HOEGANAES

Ancorsteel® FLD-48

Ancorsteel steel powders were developed to extend the capability of PM parts to satisfy the needs of today's technology where higher strength and toughness are required.

Typical Analysis and Properties

Nominal Chemistry (weight %) (w/o)

	Ni	Mo	Cu	C	Oxygen
Ancorsteel FLD-48	4.0	0.5	1.5	<0.01	0.13
Ancorsteel FD-4800A	4.0	0.5	1.5	<0.01	0.13

Description

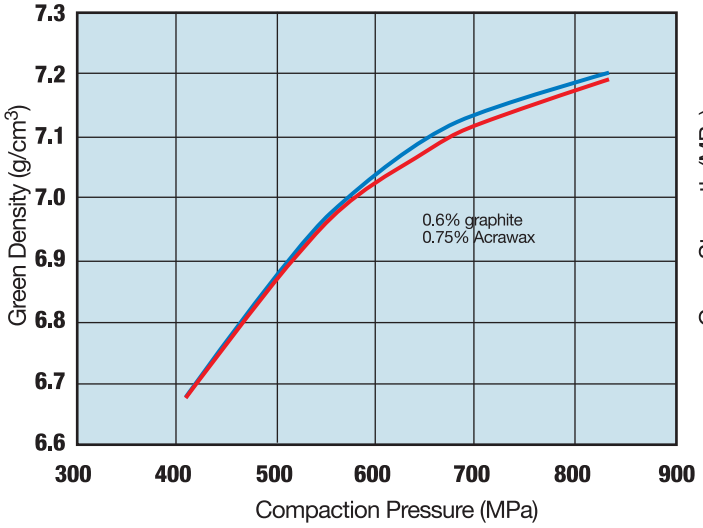
Ancorsteel FLD-48 material has the same nominal chemical composition as the current Ancorsteel FD-4800A product. The difference is the molybdenum prealloyed in the base iron rather than diffusion alloyed during annealing. This gives Ancorsteel FLD-48 higher strength (TRS, YS, UTS) and greater hardenability, with only minor reduction in ductility and impact toughness. This material is best utilized in applications where increased hardness is necessary. The recommended density range is 6.8 g/cm³ and above.

Application

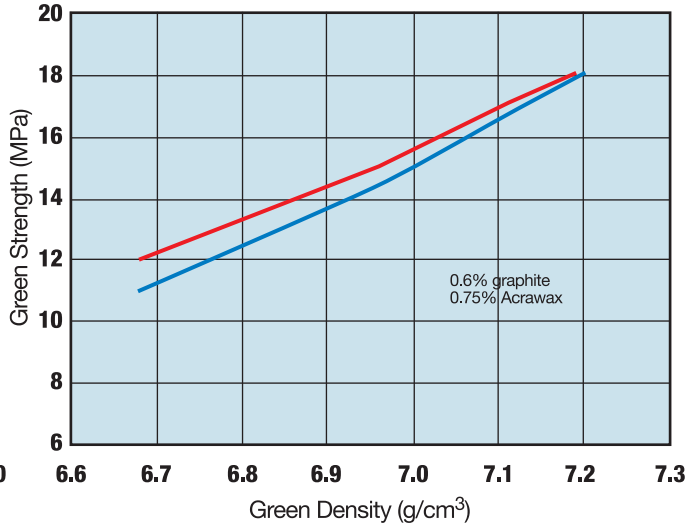
- *Parts requiring higher hardenability than achieved with standard diffusion alloyed materials.*
- *Parts subjected to "brinelling" type of loading*
- *Parts subject to dynamic loading*
- *Parts with close dimensional tolerances*

