HOEGANAES

Ancorsteel® 737 SH

Ancorsteel 737 SH *is a water atomized, prealloyed steel powder specifically developed for heat treatment by either the sinter-hardening process or conventional quenching and tempering. The primary characteristics center on excellent hardenability in conjunction with good compressibility, particularly at higher compaction pressures. This unique combination of attributes differentiates its performance and optimizes both static and dynamic strength. Low sintered growth, resulting in higher sintered densities, along with stable dimensional response are major hallmarks which enhance suitability for a wide range of demanding applications. In some instances, the exceptional hardenability provides a means of sinter-hardening without requiring accelerated cooling equipment or high percentages of admixed additions.*

Typical Analysis and Properties

Composition (weight %) (w/o)

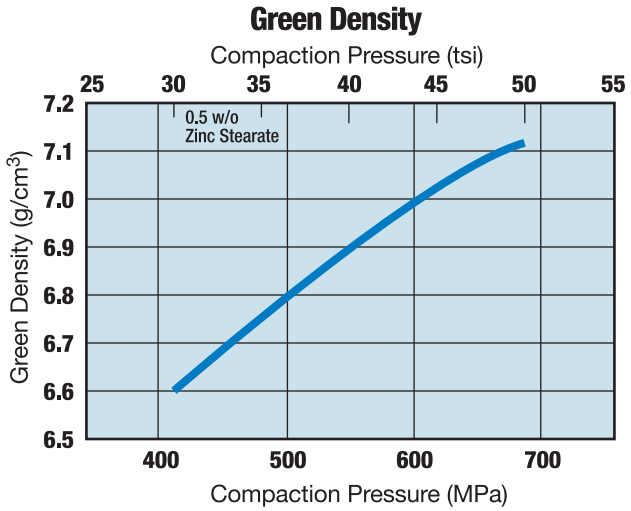
C	Mn	Mo	Ni	O
<0.01	0.42	1.25	1.40	0.15

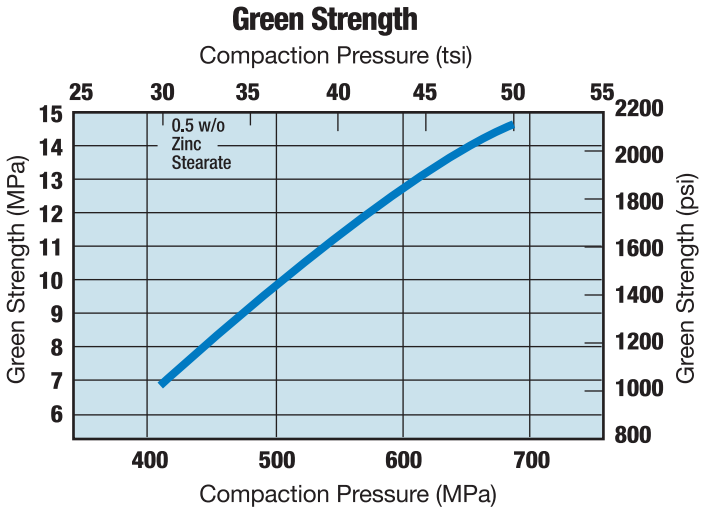
Apparent Density	Flow Rate
3.00 g/cm^3	25 s/50 g

Sieve Distribution (w/o)

Micrometers	+250	-250 /+150	-150 / +45	-45
U.S. Standard Mesh	(+60)	(-60 / +100)	(-100 / +325)	(-325)
	Trace	10	70	20

