



# XLERPLATE<sup>®</sup> steel

## SA/AS 1548 – PT460NR (L0, L20)

### General description

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

### Features & benefits

- Guaranteed minimum strength levels
- 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
- NR grades may be ordered mechanically tested in the normalised condition. This is designated NRA. See PT460NRA datasheet

### 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>	PT460NR: 8mm - 100mm PT460NRL20 8mm – 40mm	-
<b>Availability</b>	Sizes outside standard plate offer – refer to X CERPLATE size schedule 4	-
<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**	0.010
Titanium	0.040
CEQ (IIW)	0.43

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

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

\*\* Niobium up to 0.030% may be added for L20, L40 and L50 designations

## Mechanical properties

Tensile Properties (Transverse)		Thickness (mm)			
		t ≤ 16	16 < t ≤ 40	40 < t ≤ 80	80 < t ≤ 100
Yield Strength (MPa)	Guaranteed Min	305	295	275	265
Tensile Strength (MPa)	Required	460 to 580	460 to 580	460 to 580	460 to 580
Elongation 5.65√S <sub>0</sub> (%)	Guaranteed Min	21	21	21	21

Charpy Impact Properties	Longitudinal on 10 X 10 mm test piece	Test Temperature (°C)	Absorbed Energy (joules)	
			Avg. of 3	Individual
Guaranteed Min	460NR	0	31	23
Guaranteed Min	460NRL0	0	51	38
Guaranteed Min	460NRL20	-20	47	35

Formability	Thickness (mm)	Longitudinal	Transverse
Recommended min inside Radius	t ≤ 20	1.5t	1.0t
	20 < t ≤ 50	6.0t	4.0t
	t > 50	Hot Forming	

This product is not suitable for hot forming above 620 °C.

steel.com.au

Please ensure you have the correct data sheet for this product as displayed at [www.steel.com.au](http://www.steel.com.au)

1800 024 402

[steeldirect@bluescopesteel.com](mailto:steeldirect@bluescopesteel.com)

For more information contact Steel Direct



The information contained in this datasheet is provided by way of general information about this product only, and has not been prepared with your specific needs in mind. We recommend that you seek BlueScope's advice as to the suitability of this product for the purpose(s) for which you propose to use it. To contact BlueScope for advice about your proposed use of this product, please contact Steel Direct. XLERPLATE®, BlueScope and the BlueScope brand mark are registered trade marks of BlueScope Steel Limited. © 2019 BlueScope Steel Limited ABN 16 000 011 058. All rights reserved.