



Technical Information: 440C

440C is an air hardening stainless tool steel

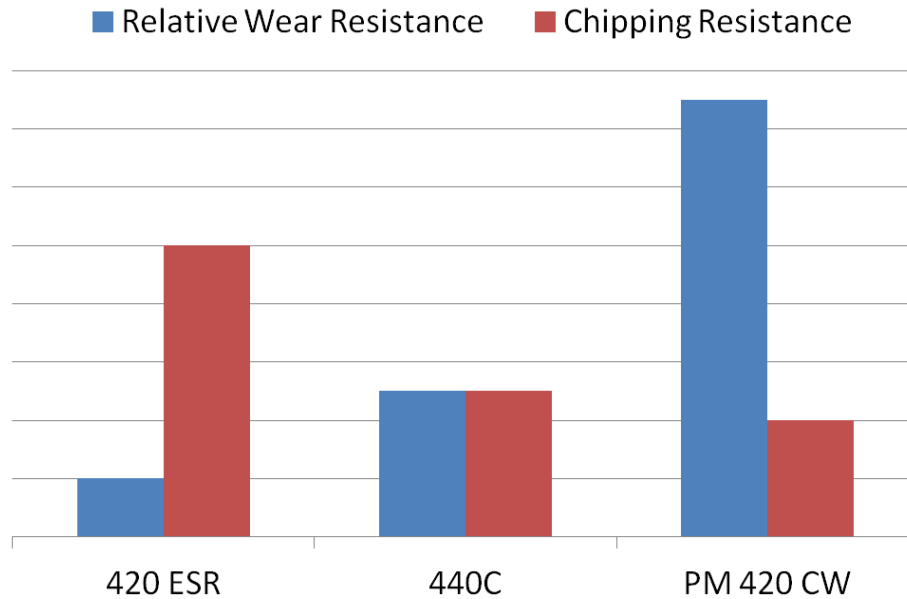
440C is characterized by high wear resistance and excellent corrosion resistance

440C is used in plastic molding applications, plastic molding, cutlery, and food processing

Typical Chemical Composition

Carbon	1.00%	Chromium	17.50%
Molybdenum	0.50%	Silicon	0.30%
Vanadium	0.30%	Manganese	0.50%

SBSM Tool Steel Properties Comparison



Physical Properties

Modulus of Elasticity.....30 psi x 10⁶(207 GPa)
 Density..... 0.279 lb/in³
 Annealed Hardness.....220-255 Brinell Hardness (BHN)



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Heat Treatment

Annealing

Heat to 1600^oF, hold two hours
 Slow cool 20^oF/hour to 1200^oF
 Then air or furnace cool to room temperature

Stress Relieving

Performed prior to or after machining to minimize distortion in heat treating
 1100/1200^oF, hold two hours
 then air cool to room temperature

Hardening

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

High Heat (Austenitizing)

1850^oF to 1900^oF for 30 to 45 minutes at heat.

Quench

Salt bath quench to 1000-1100^oF, equalize, then air cool to 150^oF .
 Vacuum or atmosphere quench rate of a minimum 50 degrees F per minute down to 800^oF is critical to achieve best heat treat response.
 Temper immediately following quench when material reaches 150^oF or below.

Tempering

Minimum 400^oF tempering temperature required.
 Double tempering is required, triple tempering recommended.
 Air cool to room temperature between tempers.

Note: Tempering above 800^oF is not recommended due to a decrease in toughness and corrosion resistance.

Typical Heat Treat Response

Tempering Temp	Hardening Temp	
	1850 ^o F	1010 ^o C
As Quenched		59 HRC
400	205	58 HRC
500	260	56 HRC
600	315	54 HRC
700	371	52 HRC
800	427	55 HRC
1000	538	51 HRC