

# **RESPONSE TO APPLICATION FOR EXEMPTION FROM DUTY UNDER THE CUSTOMS TARIFF (ANTI-DUMPING) ACT 1975**

## **1 Introduction**

The Anti-Dumping Commission (the Commission) requests your response to an application for exemption from anti-dumping and countervailing measures under the *Customs Tariff (Anti-Dumping) Act 1975* (the Dumping Duty Act).

Sections 8(7) and 10(8) of the Dumping Duty Act allow the Minister to exercise a discretion to exempt goods from measures, where he or she is satisfied that like or directly competitive goods are not offered for sale in Australia to all purchasers on equal terms under like conditions having regard to the custom and usage of trade.

The Commission has received an application for exemption from anti-dumping and countervailing measures in respect of hot rolled plate steel (plate steel) for the goods described at section 5 of this form ('the exemption goods').

You have been identified from the Commission's investigation in respect of plate steel as an Australian producer of the goods.

The Commission seeks your assistance in this exemption inquiry by responding to the questions in this form. The Commission will use the information you provide in its assessment as to whether an exemption from dumping and countervailing duty may be recommended to the Parliamentary Secretary to the Minister for Industry (as the relevant delegate of the Minister).

## **2 Plate steel measures**

In September 2013, the Commission completed an investigation into the alleged dumping and subsidisation of plate steel exported to Australia from the People's Republic of China (China), the Republic of Indonesia, Japan, the Republic of Korea (Korea) and Taiwan.

The Minister for Industry accepted the Commission's recommendations that certain plate steel from China, Indonesia, Japan and Korea had been dumped and/or subsidised and that dumping and subsidisation had caused material injury to the Australian industry. A dumping and countervailing duty notice was published notifying of this decision on 19 December 2013.

Anti-Dumping Notice (ADN) No. 2013/72 contains details of the measures, including a description of the goods subject to the measures.

The reasons for the Minister's decision in this case are contained in the Commission's Final Report No.198 (REP 198).

## **3 Application for Exemption from Measures**

On 28 November 2013, the International Trade Remedies Advisor, on behalf of Balcombe Engineering Pty Ltd (Balcombe), wrote to the Commission requesting an exemption from measures in relation to its imports of certain plate steel. The Commission accepted Balcombe's application for an exemption from duty, and

advised that it would undertake an examination of the application to determine whether an exemption should be recommended.

#### **4 Exemption Provisions**

The Dumping Duty Act allows the Minister to exercise his or her discretion to exempt goods from dumping and/or countervailing duties in the following circumstances.

##### **Section 8**

(7) The Minister may, by notice in writing, exempt goods from interim dumping duty and dumping duty if he or she is satisfied:

- (a) that like or directly competitive goods are not offered for sale in Australia to all purchasers on equal terms under like conditions having regard to the custom and usage of trade;

##### **Section 10**

(8) The Minister may, by notice in writing, exempt goods from interim countervailing duty or countervailing duty if he or she is satisfied:

- (a) that like or directly competitive goods are not offered for sale in Australia to all purchasers on equal terms under like conditions having regard to the custom and usage of trade;

It is noted at the outset that these exemption provisions are subject to the discretion of the Minister and are not automatically granted where the criteria set out in the provision appear to be met.

#### **5 The goods subject to the exemption application**

The goods subject to this application for exemption are:

*Plate steel produced to ASTM International Standard A516 GR70.*

##### **Goods produced by the Australian industry**

Balcombe claims that Bluescope Steel Limited (BlueScope), the only Australian producer of the goods in question, does not offer plate steel made to this grade/specification.

#### **6 Instructions on completing this 'Response to the Exemption Application'**

The Commission's plate steel investigation, completed in September 2013, identified BlueScope as the only Australian producer of plate steel.

Consequently, the Commission has forwarded you this 'response to exemption application' (the response) to provide you with the opportunity to participate in this exemption inquiry.

The Commission will use the information provided by Australian producers to determine:

- whether like or directly competitive goods are offered for sale in Australia, and
- whether offers for sale of the goods are available to all purchasers on equal terms under like conditions having regard to custom and usage of trade.

**Due date for response**

Australian producers are requested to complete the response and return it to Commission by **27 February 2014**.

Responses may be lodged either by mail or by email to the following.

