

AS 1548 - PT490T (L20, L40, L50)

AS 1548 - PT490T, AS 1548 - PT490TL20, AS 1548 - PT490TL40, AS 1548 - PT490TL50

XLERPLATE® steel

DATE: AUGUST 2010

PRODUCT DESCRIPTION

- A fully killed, fine grained, carbon-manganese steel for boiler and pressure vessel applications
- Produced by thermo-mechanical controlled rolling
- Guaranteed minimum tensile strength of 490 MPa

SUPPLY CONDITIONS

- Thickness Range: (T available 10mm – 60mm), (TL20 available 10mm – 60mm), (TL40/50 available 10mm – 40mm)
- Availability: By enquiry only
- Edge Condition: Trimmed
- Tolerances: Thickness - AS 1548, others - AS/NZS 1365
- Ultrasonic Inspection: AS 1710 available
- Surface Inspection: BlueScope Steel (third party available)
- Certification: BlueScope Steel (third party endorsed available)

FEATURES & BENEFITS

- Guaranteed design strength as per AS 1210
- Grades available with guaranteed low temperature properties
- Superior weldability and formability
- Alternative to normalised grades where good toughness is required

WARNINGS

- This material should be used in conjunction with the appropriate pressure vessel design and welding standards
- Note this grade is not suitable for hot forming above 620°C. Where hot forming is required use AS 1548 - PT490NR/NRA/N
- Guidelines for cold bending, where fracture toughness is important, are given in AS 4100 and AS 1210
- This grade is not recognised in the ASME material code and does not carry the 'SA' prefix

NEAREST OVERSEAS SPECIFICATIONS

ASTM A 662-C JISG 3118-SGV480 ISO 9328.2-P315 EN 10028.3-P355

AS 1548 - 1995 EQUIVALENT

SA/AS 1548 - 7 - 490T (L20, L40, L50)

For more information contact:

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CHEMICAL COMPOSITION			
Element	Guaranteed Maximum % ⁽²⁾	Typical % Thickness (mm)	
		10 ≤ t < 16	16 < t ≤ 60 TL20 ⁽³⁾ 16 ≤ t ≤ 40 TL40 ⁽³⁾ 16 ≤ t ≤ 40 TL50 ⁽³⁾
Carbon	0.20	0.09	0.13
Silicon	0.60	0.35	0.45
Manganese	0.90 - 1.70	1.50	1.50
Phosphorus	0.040	0.020	0.020
Sulfur	0.030	0.010	0.003
Aluminium	0.100	0.030	0.035
Niobium Aluminium	0.050 ⁽⁴⁾	0.020	0.015
CEQ (IIW) ⁽¹⁾	0.46	0.34	0.41

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

(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)		
		t < 16	16 < t ≤ 40	40 < t ≤ 60
Guaranteed Min.	Yield Strength (MPa)	360	340	330
	Tensile Strength (MPa)	490 - 610	490 - 610	490 - 610
	Elong. on 5.65 √ So (%)	20	20	20
Typical	Yield Strength (MPa)	380 - 500	340 - 470	320 - 450
	Tensile Strength (MPa)	520 - 590	520 - 580	520 - 580
	Elong. on 5.65 √ So (%)	23 - 35	22 - 35	24 - 35
Charpy Impact Properties	Longitudinal on 10 x 10mm specimen	Test Temp. °C	Absorbed Energy (joules)	
			Ave. of 3	Ind.
Guaranteed Min.	PT490T (10 - 60mm)	-20	55	43
			60 - 200	50 - 250
Guaranteed Min.	PT490TL20 (10 - 40mm)	-20	55	43
			60 - 200	50 - 250
Guaranteed Min.	PT490TL40 (10 - 40mm)	-40	45	33
			50 - 180	40 - 200
Guaranteed Min.	PT490TL50 (10 - 40mm)	-50	42	31
			50 - 150	40 - 180

Date Published: August 2010. The information contained in this datasheet is provided by way of general information only, and should not be relied upon by any person.

You must seek specific advice as to the suitability of this product for the purpose for which, and the manner in which, you propose to use it. This may involve further independent analysis and testing. BlueScope Steel Limited and its related bodies corporate take no responsibility for any adverse consequences of any nature which arise as a result of reliance on this datasheet. These datasheets will be updated from time to time and the most up-to-date versions are available from www.xlerplate.com.au

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MECHANICAL PROPERTIES									
PT490TH - 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
t ≤ 16	348	327	303	278	255	236	217	204	192
16 < t ≤ 40	329	310	287	263	242	222	205	193	182
40 < t ≤ 60	319	300	278	255	234	216	199	187	176

FORMABILITY (recommended min. inside radii)		HARDNESS	WELDABILITY
t < 16mm	Long 3.0T, Trans 2.0T	Typical	Group 5 ⁽⁵⁾
16 ≤ t ≤ 40mm	Long 6.0T, Trans 4.0T	140 - 180 BHN	
> 40mm	Hot Forming ⁽⁶⁾		

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

(6) This product is not suitable for hot forming at temperatures > 620°C



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