

BOHLER W302 SUPERIOR®

Big Block Premium H13 Hot Work Tool Steel

Chemical Composition(average %)

C	Si	Mn	Cr	Mo	V
.39	1.1	.30	5.20	1.40	.95

Heat Treatment Procedure

Preheat Temperature: Initial preheat: heat through to 1200°F
Second preheat: heat through to 1550°F
Third preheat: heat through to 1740°F

Hardening Temperature: 1870 - 1920°F, typically 1885°F
Soak time after core of tool has reached the hardening temperature: minimum 30 minutes, maximum 1 hour.

Quenching: **Vacuum** – Utilizing inert gas at positive pressure, quench as rapidly as possible. For large, complex tools where risk of excessive distortion/quench cracking exists, an interrupted quench at ~1000°F is recommended for reduction of stresses. Equalize so that the temperature differential between the surface and center(Ts and Tc) is less than 200°F or for a maximum of 30 minutes after Ts reaches the interrupt temperature, whichever occurs first. Continue the quench. **Temper immediately when the complete tool reaches 150°F.**

Tempering Temperature: Immediately perform tempering operation once tool has reached 150°F.
Recommend a minimum of two tempers with intermittent cooling to room temperature.

Expected hardness (hardening temperature 1885°F):

<u>Tempering Temperature (°F)</u>	<u>Hardness (+/- 2 HRC)</u>
1020	50
1050	48
1080	46
1110	44
1140	42

Holding Time: 1 hour per inch of thickness or maintain at temperature for a minimum of 2 hours.

Note: Leave adequate machine stock prior to heat treatment to allow for any dimensional changes or distortion which may occur. For reference, the size change should not exceed .0015 inches per inch per side if stress relieving has been performed after rough machining.



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