The Effects of Compaction Pressure on Green Properties





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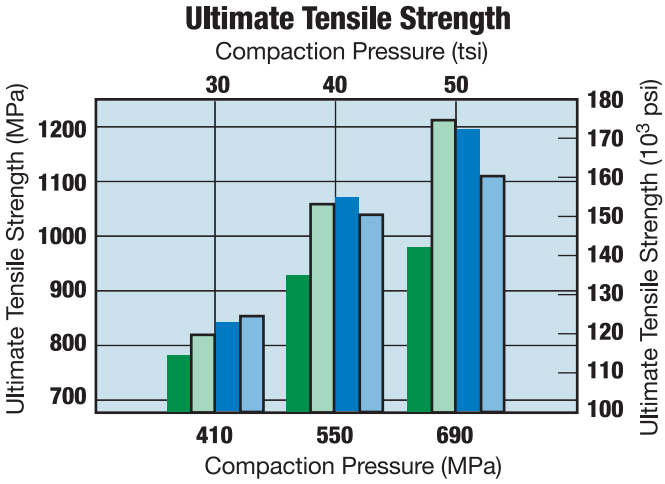
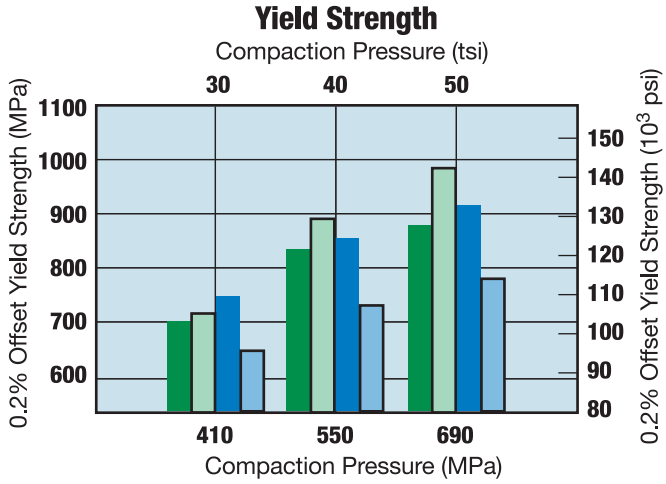
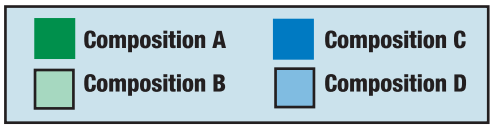
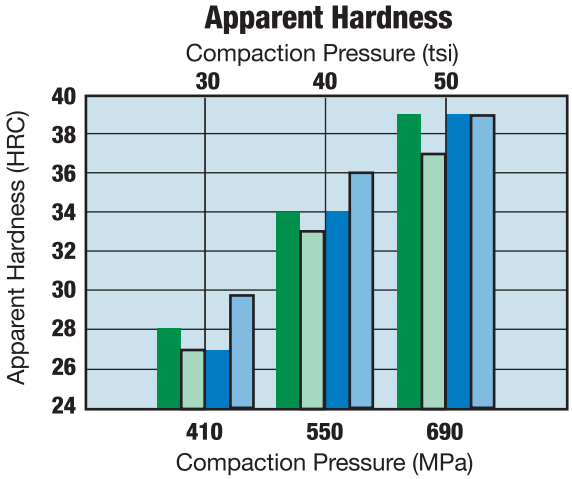
The Effects of Compaction Pressure on the Mechanical Properties

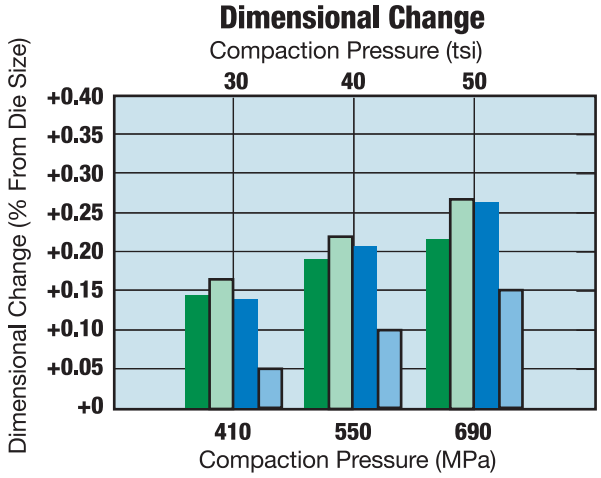
	A	B	C	D
Copper (w/o)	0	1.0	1.5	2.0
Graphite (w/o)	0.8	0.7	0.8	0.9











