

XLERPLATE[®] steel

SA/AS 1548 – PT490NR (L20)

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.

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

NR grades may be ordered mechanically tested in the normalised condition. This is designated NRA. See PT490NRA datasheet

Warnings

This material should be used in conjunction with the appropriate pressure vessel design and welding standards.

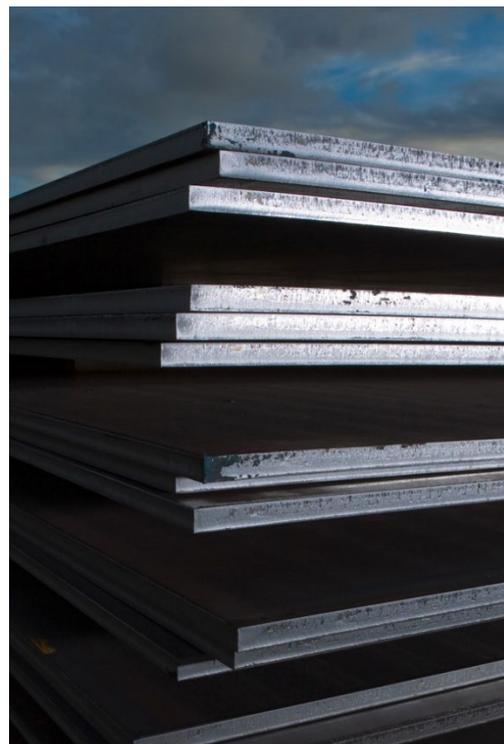
Guidelines for cold bending, where fracture toughness is important are given in AS 4100:2020 and AS 1210:2010.

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	10mm – 60mm	-
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	0.050
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 ≤ 60
Yield Strength (MPa)	Guaranteed Min	360	340	330
Tensile Strength (MPa)	Required	490 to 610	490 to 610	490 to 610
Elongation $5.65\sqrt{S_0}$ (%)	Guaranteed Min	20	20	20

Charpy Impact Properties	Longitudinal on 10 x 10mm test piece	Test Temperature (°C)	Absorbed Energy (joules)	
			Avg. of 3	Individual
Guaranteed Min	490NR	-20	55	43
Guaranteed Min	490NRL20	-20	55	43

Formability	Thickness (mm)	Longitudinal	Transverse
Recommended min inside Radius	t < 16	3.0t	2.0t
	16 ≤ t ≤ 40	6.0t	4.0t
	t > 40	Hot Forming	

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

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.

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To ensure you have the most current information

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