Director Operations 2  
Anti-Dumping Commission  
Australian Customs and Border Protection Service  
Customs House  
5 Constitution Avenue  
Canberra City ACT 2601  
Australia

Email: [operations2@adcommission.gov.au](mailto:operations2@adcommission.gov.au)  
Fax: +61 2 6275 6888

### **Verification of the information that you supply**

The Commission may seek to verify some all of the information supplied in the response. The Commission may request evidence to support the claims such as quotations and offers of sale.

An onsite visit by the Commission may be required in some cases. A report will be prepared of visits conducted and a non-confidential version will be placed on the public record.

There is no legislative timeframe for completion of an exemption inquiry, however a recommendation to the Parliamentary Secretary to the Minister for Industry will be made as soon as practicable after obtaining all the relevant information.

### **Confidential and non-confidential submissions**

You are required to lodge a non-confidential version of your response suitable for placement on the public record by the due date.

Please ensure that each page of information you provide is clearly marked either "FOR OFFICIAL USE ONLY" or "PUBLIC RECORD".

All information provided to the Commission in confidence will be treated accordingly. The non-confidential version of your submission will be placed on the public record.

### **Outline of information required by the Response**

<b>Part A</b>	Company contact information
<b>Part B</b>	Identical goods
<b>Part C</b>	Like or directly competitive goods
<b>Part D</b>	Capability to produce like or directly competitive goods
<b>Part E</b>	Additional comments
<b>Part F</b>	Your declaration

## Response to Exemption Application

### PART A - Company Information

A.1 Please provide the following company contact information;

Name:	Alan Gibbs
Position in company:	Development Manager – International Trade Affairs
Address:	Five Islands Road Port Kembla NSW
Telephone:	02 42753859 / 0419427730
Facsimile number:	
E-mail address of contact person:	alan.gibbs@bluescopesteel.com

### PART B – Response to Exemption Application

#### B.1

Does your company oppose or not consent to the request for an exemption?

BlueScope steel opposes and does not consent to this request for exemption

### PART C - Identical Goods

#### C.1

Does your company produce, in Australia, goods that are identical in all respects to the goods described in section 5 of this 'Response to Exemption Form'?

BlueScope steel manufactures and sells goods that are identical in all respects to the goods described in section 5 (ASTM International Standard A516 GR70).

BlueScope steel also manufactures and sells directly competitive goods under Australian Standard AS1548 – Grades PT490NR and PT490N  
Please refer to Part D - Like or directly competitive goods.

#### C.2

Please provide evidence that you have produced and sold in Australia, in the last 12 months, goods that are identical in all respects to the goods subject to this application for exemption.

See Confidential Attachment 1/ Dispatch Advice and Invoices for ASTM A516M Grade 485 sold in February 2014 to Kawasaki Heavy industries.  
(note the imperial strength rating of 70 KSI = Metric strength rating of 485 Mpa)

It is noted that BSL can supply ASTM A516 Gr70 (metric Gr485) up to 76mm thick, for product thicker than 76mm, BSL produce and sell directly competitive goods subject to this application (ie AS1548 – Grades PT490NR and PT490N)

### C.3

Provide evidence of the terms and conditions of sale of these identical goods. Are these products available to all purchasers on equal terms under like conditions? If so, provide evidence and explain why you consider that these products are available to all purchasers on equal terms under like conditions.

Refer to standard tax invoice for plate products per **Attachment 1/**. This is the same terms as all plate sales domestically, as per commercial documents provided in the Plate anti-dumping application lodged on the 21<sup>st</sup> December 2012

## PART D - Like or Directly Competitive Goods

### D.1

If your company does not produce identical goods, does it produce and sell in Australia goods that are like or directly competitive to the goods subject to this application for exemption?

**YES**

### Physical Likeness:-

ASTM A 516 Grade 70 Grade 485 (metric version) product is the standard specification for pressure vessel plates, carbon steel, for moderate and low temperature service. The nearest Australian equivalent is AS 1548-PT490, which is also a pressure vessel grade standard. The tables below show that the physical characteristics of the steel (chemistry and key mechanical properties) closely resemble each other.

### 3. Chemistry

Grade	Chemical Elements (%)										
	C max	Mn min	Mn max	Si min	Si max	P max	S max	Nb min	Nb max	Al max	Ti max
A516 Grade 70	0.27 – 0.31* depending on thickness	0.85	1.2	0.15	0.4	0.035	0.035	-	-	-	-
AS 1548 – PT490	0.2	0.9	1.7	-	0.6	0.04	0.03	0.1	0.05	0.1	0.04

\* The maximum C for ASTM A156 Grade 70 is dependent on the thickness of the material.