All premixes were made with 0.75 w/o Acrawax C as the lubricant. All compacts were sintered at 1140ºC (2080ºF) in a 90 v/o Nitrogen/10 v/o Hydrogen atmosphere for 30 minutes at temperature-accelerated cooling conditions include 5 inch/minute belt speed and 60 Hz Varicool settings followed by a 200ºC (400ºF) temper for one hour.

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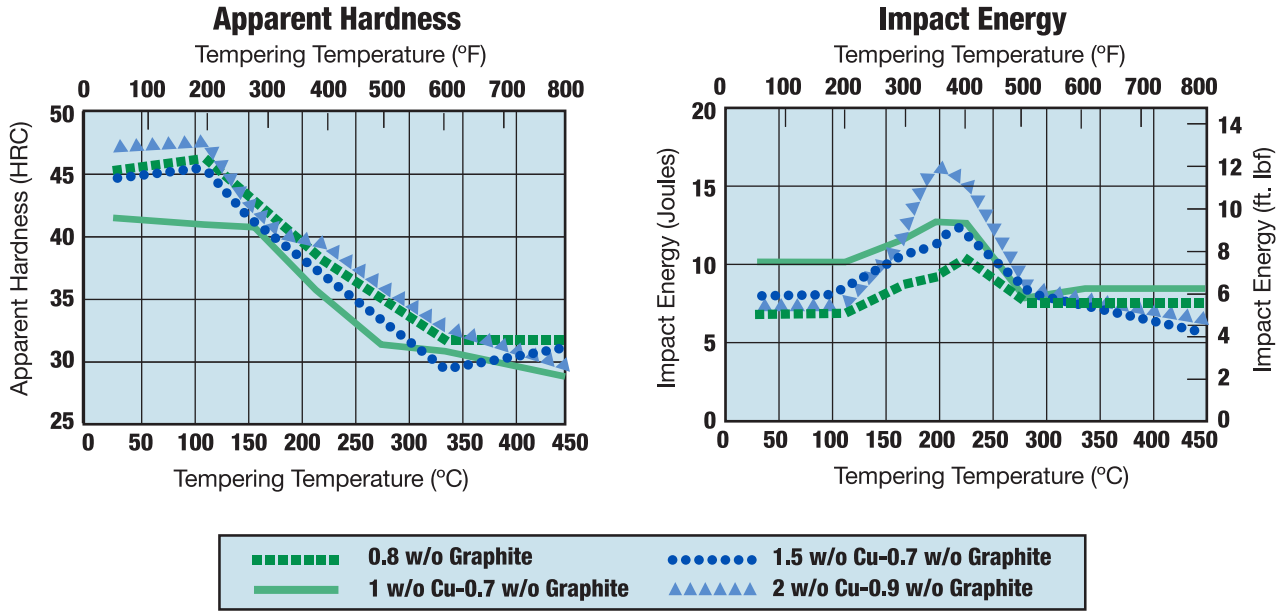
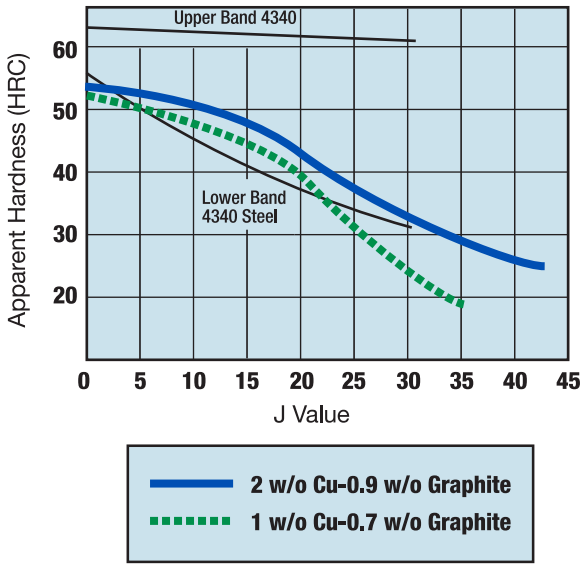
The Effects of Tempering Temperature on the Apparent Hardness and Impact Energy

