



Technical Information: SB Wear

SB WEAR IS AN AIR HARDENING TOOL STEEL WITH AN EXCELLENT COMBINATION OF HIGH WEAR RESISTANCE AND TOUGHNESS

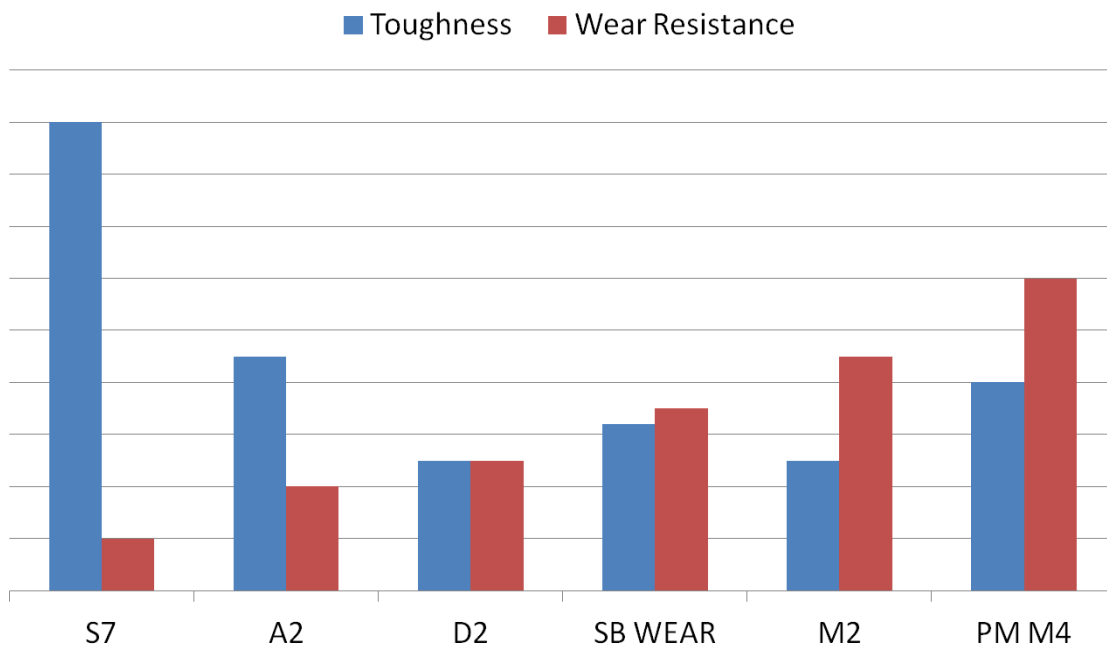
THE GRADE IS INTENDED FOR APPLICATIONS THAT REQUIRE HIGHER WEAR RESISTANCE THAN D2 AND TOUGHNESS SIMILAR TO A2

SB WEAR'S HIGH TEMPERING TEMPERATURES MAKE IT A GOOD SUBSTRATE MATERIAL FOR COATINGS

TYPICAL CHEMICAL COMPOSITION

CARBON	1.10%	CHROMIUM	7.50%
MOLYBDENUM	1.60%	SILICON	1.10%
VANADIUM	2.40%	MANGANESE	0.35%
SULFUR	0.03% MAX	TUNGSTEN	1.15%

SBSM TOOL STEEL PROPERTIES COMPARISON



PHYSICAL PROPERTIES

MODULUS OF ELASTICITY.....30 PSI X 10⁶(207 GPa)

DENSITY..... 0.283 LB/IN³

ANNEALED HARDNESS.....225-255 BRINELL HARDNESS (BHN)

MACHINABILITY.....SIMILAR TO M2 TOOL STEEL



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HEAT TREATMENT

ANNEALING

HEAT TO 1600°F, HOLD TWO HOURS
SLOW COOL 20°F/HOUR TO 600°F
THEN AIR OR FURNACE COOL TO ROOM TEMPERATURE

STRESS RELIEVING

PERFORMED PRIOR OR AFTER MACHINING TO MINIMIZE DISTORTION IN HEAT TREATING
1100/1200°F, HOLD TWO HOURS
THEN AIR COOL TO ROOM TEMPERATURE

HARDENING

SALT BATH, PROTECTIVE ATMOSPHERE, OR VACUUM FURNACE EQUIPMENT PREFERRED.

HIGH HEAT (AUSTENITIZING)

1850/2050°F FOR 30 MINUTES AT HEAT.

QUENCH

SALT BATH QUENCH TO 1000-1100°F, EQUALIZE, THEN AIR COOL TO 150°F.
VACUUM OR ATMOSPHERE QUENCH RATE OF A MINIMUM 50 DEGREES F PER MINUTE DOWN TO 1200F IS
CRITICAL TO ACHIEVE BEST HEAT TREAT RESPONSE.
TEMPER IMMEDIATELY FOLLOWING QUENCH

TEMPERING

MINIMUM 900°F TEMPERING TEMPERATURE REQUIRED.
DOUBLE TEMPERING IS REQUIRED, TRIPLE TEMPERING RECOMMENDED.
AIR COOL TO ROOM TEMPERATURE BETWEEN TEMPERS.

TYPICAL HEAT TREAT RESPONSE

TEMPERING TEMP °F	HARDENING TEMP 1850°F	HARDENING TEMP 1950°F	HARDENING TEMP 2050°F
As QUENCHED	64	64	63
900	62	63	62
950	62	62	64
1000	59	61	64
1025	58	59	62
11050	56	56	60