

SA/AS1548 - 7 - 460N (L20, L40)

SA/AS1548 - 7 - 460N, SA/AS1548 - 7 - 460NL20, SA/AS1548 - 7 - 460NL40

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 460 MPa
- 1 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 design strengths as per AS1210
- Superior weldability and formability
- Grades available with guaranteed low temperature properties

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 A662-Gr. B JISG 3118-SGV450 ISO 9328.2-P290 EN 10028-3-P275N EN 10028-2-P295GH

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CHEMICAL COMPOSITION			
Element	Guaranteed Maximum % ⁽²⁾	Typical % / Thickness (mm)	
		10 ≤ t ≤ 80	80 < t ≤ 100
Carbon	0.20	0.15	0.15
Silicon	0.60	0.35	0.35
Manganese	0.90-1.70	1.35	1.35
Phosphorus	0.040	0.020	0.020
Sulfur	0.030	0.010	0.003
Aluminium	0.100	0.035	0.035
CEQ (IIW) ⁽¹⁾	0.44 ⁽³⁾	0.39	0.39

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

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

(3) Values shown refer to the BlueScope Steel internal standard, where the AS/NZS 1548 guaranteed maximum % is 0.45

MECHANICAL PROPERTIES					
Tensile Properties (Transverse)		Thickness Range (mm)			
		10 < t ≤ 16	16 < t ≤ 40	40 < t ≤ 80	80 < t ≤ 100
Guaranteed Min.	Yield Strength (MPa)	305	295	275	265
	Tensile Strength (MPa)	460 - 580	460 - 580	460 - 580	460 - 580
	Elong. on 5.65 √ So (%)	21	21	21	21
Typical	Yield Strength (MPa)	360 - 450	330 - 430	290 - 370	280 - 360
	Tensile Strength (MPa)	500 - 550	500 - 550	470 - 530	470 - 530
	Elong. on 5.65 √ So (%)	22 - 32	22 - 31	24 - 32	24 - 33
Charpy Impact Properties	Longitudinal on 10 x 10mm specimen	Absorbed Energy (joules)			
		Ave. of 3	Ind.		
Guaranteed Min.	7 - 460NL20	47		35	
		50 - 150		40 - 180	
Guaranteed Min.	7 - 460NL40	31		23	
		40 - 120		30 - 150	



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MECHANICAL PROPERTIES									
7 - 460NH - 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	276	266	246	222	198	176	168	158	148
16 < t ≤ 40	268	260	242	220	198	176	168	158	148
40 < t ≤ 80	258	250	236	216	198	176	168	158	148
80 < t ≤ 100	240	228	216	208	198	176	168	158	148

FORMABILITY (Recommended min. inside radii)	
t < 20mm	Long 1.5T, Trans 1.0T
20 < t ≤ 50mm	Long 6.0T, Trans 4.0T
t > 50mm	Hot form

HARDNESS
Typical
130 - 170 BHN

WELDABILITY
Group 4 ⁽⁴⁾

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



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