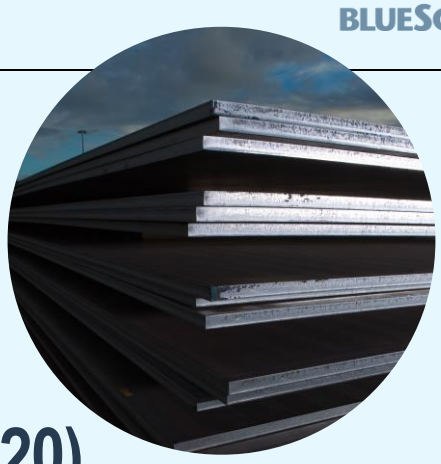
Uncoated steel

Data Sheet

September 2019. This literature supersedes all previous issues



XLERPLATE® 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
Thickness Range	PT460NR: 8mm - 100mm PT460NRL20 8mm – 40mm	-
Availability	Sizes outside standard plate offer – refer to XCERPLATE size schedule 4	-
Edge Condition	Trimmed	-
Tolerances	Thickness : AS1548 :2008 Others : AS/NZS 1365:1996	-
Ultrasonic Inspection	-	AS 1710: 2007
Surface Inspection	BlueScope	Third party
Certification	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 $5.65\sqrt{S_0}$ (%)	Guaranteed Min	21	21	21	21

Charpy Impact Properties	Longitudinal on 10 X 10 mm test piece	Test Temperature (ºC)	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 ºC.