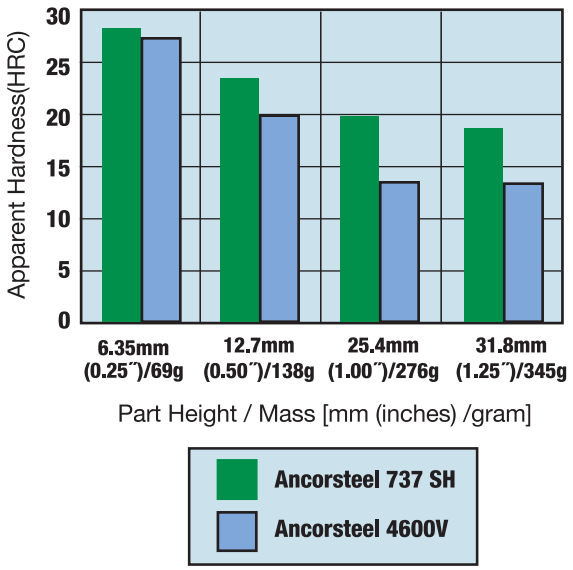


Ancorsteel 737 SH with a 2 w/o Cu + 0.9 w/o graphite compacted in a 44.45 mm (1.75″) diameter die to a density of 7.0 g/cm^3 with various part heights. Standard cooling followed by a 200ºC (400ºF) temper.

Jominy Hardness Profile



Hardenability Comparison



All specimens were prepared from premixes containing 0.75 w/o Acrawax C. The density of each specimen was held constant at 7.0 g/cm^3. The bars were sintered at 1140ºC (2080ºF) with an accelerated cool. Conditions included 5 inch/minute belt speed and 60Hz Varicool settings followed by tempering for one hour.

