



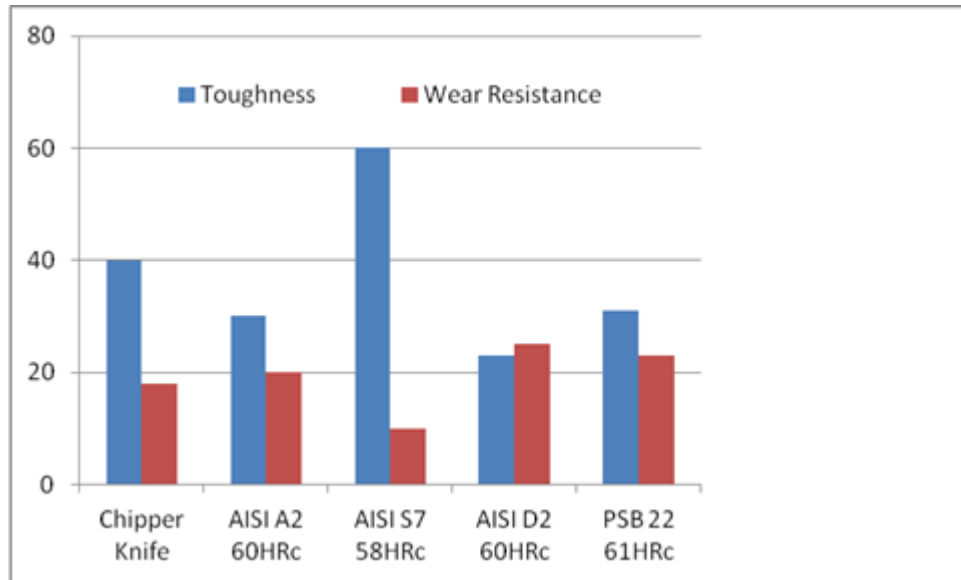
## Technical Information: SB Chipper Knife

SB Chipper Knife steel is an air hardening, 8% chromium grade characterized by very good toughness in combination with good wear resistance. SB Chipper Knife is readily machinable and also has good grindability. SB Chipper knife is normally used in the hardness range of 56 to 58 HRC.

### Typical Chemical Composition

Carbon	0.50%	Chromium	8.00%
Molybdenum	1.45%	Silicon	0.95%
Vanadium	0.45%	Manganese	0.35%

### Tool Steel Properties Comparison



### Physical Properties

**Modulus of Elasticity**.....27.5 psi x 10<sup>6</sup> .....(207 GPa)  
**Density**..... 0.279 lb/in<sup>3</sup>  
**Annealed Hardness**.....200-225 Brinell Hardness (BHN)  
**Machinability**.....Similar to S7 Tool Steel

## Technical Information: SB Chipper Knife

### Heat Treatment

#### Annealing

Heat to 1550°F, hold two hours

Slow cool 20°F/hour to 1200°F

Then air or furnace cool to room temperature

#### Stress Relieving

Performed prior or after machining to minimize distortion in heat treating

1200°F, hold two hours

Cool slowly to 900 degrees F, then air cool to room temperature

#### Hardening

Salt bath, protective atmosphere, or vacuum furnace equipment preferred.

#### High Heat (Austenitizing)

1825/1925°F for 30 minutes at heat. Less holding time required at high side of austenitizing range.

#### Quench

Vacuum or circulating air—quench rate of a minimum of 50 degrees F per minute

down to 900 degrees F is necessary to achieve desired hardness.

Temper immediately following quench

#### Temper:

Temper immediately after quench. Double tempering is required, 2 hours per temper

### Typical Heat Treat Response

Hardening Temp		Tempering Temp		Hardness
°F	°C	°F	°C	HRC
1850	1010	As Quenched		60
		400	205	58
		500	260	57
		600	315	56
		700	370	56.5
		800	430	57
		900	480	58
		1000	540	55