There is no minimum requirement for carbon on this specification.

It is noted that the Australian Standard allows for the addition of micro alloying (Nb, Al and Ti elements), which is used in Australia to obtain the same product properties with a lower

Carbon level (0.2% max for AS compared to 0.27 – 0.31 max for the ASTM) – this is a technical enhancement that is beneficial to fabricators as lower Carbon improves the weld ability of the steel – when used to fabricate pressure vessels.

## 2. Mechanical Properties

The difference in yield strength, Tensile strength and % elongation properties is tabulated below.

Grade	Yield Strength (Mpa)				Tensile strength (Mpa)	Elongation
	≤ 16mm	>16 ≤40mm	> 40 ≤80mm	>80 ≤150mm		
A516 Grade 70	260	260	260	260	485-620	17% (200mm GL)
AS 1548 – PT490	360	340	330	320	490-610	20% $5.65\sqrt{S_0}$

It is noted that the method of measurement of %Elongation is different between the ASTM and the AS standards – however they are equivalent in results (17% vs 20%)

## 3. Size

BSL can supply PT490NR up to 40mm thick, and PT490N up to 100mm thick

### Commercial Likeness:-

Customers can source this product direct from BlueScope steel or via the aligned distribution channel. Imported A516 gr 70 could also be sourced direct from the exporting mill or more likely from the importer distribution channel.

Both the AS1548 PT490 products and the ASTM A516 Gr 70 product are manufactured to the specific end use requirements (of their relevant standard) for steel to be used in the manufacture of pressure vessels.

BSL publishes a monthly pricelist for plate products, based on maintaining a competitive market and price offering against import competition and this includes our complete range of AS1548 product range for use in pressure vessel manufacture. See [Attachment 2/](#) Plate steel price list - pg 17 for PV steels. Plate steel, irrespective of Grade type, is offered for sale by both importers and BSL with minimal packaging due to its physical dimensions and mass

### Functional Likeness:-

The goods subject to this application are used for the manufacture of pressure vessels as is the BSL equivalent product made and sold to AS1548. These goods are capable of being substituted and both perform the same or similar function – ie is used in the process of fabrication of pressure vessels.

The Australian Standard AS1548 (fine grained weldable steel plates for pressure vessel equipment) is the closest direct equivalent standard as ASTM A516 (standard specification for pressure vessel plates, Carbon steel, for moderate and lower temperature service) for steel used in the manufacture of pressure vessels

### Functional Likeness:-

The plate steel produced to ASTM A516 and AS1548 are manufactured using the same or similar production process.

**D.2**

If you answered yes to question D.1, please provide a description of the goods produced by your company that you consider to be like or directly competitive to the goods subject to this application. Your description of the goods your company produces should refer to all aspects of the goods as set out in the description of the goods in section 5.

Characteristics	Description
Plate steel manufactured and designed for use in the manufacture of pressure vessels	AS 1548 – Grade PT490NR
Plate steel manufactured and designed for use in the manufacture of pressure vessels	AS 1548 – Grade PT490N

See [Attachment 2/](#). Price list showing market offer and prices for these steel grades pg 17 for PV steels

See [Attachment 3/](#). Invoices for these products sold in Australia

See [Attachment 4 and 5/](#). PT490 data sheets

**D.3**

Provide evidence of the terms and conditions of sale of these like or directly competitive products.

See [Attachment 2/](#). Price list showing market offer and prices for these steel grades also shows the standard terms and conditions (pg 20) of BSL product sales.

Are these products available to all purchasers on equal terms under like conditions?  
**YES.**

If so, provide evidence and explain why you consider that these products are available to all purchasers on equal terms under like conditions.

Per plate sales evidenced with the 2012/13 plate anti-dumping application and attached documents (invoices, published monthly price list for all domestic distributors and data sheets published on the BSL website) all plate sales are made on equal terms on like conditions to all customers.

**PART E – Capability to Produce Identical or Like or Directly Products****E.1**

If your company has not produced and sold in Australia products that are identical to, or like or directly competitive to the goods subject to this application for exemption, is your company capable of producing such goods?

**N/A**

**E.2**

If you answered yes to question E.1, indicate whether the product that you can produce is identical to, or like or directly competitive to the goods subject to this application for exemption.



N/A

**E.3**

If you are capable of producing identical, like or directly competitive goods, explain why you have not produced such goods.

