

MECHANICAL PROPERTIES

Tensile Properties (Transverse)		Thickness (mm)			
		10 ≤ t ≤ 12	12 < t ≤ 20	20 < t ≤ 32	32 < t ≤ 40
Yield Strength (MPa)	Guaranteed Min	450	450	420	440
	Typical	450 - 550	460 - 550	440 - 520	420 - 490
Tensile Strength (MPa)	Guaranteed Min	520	520	500	500
	Typical	560 - 660	560 - 630	550 - 610	540 - 610
Elong. On 5.65√S ₀ (%)	Guaranteed Min	16	16	18	18
	Typical	22 - 32	22 - 32	20 - 32	20 - 30

Charpy Impact Properties	Longitudinal at 0°C on 10 x 10mm specimen	Absorbed Energy (joules)	
		Av. of 3	Ind.
Guaranteed Min.		27	20
Typical		100 - 240	85 - 300

WELDABILITY

	Guaranteed Maximum	Typical
Group 5	5	4

Refer to WTIA Technical Note 1 or AS/NZS 1554.1.

FORMABILITY

Thickness (mm)	Long	Trans
10 ≤ t < 20	4.5t	3.0t
t > 20	Hot form (max 620°C)	

Recommended min. inside radii

HARDNESS

Typical
165 - 190 BHN