

# voestalpine HIGH PERFORMANCE METALS

## ASTM A381 / 1.5217 / K03013

### DESCRIPTION

2C Carbon Hollow Bar. High yield strength aluminium treated fine grained, low alloy calcium treated steels, with improved machinability and welding characteristics.

### NEAREST STANDARDS

ASTM	DIN	BS	UNS
A381	1.5217 / 20MnV6	4360 GR55	K03013

### CHEMICAL ANALYSIS (MAX %)

C	Si	Mn	Ni	Cr	V	S	P
0.22	0.35	1.60	-	-	0.12	0.03	0.03

### HEAT TREATMENT (RECOMMENDED)

Normalise	880-900c. Air cool.
Anneal	650-700c. Cool slowly in controlled furnace.
Carburize	900-950c. Furnace or air cool.
Refine Core	840c. Water quench.
Harden	800c. Water quench.
Temper	180-210c. Air cool.

### MECHANICAL PROPERTIES (AS SUPPLIED)

Yield Strength MPa	Tensile Strength MPa	Elongation (%)	Hardness (HB)
390 min	560-750 min	17	200-240

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### SUPPLY CONDITION

Hot Rolled

### SUPPLY TOLERANCE

Outer Diameter

<75mm +1.0mm / 75mm -100mm + 1.2mm / >100mm +1.4mm

Wall - min thickness not more than 5% below nominal thickness

Straightness - 1 in 1000mm (total length)

### PERFORMANCE IS IN OUR DNA

voestalpine High Performance Metals is the global market leader in the production of tool steels and one of the world's leading suppliers of high-speed steels, valve steels, special steels, powder metallurgy steels, and nickel-based alloys. We also manufacture die-forged components and large castings from nickel-based alloys and high, medium and low alloy steels.

Customers rely on our key brands of Bohler, Uddeholm and Villares, to set the highest standards of innovation, quality and service across a wide range of industries including automotive, aerospace, consumer electronics and oil & gas. We are fully integrated from steel production through to local customer sales, ensuring we keep our customers One Step Ahead.

### EXPLORE WHAT IS POSSIBLE.



#### voestalpine High Performance Metals Australia

17 Distribution Drive

Orchard Hills, NSW, 2748

T. +61 02 4744 9496

E. [info@voestalpine.com.au](mailto:info@voestalpine.com.au)

[www.voestalpine.com/hpm/australia](http://www.voestalpine.com/hpm/australia)

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ONE STEP AHEAD.