Compressibility

Compressibility equivalent to Ancorsteel FD-4800A



Green Strength



ANCORSTEEL FLD-48
ANCORSTEEL FD-4800A

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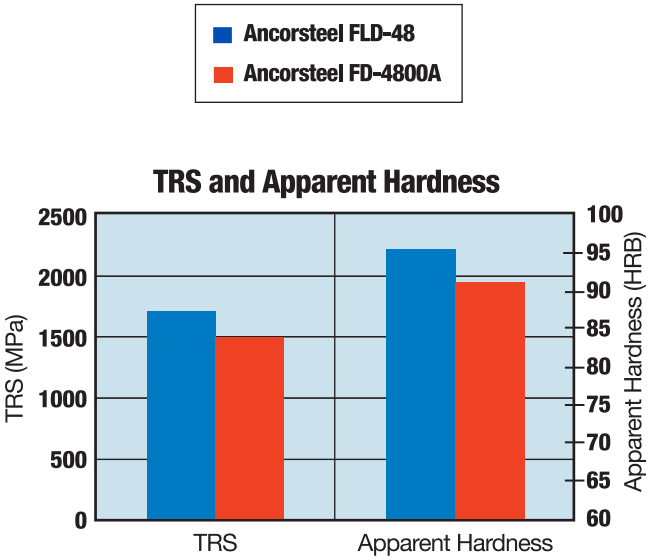
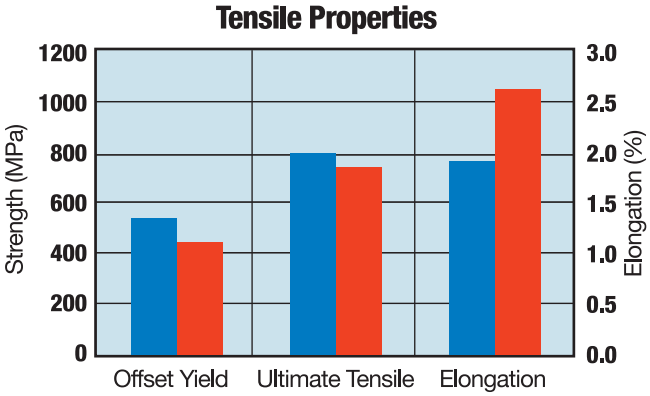
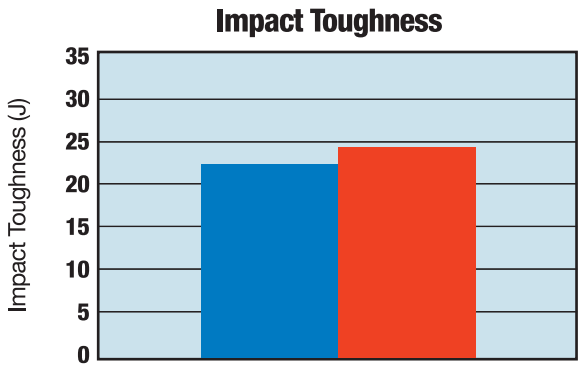
Ancorsteel® FLD-48



Ancorsteel FLD-48 gives superior TR strength and apparent hardness



Ancorsteel FLD-48 gives higher strength, lower elongation



Ancorsteel FLD-48 has slightly lower impact toughness compared to Ancorsteel FD-4800A

As-sintered test specimens were compacted to 7.0 g/cm^3 and sintered in a belt furnance at 1120 ºC (2050 ºF) in 90 v/o N_2 – 10 v/o H_2 atmosphere, with accelerated cooling (~1.6 ºC/s). Tempering was performed at 200 ºC for one hour in air.