Provide evidence of your production capability, including evidence of the production and sale of similar products, certification of the identical, like or directly competitive goods and at what cost they could be produced, as well as any plans for the imminent production of the goods or orders for the goods and any relevant information.

N/A

**E.4**

If you are capable of producing identical, like or directly competitive goods, provide reasonable evidence of likely terms and conditions of sale for these goods.

N/A

**PART F – Additional Comments****F.1**

Provide any additional comments including any other information that will assist Commission in reaching a recommendation to the Parliamentary Secretary to the Minister for Industry regarding this application for exemption.

It is noted that the applicant has compared the ASTM A516 Gr 70 product to BSL's product grade AS1548 Grade PT460N(NR).

This is an incorrect comparison for product equivalency – the correct equivalent product is PT490N (NR).

This was previously documented in the Plate steel anti-dumping case Table A3.1b – relevant International Standards for plate steel – PV Grades per below.

Australian and International Standards:- Pressure Vessel and Boiler Grades	
AS 1548	ASTM
Grade	Grade
PT 430	A516 - 415 (60)
PT 460	A516 - 450 (65)
PT 490	A516 - 485 (70)
PT 490N	A516 - 485 (70)N

**PART G - Declaration**

I hereby declare that BlueScope steel has completed the attached response to application for exemption and, having made due inquiry, certify that the information contained in this submission is complete and correct to the best of my knowledge and belief.

**Name** : **Alan Gibbs**

**Signature** : 

**Position in**  
**Company** : **Development Mgr – International Trade Affairs**

**Date** : **06 March 2014**

## SA/AS 1548 - PT490N (L20, L40, L50)

SA/AS 1548 - PT490N, SA/AS 1548 - PT490NL20, SA/AS 1548 - PT490NL40, SA/AS 1548 - PT490NL50

### XLERPLATE® steel

DATE: AUGUST 2009

### PRODUCT DESCRIPTION

- A fully killed, micro-alloyed, fine grained steel for boiler and pressure vessel applications
- Produced by normalising, with stress relieved test pieces
- Guaranteed minimum tensile strength of 490 MPa

### SUPPLY CONDITIONS

- Thickness Range: 10mm – 100mm  
N, NL20: (10mm – 100mm)  
NL40: (10mm – 80mm)  
NL50: (10mm – 80mm)
- Availability: By enquiry only
- Edge Condition: Trimmed
- Tolerances: Thickness - AS 1548, others - AS/NZS 1365
- Ultrasonic Inspection: AS 1710 available
- Surface Inspection: BlueScope Steel (third party available)
- Certification: BlueScope Steel (third party endorsed available)

### FEATURES & BENEFITS

- Grades with elevated temperature properties available
- Grades with low temperature properties available
- Good weldability
- Good formability
- This grade is recognised in the ASME material code

### 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 and AS 1210.

### NEAREST OVERSEAS SPECIFICATIONS

ASTM A 537 Cl.1    ASTM A 737 Gr.B    JISG 3126-SGV366    ISO 9328.2-P315    EN 10028-3-P355

### AS 1548 - 1995 EQUIVALENT

SA/AS 1548 - 5 - 490N (L20, L40, L50)

SA/AS 1548 - 7 - 490N (L20, L40, L50)

### For more information contact:

#### BlueScope Steel Direct

Phone: 1800 800 789

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

Website: [www.xlerplate.com.au](http://www.xlerplate.com.au)

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## SA/AS 1548 - PT490N (L20, L40, L50)

SA/AS 1548 - PT490N, SA/AS 1548 - PT490NL20, SA/AS 1548 - PT490NL40, SA/AS 1548 - PT490NL50

### XLERPLATE® steel

CHEMICAL COMPOSITION			
Element	Guaranteed Maximum % <sup>(2)</sup>	Typical % / Thickness (mm)	
		10 < t ≤ 8	
Carbon	0.20	0.13	
Silicon	0.60	0.45	
Manganese	0.90 - 1.70	1.50	
Phosphorus	0.040	0.020	
Sulfur	0.030	0.003	
Niobium	0.010 - 00.50	0.015	
Aluminium	0.100	0.035	
Titanium	0.040	0.018	
CEQ (IIW) <sup>(1)</sup>	0.46	0.41	

$$(1) \text{ CEQ (IIW)} = \frac{C}{6} + \frac{Mn}{5} + \frac{(Cr+Mo+V)}{15} + \frac{(Cu+Ni)}{15}$$

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

(3) Additional alloys 0.2 Ni, 0.3 Cu.

