

SA/AS1548 - 5 - 490A (L20, L50)

SA/AS1548 - 5 - 490A, SA/AS1548 - 5 - 490AL20, SA/AS1548 - 5 - 490AL50

XLERPLATE®

DATE: January 2006

PRODUCT DESCRIPTION

- This grade may be used in situations where subsequent hot forming processes are carried out in a manner to replicate normalising (refer to SA/AS 1548)
- A fully killed, micro-alloyed, fine grained steel for boiler and pressure vessel applications
- Produced by hot rolling, 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
- 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

- Guaranteed mechanical properties after hot forming in accordance with SA/AS1548
- Grades with elevated temperature properties available
- Grades with low temperature properties available
- Good weldability
- Good formability
- This grade is designed for use when material is to be hot formed

WARNINGS

- This material should be used in conjunction with the appropriate pressure vessel design and welding standards.
- It is the responsibility of the customer to normalise this material through the hot forming process or by normalising the plate or fabricated vessel.
- Customers should satisfy themselves through their own quality systems that the heat treatment process employed for hot forming produces the mechanical properties described.
- Guidelines for cold bending, where fracture toughness is important, are given in AS4100 and AS1210.

NEAREST OVERSEAS SPECIFICATIONS

EN 10028-3-P355

For more information contact BlueScope Steel Direct:

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CHEMICAL COMPOSITION		
Element	Guaranteed Maximum % ⁽²⁾	Typical % / Thickness (mm)
		10 < t ≤ 100 ⁽³⁾
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) ⁽¹⁾	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 - 430	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 - 490AL20	47	35		
	Typical	80 - 180	60 - 200		
Guaranteed Min.	5 - 490AL50	27	20		
	Typical	60 - 160	50 - 180		



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MECHANICAL PROPERTIES

5 - 490AH - 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)

t ≤ 10mm	Long 3.0T, Trans 2.0T
10 < t ≤ 20mm	Long 6.0T, Trans 4.0T
t > 20mm	Hot form

HARDNESS

Typical
140 - 180 BHN

WELDABILITY

Group 5⁽⁴⁾

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



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