

## AS/NZS 3678 - K1042

### XLERPLATE® steel

**DATE:** AUGUST 2009

#### PRODUCT DESCRIPTION

- A heat treatable plate grade for general engineering applications

#### SUPPLY CONDITIONS

- Thickness Range: 10mm – 100mm
- Availability: Plate is available in standard sizes. Sizes outside the standard plate offer are available by enquiry
- Edge Condition: Untrimmed (Mill Edge)
- Tolerances: AS1365
- Ultrasonic Inspection: AS1710 available
- Surface Inspection: BlueScope Steel (third party available)
- Certification: BlueScope Steel (third party endorsed available)
- As rolled

#### TYPICAL USES

- General engineering parts
- Profile cut gears
- Wear/abrasion applications

#### FEATURES & BENEFITS

- Abrasion/wear properties improved on heat treatment

#### WARNINGS

- This material should be used in conjunction with the appropriate structural design and welding standards.
- This grade is supplied in the as rolled condition. Specific applications may require heat treatment.
- An untrimmed (Mill) edge may contain minor surface discontinuities as a result of the rolling process (refer Clause 7 AS/NZS 3678). It is recommended that a minimum of 50mm be removed from each untrimmed edge.

#### NEAREST OVERSEAS SPECIFICATIONS

SAE/AISI 1042    BS 970 PART 1 080M40    DIN 17200-C45

#### For more information contact:

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CHEMICAL COMPOSITION		
Element	Guaranteed Maximum % <sup>(2)</sup>	Typical % Thickness (mm)
		8 - 100
Carbon	0.39 - 0.47	0.43
Silicon	0.50	0.25
Manganese	0.60 - 0.90	0.75
Phosphorus	0.040	0.020
Sulfur	0.035	0.010
Aluminium	0.100	0.025
CEQ (IIW) <sup>(1)</sup>	-	0.56

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

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

MECHANICAL PROPERTIES	
K1042 IS NOT SUPPLIED TO SPECIFIED LEVELS OF MECHANICAL PROPERTIES	
	As Rolled (Typical)
Yield Strength (MPa)	300 - 380
Tensile Strength (MPa)	600 - 670
Elongation on 5.65 √ So (%)	16 - 28

OIL QUENCH DATA <sup>(3)</sup>					
Typical	YS (MPa)	TS (MPa)	%Elong 5.65 √ So	As Rolled	
				Rc	BHN
H850°C + Q + T 400°C	820	1000	11	36	324
T 500°C	715	895	15	28	284
T 600°C	700	820	21	22	241

WATER QUENCH DATA <sup>(3)</sup>					
	YS (MPa)	TS (MPa)	%Elong 5.65 √ So	Rc	BHN
H840°C + Q + T 400°C	1275	1360	12	43	400
T 500°C	970	1025	16	34	313
T 600°C	770	825	21	27	262

(3) Typical test results from limited trials only on 10mm plate. Customer should establish by own evaluation the suitability of the product for the required application and the mechanical properties achieved from their own heat treatment method

FORMABILITY (recommended min. inside radii)	HARDNESS	WELDABILITY
Hot forming recommended	Typical 160 - 220 BHN	Group 8 <sup>(4)</sup>

(4) Refer to WTIA Technical Note 1 or AS/NZS 1554.1. Hydrogen controlled consumables and processes are essential for good welding. Slow cooling from the welding or preheat temperature is recommended. Post weld heat treatment (stress relief) may be beneficial for high quality work, particularly for components subject to severe service conditions.

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