



# XLERPLATE<sup>®</sup> steel

## SA/AS 1548 – PT490NRA (L20, L40, L50)

### General description

A fully killed, fine grained, carbon-manganese steel for boiler and pressure vessel applications, with a guaranteed minimum tensile strength of 490MPa. Produced by normalised rolling. Tested in the normalised and stress relieved condition.

### Features & benefits

- Grades with elevated temperature properties available
- Grades available with guaranteed low temperature properties
- Excellent weldability
- Excellent formability
- This grade is recognised in the ASME material codes

### 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 AS 4100:1998 and AS 1210:2010

### Australian standards

AS 1548:2008  
AS/NZS 1365:1996  
ISO 9001:2015 Quality System certified

### Normal / optional supply conditions

	Normal	Optional
<b>Thickness Range</b>	10mm – 100mm	-
<b>Availability</b>	By enquiry only	-
<b>Edge Condition</b>	Trimmed	-
<b>Tolerances</b>	Thickness : AS1548:2008 Others : AS/NZS 1365:1996	-
<b>Ultrasonic Inspection</b>	-	AS 1710:2007
<b>Surface Inspection</b>	BlueScope	Third party
<b>Certification</b>	BlueScope	Third party endorsed

Optional supply conditions may be subject to dimensional restrictions

## Chemical composition

Element	Guaranteed Maximum %
Carbon	0.20
Silicon	0.6
Manganese	1.70
Phosphorus	0.040
Sulfur	0.030
Chromium	0.25
Nickel	0.50
Copper	0.40
Molybdenum	0.10
Aluminium	0.10
Niobium	0.050
Titanium	0.040
CEQ (IIW)	0.46

All values shown refer to the relevant Australian Standard unless otherwise stated

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

## Mechanical properties

Tensile Properties (Transverse)		Thickness (mm)			
		t ≤ 16	16 < t ≤ 40	40 < t ≤ 80	80 < t ≤ 100
Yield Strength (MPa)	Guaranteed Min	360	340	330	320
Tensile Strength (MPa)	Required	490 to 610	490 to 610	490 to 610	490 to 610
Elongation 5.65√S <sub>0</sub> (%)	Guaranteed Min	20	20	20	20

Charpy Impact Properties	Longitudinal on 10 X 10 mm test piece	Test Temperature (°C)	Absorbed Energy (joules)	
			Avg. of 3	Individual
Guaranteed Min	490NR	-20	55	43
Guaranteed Min	490NRL20	-20	55	43
Guaranteed Min	490NRL40	-40	45	33
Guaranteed Min	490NRL50	-50	42	31

Formability	Thickness (mm)	Longitudinal	Transverse
Recommended min inside Radius	t ≤ 20	3.0t	2.0t
	20 < t ≤ 50	6.0t	4.0t
	t > 50	Hot Forming	

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