



Technical Information: 4140 HT

4140 HT IS A MEDIUM CARBON ALLOY STEEL HEAT TREATED TO A NOMINAL HARDNESS OF 28-32 HRC.
4140 HT CAN ALSO BE SURFACE HARDENED TO INCREASE WEAR RESISTANCE

TYPICAL CHEMICAL COMPOSITION

CARBON	0.40%	CHROMIUM	1.00%
MOLYBDENUM	0.20%	SILICON	0.30%
MANGANESE	1.00%	SULFUR	0.03%

4140 HT SURFACE HARDENING

HARDENING

SURFACE SHOULD BE HEATED BY FLAME OR INDUCTION TO 1500°F PLUS OR MINUS 50°F

QUENCHING

QUENCH WITH WATER OR COMPRESSED AIR TO BELOW 500°F
COMPRESSED AIR QUENCH WILL RESULT IN LOWER HARDNESS LEVELS THAN WATER QUENCH

TYPICAL FLAME HARDENED AND WATER QUENCHED SURFACE HARDNESS

MATERIAL TEMPERED FOR 2 HOURS AT TEMPERING TEMPERATURE

Tempering Temperature	Hardness (HRC)
As Quenched	53-58
400°F	51
600°F	47
800°F	43

Note: 4140 HT can be surface hardened using any of the diffusion nitriding processes such as ion, gas, or salt bath

PHYSICAL PROPERTIES

MODULUS OF ELASTICITY.....	30	PSI X 10 ⁶(207 GPa)
DENSITY.....	0.282	LB/IN ³	
SUPPLIED HARDNESS.....	28-32	HRC	
THERMAL EXPANSION (RT TO 200F).....	6.5 X 10 ⁻⁶	IN/F	
THERMAL EXPANSION (RT TO 400F).....	7.0 X 10 ⁻⁶	IN/F	