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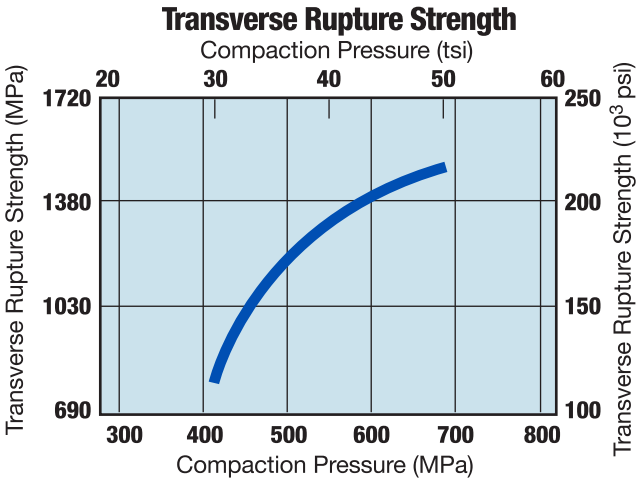
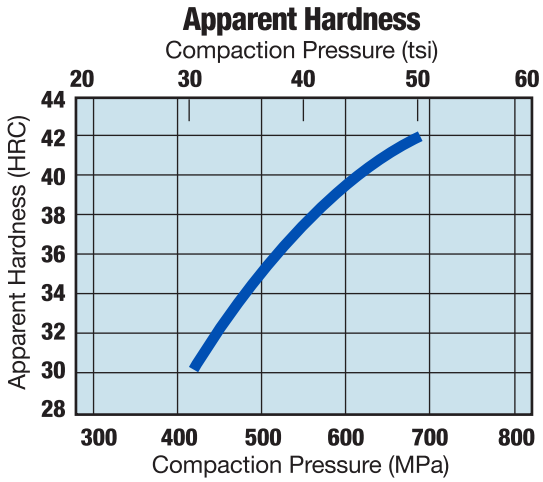
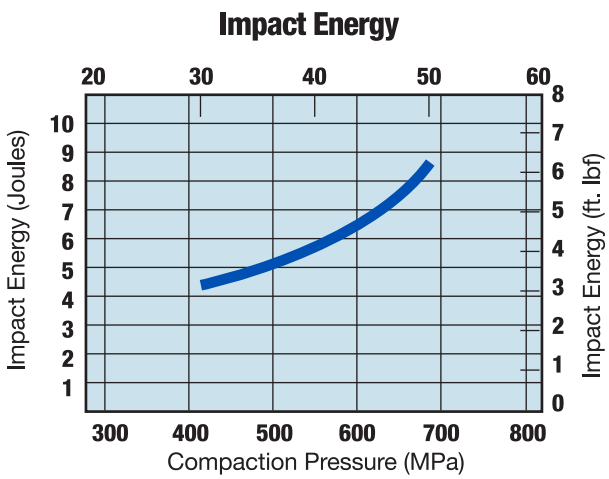
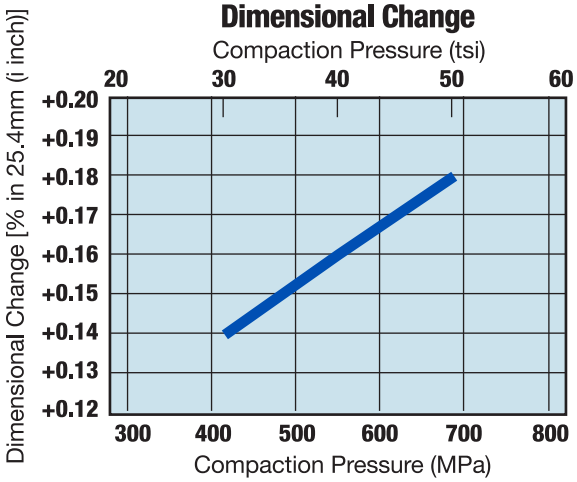
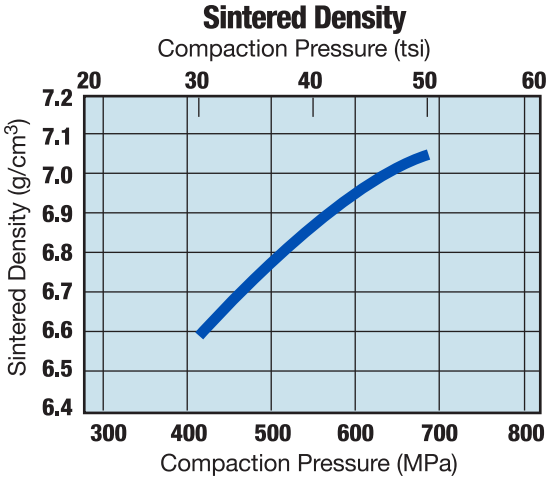
The Effects of Compaction Pressure on the Mechanical Properties of Quench-Hardened Material











All specimens were prepared from a premix containing 0.6 w/o graphite and 0.75 w/o Acrawax C. The compacts were sintered at 1140ºC (2080ºF) in a 90 v/o Nitrogen/10 v/o Hydrogen atmosphere for 30 minutes at temperature. No accelerated cooling was used. The test bars were austenitized at 860ºC (1575ºF) for 30 minutes followed by oil quenching. The bars were then tempered at 200ºC (400ºF).

IMPORTANT NOTICE: *The data shown are based on laboratory processing standard test specimens. Results may vary from that obtained in production processing.*

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