

BG42 - AMS5749

Chemical Properties

Element	Chemical Composition %
Carbon (C)	1.15
Manganese (Mn)	0.50
Silicon (Si)	0.30
Chromium (Cr)	14.50
Molybdenum (Mo)	4.00
Vanadium (V)	1.20

Hardening

Preheating:	Heat to 816 - 843 °C and equalise
Austenitising (High Heat):	Heat rapidly from the preheat, and soak for 10 to 15 minutes Furnace Salt: Typically 1121°C. For underhardening, use 1066-1080 °C
Quenching:	Pressurised gas, warm oil, or salt. For pressurised gas, the furnace should have a minimum quench pressure of 4 bars. A quench rate of approximately 222 °C per minute to below 538 °C is critical to obtain the desired properties. For oil, quench until black, about 482 °C, then cool in still air to 66-51°C For salt maintained at 538-593 °C, equalise in the salt, then cool in still air to 66-51 °C
Cryogenic Treatment:	An optional cryogenic treatment may be used immediately after quenching to 66-51 °C. Cool to -73 °C, remove from cooling medium, and allow part to warm to ambient temperature in still air
Tempering	Temper immediately after quenching or cryogenic treatment. The typical temperature range for knife blades is 510-566 °C. Tempering below 510 °C is not recommended. Hold at temperature for 2 hours then air cool to ambient temperature. Double tempering is required.

Heat Treatment Response

As Oil Quenched from	HRC
1066 °C, 15 minutes	59.5
1093 °C, 15 minutes	62.5
1121 °C, 15 minutes	61.5
1149 °C, 10 minutes	59.0

Physical Properties

Machinability: 55-60% of a 1% carbon steel

Disclaimer

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