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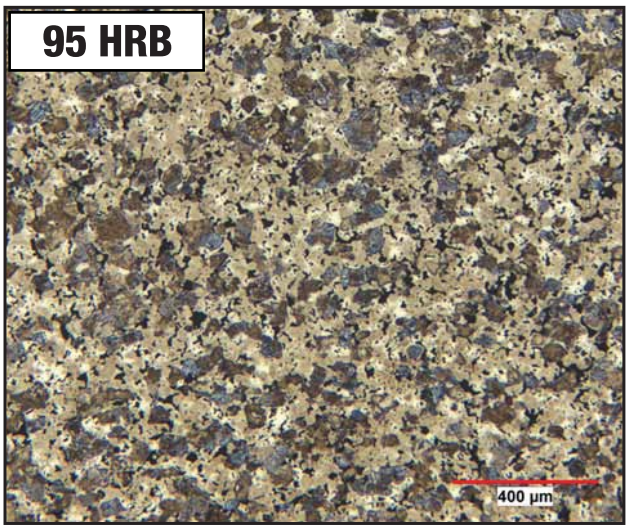
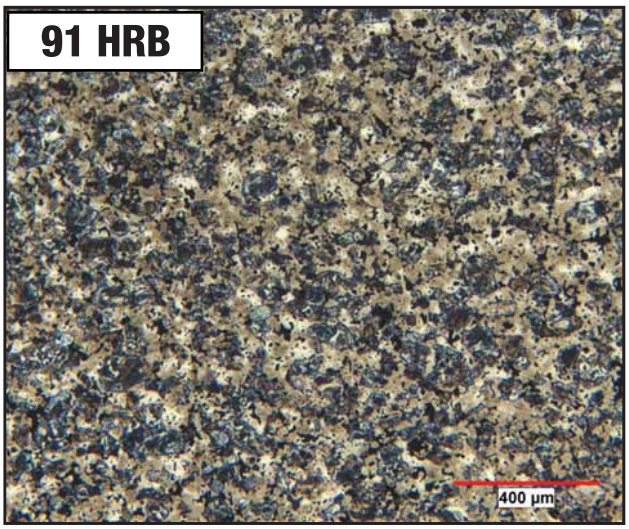
Ancorsteel® FLD-48

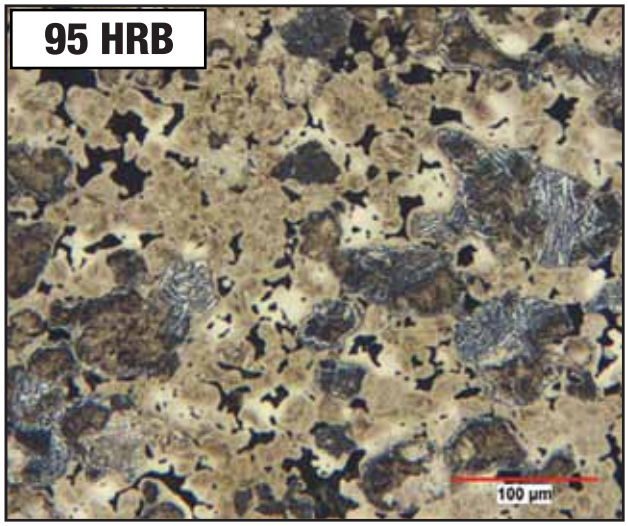
Microstructural Comparison



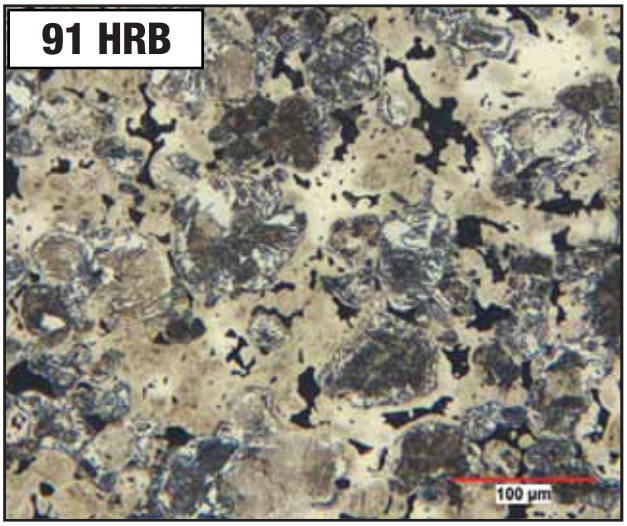
Ancorsteel FLD-48



Ancorsteel FD-4800A



Ancorsteel FLD-48



Ancorsteel FD-4800A

The improved hardenability of Ancorsteel FLD-48 results in higher martensite content and apparent hardness

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