

Hot Rolled Formable HA4N-P steel

HR F

Revision 8, November 2003

This literature supersedes all previous issues

GENERAL DESCRIPTION

HA4N-P - Hot-rolled, pickled, extra deep drawing steel guaranteed non-ageing, suitable for severe drawing and pressing.

TYPICAL USES

Automotive components, mower parts.

AUSTRALIAN STANDARDS

AS/NZS 1594/2002

AS/NZS 1365/1996

GUARANTEED PROPERTIES OF STEEL BASE

MECHANICAL PROPERTIES	GUARANTEED	CHEMICAL PROPERTIES	GUARANTEED MAXIMUM %	TYPICAL %
Transverse tensile		Carbon (C)	0.08	0.04 - 0.07
Yield strength, MPa	-	Silicon (Si)	0.03	0.005 - 0.010
Tensile strength, MPa	-	Manganese (Mn)	0.40	0.20 - 0.30
Elong on 80 mm, %		Phosphorus (P)	0.03	0.01 - 0.02
≤ 3 mm	34 min	Sulphur (S)	0.02	0.01 - 0.02
> 3 mm	36 min	Aluminium (Al)	0.10	0.03 - 0.05
180° transverse bend (L axis)	0t	Titanium (Ti)	0.04	-
Uniform elong, %	-	Micro-alloy (Nb, V)	*	-
		Boron (B)	-	0.002 - 0.008
		Nitrogen (N)	-	0.001 - 0.005

Note: * (Nb) - 0.010% max, (V) - 0.010% max.



DIMENSIONAL CAPABILITIES

Preferred Thickness, mm	Width Range, mm									
	900	1000	1100	1200	1300	1400	1500	1600	1700	1800
13										
10										
8										
6										
5										
4.5										
4										
3.5										
3										
2.5										
2	*									
1.6										
1.5										

Note: Widths in the range 50 to 865mm are available by negotiation only.

* HA4N is not available pickled less than 2.00mm thickness.

These dimensions are a reflection of technical capability to produce. Supply conditions may be subject to dimensional restrictions and is subject to BlueScope Steel Sales and Marketing confirmation.

Key	 available black only	 available pickled
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NORMAL/OPTIONAL SUPPLY CONDITIONS

	Normal	Optional [#]
Surface finish	Pickled & Oiled	-
Tolerance class		
Thickness	AT	-
Width	AW	ME
Length	AL	-
Flatness	AF	-
Oiling	Oiled	-
Branding	Not branded	-

[#] Optional supply conditions may be subject to dimensional restrictions.

Note: It is recommended that customers use product promptly to avoid the possibility of rusting during storage. Oiling improves corrosion resistance but oiled product should be used within three months.

BlueScope is a trade mark of BlueScope Steel Limited.

Please ensure you have the current data sheet for this product as displayed at www.bluescopesteel.com.au

BlueScope Steel Limited

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BlueScope Steel (AIS) Pty Ltd ABN 19 000 019 625

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Produced by Artimprint (02) 9984 8586



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TYPICAL PROPERTY RANGES (FOR NORMAL SUPPLY PRODUCT)

Thickness mm	Yield Strength & Tensile Strength MPa																	
	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	
≤ 3.0		yield strength												tensile strength				
≤ 8.0							yield strength							tensile strength				

Key	 yield strength	 tensile strength
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Thickness mm	Total Elongation (%)																		
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46		
≤ 3.0						yield strength													
≤ 8.0			yield strength																

Note: Typical mechanical properties are based on aggregation of \bar{X} and 2SD performance.

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