

## SA/AS1548 - 5 - 490N (L20, L50)

SA/AS1548 - 5 - 490N, SA/AS1548 - 5 - 490NL20, SA/AS1548 - 5 - 490NL50

### XLERPLATE®

**DATE:** January 2006

#### PRODUCT DESCRIPTION

- A fully killed, micro-alloyed, fine grained steel for boiler and pressure vessel applications
- Produced by normalising, with stress relieved test pieces
- Guaranteed minimum tensile strength of 490 MPa
- Australian Standard AS1548-1995 pressure grades have been approved by ASME. To demonstrate compliance with ASME rules, grades require the addition of the "SA" prefix to the AS1548 grade name, consequently plate test certification and stencil are prefixed with "SA".

#### SUPPLY CONDITIONS

- Thickness Range: 10mm – 100mm  
N, NL20: (10mm – 100mm)  
NL50: (10mm – 80mm)
- Availability: By enquiry only
- Edge Condition: Trimmed
- Tolerances: Thickness - SA/AS1548, others - AS1365
- Ultrasonic Inspection: AS1710 available
- Surface Inspection: BlueScope Steel (third party available)
- Certification: BlueScope Steel (third party endorsed available)

#### FEATURES & BENEFITS

- Grades with elevated temperature properties available
- Grades with low temperature properties available
- Good weldability
- Good formability

#### WARNINGS

- This material should be used in conjunction with the appropriate pressure vessel design and welding standards.
- Guidelines for cold bending, where fracture toughness is important, are given in AS4100 and AS1210.

#### NEAREST OVERSEAS SPECIFICATIONS

ASTM A 537 Cl.1    ASTM A 737 Gr.B    JISG 3126-SGV366    ISO 9328.2-P315    EN 10028-3-P355

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CHEMICAL COMPOSITION		
Element	Guaranteed Maximum % <sup>(2)</sup>	Typical % / Thickness (mm)
		10 < t ≤ 100 <sup>(3)</sup>
Carbon	0.24	0.13
Silicon	0.60	0.45
Manganese	0.90 - 1.70	1.50
Phosphorus	0.040	0.020
Sulfur	0.030	0.003
Niobium	0.010 - 0.070	0.015
Aluminium	0.100	0.035
Titanium	0.040	0.018
CEQ (IIW) <sup>(1)</sup>	0.48	0.41

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

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

(3) Additional alloys 0.2 Ni, 0.3 Cu.

MECHANICAL PROPERTIES					
Tensile Properties (Transverse)		Thickness Range (mm)			
		≤ 16	> 16 ≤ 40	> 40 ≤ t ≤ 80	> 80 ≤ 100
Guaranteed Min.	Yield Strength (MPa)	360	340	330	320
	Tensile Strength (MPa)	490 - 610	490 - 610	490 - 610	490 - 610
	Elong. on 5.65 √ So (%)	20	20	20	20
Typical	Yield Strength (MPa)	385 - 445	380 - 440	380 - 440	370 - 420
	Tensile Strength (MPa)	500 - 540	500 - 540	500 - 540	500 - 540
	Elong. on 5.65 √ So (%)	26 - 35	26 - 35	24 - 32	24 - 32
Charpy Impact Properties	Longitudinal on 10 x 10mm specimen	Absorbed Energy (joules)			
		Ave. of 3	Ind.		
Guaranteed Min.	5 - 490NL20	47	35		
		80 - 180	60 - 200		
Guaranteed Min.	5 - 490NL50	27	20		
		60 - 160	50 - 180		



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MECHANICAL PROPERTIES									
5 - 490NH - Elevated Temp. Tensile Properties - Guaranteed Min. 0.2% Proof Stress (MPa)									
Thickness	50°C	100°C	150°C	200°C	250°C	300°C	350°C	400°C	450°C
10 ≤ t ≤ 16	336	310	286	268	240	220	208	196	180
16 < t ≤ 40	322	308	286	268	240	220	208	196	180
40 < t ≤ 80	312	300	286	268	240	220	208	196	180
80 < t ≤ 100	306	296	286	268	240	220	208	196	180

FORMABILITY (Recommended min. inside radii)		HARDNESS	WELDABILITY
t ≤ 10mm	Long 3.0T, Trans 2.0T	Typical	Group 5 <sup>(4)</sup>
10 < t ≤ 20mm	Long 6.0T, Trans 4.0T	140 - 180 BHN	
t > 20mm	Hot form		

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



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