

SA/AS1548 - 7 - 490NL (20, 40, 50)

SA/AS1548 - 7 - 490NL20, SA/AS1548 - 7 - 490NL40, SA/AS1548 - 7 - 490NL50

XLERPLATE®

DATE: January 2006

PRODUCT DESCRIPTION

- A fully killed, fine grained, carbon-manganese steel for boiler and pressure vessel applications
- Produced by hot rolling and normalising
- 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
NL20, NL40: (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

- Guaranteed tensile strength levels
- Grades with elevated temperature properties available
- Grades with low temperature properties available
- Excellent weldability and 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

JISG 3118-SGV480 ISO 9328.2-P315 ASTM A 662-C EN 10028.2-P355GH

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CHEMICAL COMPOSITION		
Element	Guaranteed Maximum % ^{(2) (3)}	Typical % ⁽³⁾
Carbon	0.22	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 ⁽⁴⁾	0.015
Aluminium	0.100	0.035
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.

(4) Niobium up to 0.025% may be added for L20, L40 and L50 designations.

MECHANICAL PROPERTIES				
Tensile Properties (Transverse)		Thickness Range (mm)		
		≤ 16	16 < t ≤ 40	40 < t ≤ 80
Guaranteed Min.	Yield Strength (MPa)	320	310	300
	Tensile Strength (MPa)	490 - 610	490 - 610	490 - 610
	Elong. on 5.65 √ So (%)	20	20	20
Typical	Yield Strength (MPa)	330 - 440	320 - 430	310 - 480
	Tensile Strength (MPa)	500 - 550	500 - 550	500 - 540
	Elong. on 5.65 √ So (%)	22 - 35	22 - 35	24 - 32
Charpy Impact Properties	Longitudinal on 10 x 10mm specimen	Absorbed Energy (joules)		
		Ave. of 3		Ind.
Guaranteed Min.	7 - 490NL20	47		35
Typical		100 - 200		80 - 260



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MECHANICAL PROPERTIES									
7 - 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	296	284	264	240	212	192	182	172	164
16 < t ≤ 40	292	280	260	236	212	192	182	172	164
40 < t ≤ 80	286	272	256	234	212	192	182	172	164

FORMABILITY (Recommended min. inside radii)	
t < 16mm	Long 2.5T, Trans 2.0T
16 ≤ t ≤ 40mm	Long 6.0T, Trans 4.0T
t > 40mm	Hot form

HARDNESS
Typical
130 - 180 BHN

WELDABILITY
Group 5 ⁽⁵⁾

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



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