MECHANICAL PROPERTIES					
Tensile Properties (Transverse)		Thickness Range (mm)			
		≤ 16	> 16 ≤ 40	> 40 ≤ t ≤ 80	> 80 ≤ 100
Guaranteed Min.	Yield Strength (MPa)	360	340	330	320
	Tensile Strength (MPa)	490 - 610	490 - 610	490 - 610	490 - 610
	Elong. on 5.65 √ So (%)	20	20	20	20
Typical	Yield Strength (MPa)	385 - 445	380 - 440	380 - 430	370 - 420
	Tensile Strength (MPa)	500 - 540	500 - 540	500 - 540	500 - 540
	Elong. on 5.65 √ So (%)	26 - 35	26 - 35	24 - 32	24 - 32
Charpy Impact Properties	Longitudinal on 10 x 10mm specimen	Test Temp °C	Absorbed Energy (joules)		
			Ave. of 3	Ind.	
Guaranteed Min.	PT490N	-20	55	43	
Typical			80 - 180	60 - 200	
Guaranteed Min.	PT490NL20	-20	55	43	
Typical			80 - 180	60 - 200	
Guaranteed Min.	PT490NL40	-40	45	33	
Typical			60 - 160	50 - 150	
Guaranteed Min.	PT490NL50	-50	42	31	
Typical			60 - 160	50 - 180	

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You must seek specific advice as to the suitability of this product for the purpose for which, and the manner in which, you propose to use it. This may involve further independent analysis and testing. BlueScope Steel Limited and its related bodies corporate take no responsibility for any adverse consequences of any nature which arise as a result of reliance on this datasheet. These datasheets will be updated from time to time and the most up-to-date versions are available from [www.xlerplate.com.au](http://www.xlerplate.com.au)

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BlueScope is a trade mark of BlueScope Steel Limited ABN 16 000 011 058.



# SA/AS 1548 - PT490N (L20, L40, L50)

SA/AS 1548 - PT490N, SA/AS 1548 - PT490NL20, SA/AS 1548 - PT490NL40, SA/AS 1548 - PT490NL50

## XLERPLATE® steel

MECHANICAL PROPERTIES									
PT490NRAH - Elevated Temp. Tensile Properties - Guaranteed Min. 0.2% Proof Stress (MPa)									
Thickness	50°C	100°C	150°C	200°C	250°C	300°C	350°C	400°C	450°C
t ≤ 16	348	327	303	278	255	236	217	204	192
16 < t ≤ 40	329	310	287	263	242	222	205	193	182
40 < t ≤ 80	319	300	278	255	234	216	199	187	176
80 < t ≤ 100	310	291	269	248	227	210	193	182	172

Values correspond to the lower trend curve determined according to EN10314 with a confidence limit of around 98% (2 standard deviations below the mean)

FORMABILITY (recommended min. inside radii)		HARDNESS	WELDABILITY
t ≤ 16mm	Long 3.0T, Trans 2.0T	Typical	Group 5 <sup>(4)</sup>
16 < t ≤ 40mm	Long 6.0T, Trans 4.0T	140 - 180 BHN	
t > 40mm	Hot form		

(4) Refer to WTIA Technical Note 1 or AS/NZS 1554.1

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## SA/AS 1548 - PT490NR (L20, L40, L50)

SA/AS 1548 - PT490NR, SA/AS 1548 - PT490NRL20, SA/AS 1548 - PT490NRL40, SA/AS 1548 - PT490NRL50

### XLERPLATE® steel

**DATE:** AUGUST 2009

### PRODUCT DESCRIPTION

- A fully killed, micro alloyed, fine grained steel for boiler and pressure vessel applications
- Produced by normalised rolling
- Guaranteed minimum tensile strength of 490 MPa

### SUPPLY CONDITIONS

- Thickness Range: 10mm – 60mm
- Availability: Enquiry only.
- Edge Condition: Trimmed
- Tolerances: Thickness - AS 1548, others - AS/NZS 1365
- Ultrasonic Inspection: AS 1710 available
- Surface Inspection: BlueScope Steel (third party available)
- Certification: BlueScope Steel (third party endorsed available)

### FEATURES & BENEFITS

- Grades with elevated temperature properties available
- Grades with low temperature properties available
- Good weldability
- Good formability
- This grade is recognised in the ASME material code

### WARNINGS

- This material should be used in conjunction with the appropriate pressure vessel design and welding standards.
- Customers should satisfy themselves through their own quality systems that the heat treatment process employed for hot forming produces the mechanical properties described.
- Guidelines for cold bending, where fracture toughness is important, are given in AS 4100 and AS 1210.

