

SA/AS1548 - 7 - 460R (L0)

SA/AS1548 - 7 - 460R, SA/AS1548 - 7 - 460RLO

XLERPLATE®

DATE: January 2006

PRODUCT DESCRIPTION

- A fully killed, fine grained carbon-manganese steel for boiler and pressure vessel applications
- Produced by normalised rolling
- Guaranteed minimum tensile strength of 460 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

- Sizes and Availability:
 - Standard plate (460R) is available in standard thicknesses between 6mm and 100mm
 - Standard plate (460R) in sizes outside standard plate offer - Refer to XLERPLATE® Size Schedule 4
 - 460RLO is available 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 guaranteed low temperature properties available
- Excellent weldability and formability
- R grades interchangeable with A grades (8 - 100mm)

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-SGV450 ASTM A662-Gr. B 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)		
		6 ≤ t < 8	8 ≤ t ≤ 80	80 < t ≤ 100
Carbon	0.20	0.14	0.15	0.15
Silicon	0.60	0.20	0.35	0.35
Manganese	0.90-1.70	1.10	1.35	1.35
Phosphorus	0.040	0.020	0.020	0.020
Sulfur	0.030	0.010	0.010	0.003
Aluminium	0.100	0.035	0.035	0.035
CEQ (IIW) ⁽¹⁾	0.44 ⁽³⁾	0.33	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)			
		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)	330 - 430	315 - 415	290 - 370	290 - 350
	Tensile Strength (MPa)	470 - 530	470 - 530	470 - 530	470 - 530
	Elong. on 5.65 √ So (%)	24 - 35	23 - 35	24 - 32	24 - 33
Charpy Impact Properties	Longitudinal on 10 x 10mm specimen	Absorbed Energy (joules)			
		Ave. of 3	Ind.		
Guaranteed Min.	7 - 460RLO	27		20	
Typical		40 - 110		30 - 140	



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MECHANICAL PROPERTIES									
7 - 460RH - 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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