



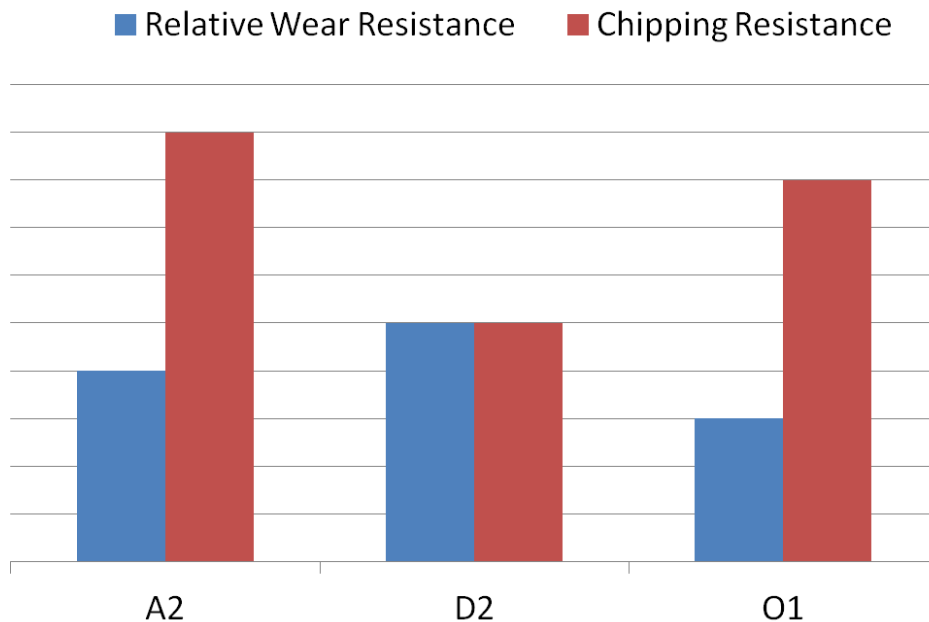
Technical Information: O1

O1 IS AN OIL HARDENING, COLD WORK TOOL STEEL.
O1 IS CHARACTERIZED BY MODERATE WEAR RESISTANCE AND RELATIVELY HIGH HARDNESS.
O1 IS USED IN A VARIETY OF GENERAL PURPOSE COLD WORK APPLICATIONS

TYPICAL CHEMICAL COMPOSITION

CARBON	0.90%	CHROMIUM	0.50%
MANGANESE	1.25%	TUNGSTEN	0.50%

SBSM TOOL STEEL PROPERTIES COMPARISON



PHYSICAL PROPERTIES

MODULUS OF ELASTICITY.....30 PSI X 10⁶(207 GPa)
DENSITY..... 0.283 LB/IN³
ANNEALED HARDNESS.....200-229 BRINELL HARDNESS (BHN)



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HEAT TREATMENT

ANNEALING

HEAT TO 1450°F, HOLD TWO HOURS
SLOW COOL 20°F/HOUR TO 1100°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

OIL QUENCHING REQUIRED.

HIGH HEAT (AUSTENITIZING)

1450/1500°F FOR 20 MINUTES AT HEAT.

QUENCH

QUENCH IN OIL TO 150°F .

TO MINIMIZE DISTORTION, PARTS MAY BE REMOVED AT 400°F THEN AIR COOLED.
TEMPER IMMEDIATELY FOLLOWING QUENCH WHEN MATERIAL REACHES 150°F OR BELOW.

TEMPERING

MINIMUM 400°F TEMPERING TEMPERATURE REQUIRED.
DOUBLE TEMPERING IS REQUIRED.
AIR COOL TO ROOM TEMPERATURE BETWEEN TEMPERS.

TYPICAL HEAT TREAT RESPONSE

TEMPERING TEMP		HARDENING
°F	°C	TEMP
As QUENCHED		1500°F 815°C 63/65 HRC
400	205	62 HRC
500	260	59 HRC
600	315	56 HRC
700	371	52 HRC
800	427	49 HRC
900	510	44 HRC
1000	538	40 HRC