

## AI-1542VC

### Specifications

DIN EN 14700 DIN 8555 T Fe20 MF 21-65-GZ

### Description and Applications

**AI-1542VC** is an open arc tubular wire filled with a mild steel matrix infused with 7% Vanadium and 19% Chromium (especially hard heat and corrosive-resistant refractory carbides) [1800-2900HV0,2] forming a stable, dense, highly scratch-resistant matrix of iron-chromium, vanadium complex carbides binding 40% Fused Tungsten Carbide (FTC). Use where extreme abrasive wear is encountered in combination with high corrosion. Produces a silvery relief-checked surface when applied to low carbon substrates of <0,45% carbon (a higher carbon content may lead to an increased degree of relief checking). Provides protection against high abrasion, moderate impact in corrosive media. Perfect for all areas of critical importance such as oil-well (HW) drill pipe, downhole stabilisers, hole-opener shoulders and all types other drilling and mining, crushing, boring and tunnelling parts. There is no need to pre-heat base metal although some alloys benefit from a pre-heat of between 150-350°C. It is highly recommended that the voltage and welding current are kept on the lowest possible settings to preserve the integrity of the tungsten carbide granules. During welding, the short arc should be activated such that the weld metal is deposited thickly and smoothly to ensure the tungsten granules are evenly distributed throughout the weld bead. If weld parameters are set too high, the deposit will be too liquid, allowing the tungsten granules to sink to the bottom.

**Applications include:** Mining, excavation, earth moving, geothermal well drilling and deep oil and gas drilling, tunnelling shields, road construction etc.

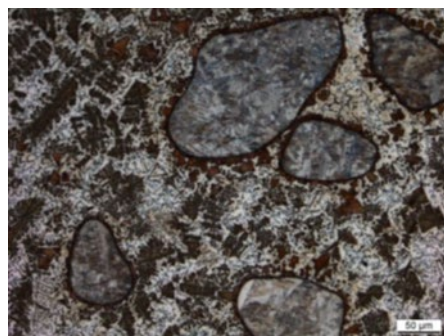
### Typical Weldmetal Analysis

Matrix: Fe-C-W-Cr-V ( ~26% of refractory carbides) (1800-2900HV0,2)

Granules: ~40% free W2C (2400 HV0.2)

### Mechanical Properties of Weldmetal

	As Welded
Hardness	60-62 HRC (1st Layer)
	62-66 HRC (2nd Layer)
	Approx. 2400 HVO.2 (FTC)



Photomicrograph of deposit; Note larger grains of Tungsten Carbide set in a matrix of complex carbides and blocky refractory carbides.



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### Welding Instructions

Keep weld area free of rust, scale, oil, damp and other contamination. **Avoid overheating the base material and choose starting amperage and voltage as low as possible within the recommended range to reduce heat input into the tool and to avoid dissolution of the fused tungsten carbide.** Controlled cooling is highly beneficial. The deposit is non-machinable. Grind to desired finish.

Post weld controlled cooling is highly beneficial. The deposit is non-machinable. Grind to desired finish.

### Welding Parameters

Diameter (mm)	Coil Size	Current type	Amps	Stick out (mm)
1.2	15Kg	DC(+)	140-160	30-35
1.6	15Kg	DC(+)	170-190	30-35
2.0	15Kg	DC(+)	180-200	30-35
2.4	25Kg	DC(+)	200-230	30-35
2.8	25Kg	DC(+)	220-260	30-35

### Welding Positions

(1G, 1F) Downhand/flat position, (2F) Horizontal position

### Disclaimer

All figures in this datasheet should be considered indicative only. No guarantee is made as to their accuracy.

All figures subject to change without notice. Batch analysis is available for all products sold. Should you require any further information, please contact us at [sales@alloysint.com.au](mailto:sales@alloysint.com.au)

