

AS/NZS 3678 - 350L15

XLERPLATE® steel

DATE: AUGUST 2009

PRODUCT DESCRIPTION

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

SUPPLY CONDITIONS

- Thickness Range: 8mm – 80mm
- Availability: Refer to XLERPLATE® steel Size Schedule 2
- Edge Condition: Untrimmed (Mill Edge) / Trimmed
- Tolerances: AS/NZS 1365
- Ultrasonic Inspection: AS1710 available
- Surface Inspection: BlueScope Steel (third party available)
- Certification: BlueScope Steel (third party endorsed available)

TYPICAL USES

- General fabrication
- Structural members
- Bridges
- Storage tanks

FEATURES & BENEFITS

- Guaranteed minimum strength levels
- Guaranteed low temperature properties
- 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.
- An untrimmed (Mill) edge may contain minor surface discontinuities as a result of the rolling process (refer Clause 7 AS/NZS 3678). It is recommended that a minimum of 50mm be removed from each untrimmed edge.

NEAREST OVERSEAS SPECIFICATIONS

ASTM A572 Grade 50 ISO 630-E355D EN 10025-2-S355J2 JISG 3106-SM490B,C

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CHEMICAL COMPOSITION			
Element	Guaranteed Maximum % ⁽²⁾	Typical % / Thickness (mm)	
		8 ≤ t ≤ 25	25 < t ≤ 80
Carbon	0.22	0.15	0.09
Silicon	0.55	0.30	0.35
Manganese	1.70	1.20	1.50
Phosphorus	0.040	0.020	0.020
Sulfur	0.030	0.010	0.010
Aluminium	0.100	0.025	0.035
Micro alloys - Nb ⁽³⁾	0.150	-	0.025
(when added) - Ti	0.040	0.018	0.018
CEQ (IIW) ⁽¹⁾	0.48	0.36	0.35

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

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

(3) Niobium + Vanadium + Titanium ≤ 0.15%

MECHANICAL PROPERTIES						
Tensile Properties (Transverse)		Thickness Range (mm)				
		t ≤ 8	8 < t ≤ 12	12 < t ≤ 20	20 < t < 25	25 < t ≤ 80
Guaranteed Min.	Yield Strength (MPa)	360	360	350	340	340
	Tensile Strength (MPa)	450	450	450	450	450
	Elong. on 5.65 √ So (%)	20	20	20	20	20
Typical	Yield Strength (MPa)	410 - 540	380 - 440	360 - 420	350 - 440	350 - 420
	Tensile Strength (MPa)	510 - 590	460 - 540	460 - 520	470 - 550	460 - 530
	Elong. on 5.65 √ So (%)	20 - 33	22 - 35	23 - 33	23 - 33	25 - 35
Charpy Impact Properties	Longitudinal at -15°C on 10 x 10mm specimen	Absorbed Energy (joules)				
		Avg. of 3		Ind.		
Guaranteed Min.	350L15	27		20		
Typical		50 - 200		35 - 250		

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WELDABILITY			
	Guaranteed Maximum	Typical Group / Thickness (mm)	
		$8 \leq t \leq 25$	$25 < t \leq 80$
Group 5 ⁽⁴⁾	5	3	3

(4) Refer to WTIA Technical Note 1 or AS/NZS 1554.1

FORMABILITY (recommended min. inside radii)			HARDNESS
$t \leq 10\text{mm}$	Long 3.0T	Trans 2.0T	Typical
$10 < t \leq 20\text{mm}$	Long 3.75T	Trans 2.5T	140 - 180 BHN
$t > 20\text{mm}$	Hot form (max 620°C)		