Uncoated Steel
Data Sheet

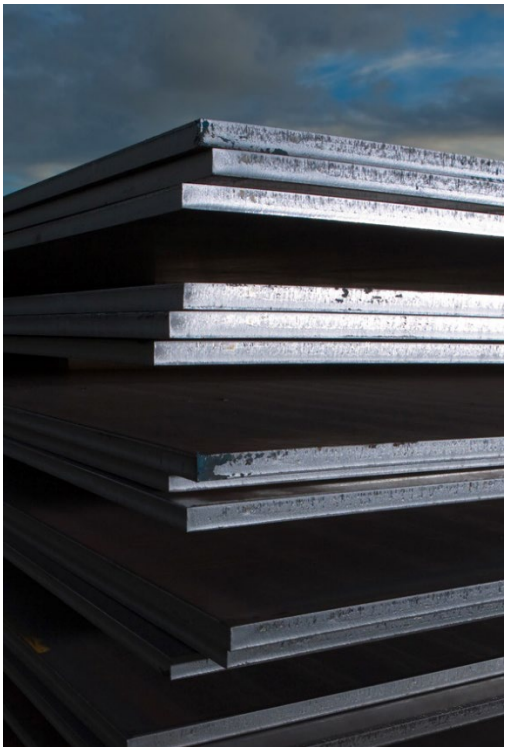
September 2019 - This literature supersedes all previous issues

XLERPLATE® steel

AS 1548 – PT460T (L0, 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 460MPa. Produced by thermo-mechanical controlled rolling.



Features & benefits

Guaranteed minimum strength levels

Grades available with guaranteed low temperature properties

Excellent weldability

Excellent 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.

Guidelines for cold bending, where fracture toughness is important are given in AS 4100:2020 and AS 1210:2010.

This grade is not recognised in the ASME material code and does not carry the ‘SA’ prefix.

This grade is not suitable for hot forming above 620°C. Where hot forming is required use AS 1548 – PT460NR / NRA / N.

Australian and International Standards

AS 1548:2008 (R2018)
AS/NZS 1365:1996 (R2016)
ISO 9001:2015 Quality System Certified

Normal / optional supply conditions

	Normal	Optional
Thickness Range	PT460T: 6mm – 80mm PT460TL0: 6mm – 80mm PT460TL20: 6mm – 40mm PT460TL40: 10mm – 40mm PT460TL50: 10mm – 40mm	-
Availability	By enquiry only	-
Edge Condition	Trimmed	-
Tolerances	Thickness: AS 1548: 2008 (R2018) Others: AS/NZS 1365:1996 (R2016)	-
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

BlueScope

Mechanical properties

Tensile Properties (Transverse)		Thickness (mm)		
		t ≤ 16	16 < t ≤ 40	40 < t ≤ 80
Yield Strength (MPa)	Guaranteed Min	305	295	275
Tensile Strength (MPa)	Required	460 to 580	460 to 580	460 to 580
Elongation $5.65\sqrt{S_0}$ (%)	Guaranteed Min	21	21	21

Charpy Impact Properties	Longitudinal on 10 x 10mm test piece	Test Temperature (ºC)	Absorbed Energy (joules)	
			Avg. of 3	Individual
Guaranteed Min	460T	0	31	23
Guaranteed Min	460TL0	0	51	38
Guaranteed Min	460TL20	-20	47	35
Guaranteed Min	460TL40	-40	45	33
Guaranteed Min	460TL50	-50	42	31

Formability	Thickness (mm)	Longitudinal	Transverse
Recommended min inside Radius	t ≤ 20	2.5t	2.0t
	20 < t ≤ 40	6.0t	4.0t

Fire hazard properties

Test & Evaluation Method	Result
Combustibility test for materials (AS 1530.1-1994 (R2016))	Not deemed combustible (steel substrate) #

These test results relate only to the behaviour of the test specimens of the material under the particular conditions of the test and they are not intended to be the sole criterion for assessing the potential fire hazard of the material in use.