### NEAREST OVERSEAS SPECIFICATIONS

EN 10028-3-P355

### AS 1548 - 1995 EQUIVALENT

SA/AS 1548 - 7 - 490R (LO)

### For more information contact:

#### BlueScope Steel Direct

Phone: 1800 800 789

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

Website: [www.xlerplate.com.au](http://www.xlerplate.com.au)

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## SA/AS 1548 - PT490NR (L20, L40, L50)

SA/AS 1548 - PT490NR, SA/AS 1548 - PT490NRL20, SA/AS 1548 - PT490NRL40, SA/AS 1548 - PT490NRL50

**XLERPLATE® steel**

CHEMICAL COMPOSITION		
Element	Guaranteed Maximum % <sup>(2)</sup>	Typical % / Thickness (mm)
		10 < t ≤ 60
Carbon	0.20	0.13
Silicon	0.60	0.45
Manganese	0.90 - 1.70	1.50
Phosphorus	0.040	0.020
Sulfur	0.030	0.003
Niobium	0.010 - 0.050	0.015
Aluminium	0.100	0.035
Titanium	0.040	0.018
CEQ (IIW) <sup>(1)</sup>	0.46	0.41

$$(1) \text{ CEQ (IIW)} = C + \frac{\text{Mn}}{6} + \frac{(\text{Cr} + \text{Mo} + \text{V})}{5} + \frac{(\text{Cu} + \text{Ni})}{15}$$

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

(3) Additional alloys 0.2 Ni, 0.3 Cu.

MECHANICAL PROPERTIES				
Tensile Properties (Transverse)		Thickness Range (mm)		
		≤ 16	> 16 ≤ 40	> 40 ≤ t ≤ 60
Guaranteed Min.	Yield Strength (MPa)	360	340	330
	Tensile Strength (MPa)	490 - 610	490 - 610	490 - 610
	Elong. on 5.65 √ So (%)	20	20	20
Typical	Yield Strength (MPa)	385 - 445	380 - 440	380 - 430
	Tensile Strength (MPa)	500 - 540	500 - 540	500 - 540
	Elong. on 5.65 √ So (%)	26 - 35	26 - 35	24 - 32
Charpy Impact Properties	Longitudinal on 10 x 10mm specimen	Test Temp. °C	Absorbed Energy (joules)	
			Ave. of 3	Ind.
Guaranteed Min.	PT490NR	-20	55	43
Typical			80 - 180	60 - 200
Guaranteed Min.	PT490NRL20	-20	55	43
Typical			80 - 180	60 - 200
Guaranteed Min.	PT490NRL40	-40	45	33
Typical			50 - 120	40 - 140
Guaranteed Min.	PT490NRL50	-50	42	31
Typical			45 - 100	40 - 120

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SA/AS 1548 - PT490NR (L20, L40, L50)

SA/AS 1548 - PT490NR, SA/AS 1548 - PT490NRL20, SA/AS 1548 - PT490NRL40, SA/AS 1548 - PT490NRL50

XLERPLATE® steel

MECHANICAL PROPERTIES									
PT490NRH - Elevated Temp. Tensile Properties - Guaranteed Min. 0.2% Proof Stress (MPa)									
Thickness	50°C	100°C	150°C	200°C	250°C	300°C	350°C	400°C	450°C
t ≤ 16	348	327	303	278	255	236	217	204	192
16 < t ≤ 40	329	310	287	263	242	222	205	193	182
40 < t ≤ 80	319	300	278	255	234	216	199	187	176
80 < t ≤ 100	310	291	269	248	227	210	193	182	172

Values correspond to the lower trend curve determined according to EN10314 with a confidence limit of around 98% (2 standard deviations below the mean)

FORMABILITY (recommended min. inside radii)		HARDNESS	WELDABILITY
t < 16mm	Long 3.0T, Trans 2.0T	Typical	Group 5 <sup>(4)</sup>
16 ≤ t ≤ 40mm	Long 6.0T, Trans 4.0T	140 - 180 BHN	
t > 40mm	Hot form		

(4) Refer to WTIA Technical Note 1 or AS/NZS 1554.1

