

GENERAL DESCRIPTION

A structural steel plate product suitable for low temperature applications with nominal yield strength of 400MPa 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 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 – 80mm	
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

CHEMICAL COMPOSITION

Element	Guaranteed Maximum %	Typical % Thickness (mm)	
		10 ≤ t ≤ 40	40 < t ≤ 80*
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
Chrome	0.25	0.027	0.023
Nickel	0.50	0.027	0.20
Copper	0.40	0.010	0.30
Molybdenum	0.35	0.002	0.002
Aluminium	0.100	0.035	0.035
Niobium*	0.150	0.024	0.015
Titanium	0.040	0.018	0.018
CEQ (IIW)	0.48	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)			
		8 ≤ t ≤ 12	12 ≤ t ≤ 20	20 < t ≤ 40	40 < t ≤ 80
Yield Strength (MPa)	Guaranteed Min	400	380	360	360
	Typical	410 - 460	390 - 450	370 - 440	380 - 450
Tensile Strength (MPa)	Guaranteed Min	480	480	480	480
	Typical	490 - 560	490 - 550	490 - 550	500 - 550
Elong. On 5.65√S ₀ (%)	Guaranteed Min	18	18	18	18
	Typical	20 - 35	21 - 33	21 - 33	20 - 31

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)	
		10 < t ≤ 40	40 < t ≤ 80
Group 5	5	3	4

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

FORMABILITY

Thickness (mm)	Long	Trans
t < 10	3.0t	2.0t
10 < t < 20	3.75t	2.5t
t > 20	Hot form (max 620°C)	

Recommended min. inside radii

HARDNESS

Typical
150 – 190 BHN