

ATOMET EM-1 Ferromagnetic Composite powder is specifically engineered for soft-magnetic applications where high permeability, high induction and low loss is desirable. QMP starts with a high purity iron powder, which is essential for good magnetic properties. The high purity iron, when combined with a unique resin-binder system, provides for a highly compressible product with high densities and strengths after curing. This results in a low-cost, high-performance material directly applicable to powder metal fabrication techniques and soft magnetic components.

FEATURES AND POTENTIAL APPLICATIONS

Features:

- *Ease of shaping*
- *Low cost*
- *Low core loss*
- *Isotropic properties:*
 - Magnetic Properties
 - Designed new 3D magnetic structures
 - Optimize the use of copper
 - Thermal Properties
 - Better heat transfer
 - Higher current densities
 - Higher torque-to-weight ratio

Potential applications:

- *Chokes, Transformers and Inductors*
 - Ignition and impulse cores
 - Transformers
 - Inductors/ pole pieces
 - Lighting ballasts
- *Stators and Armatures*
 - DC motors (control motors)
 - Switched reluctance motors (servo motors)
 - Alternators
 - Starters

MIX PROPERTIES

Apparent Density	2,75	g/cm ³
Hall Flow	30,00	s/50g

PHYSICAL AND CHEMICAL PROPERTIES

Density	7,10	g/cm ³
Electrial resisitivity	150,00	μohm-m
Thermal conductivity	20,00	W/K-m
Strength (TRS)	18,000 (124)	Psi (MPa)

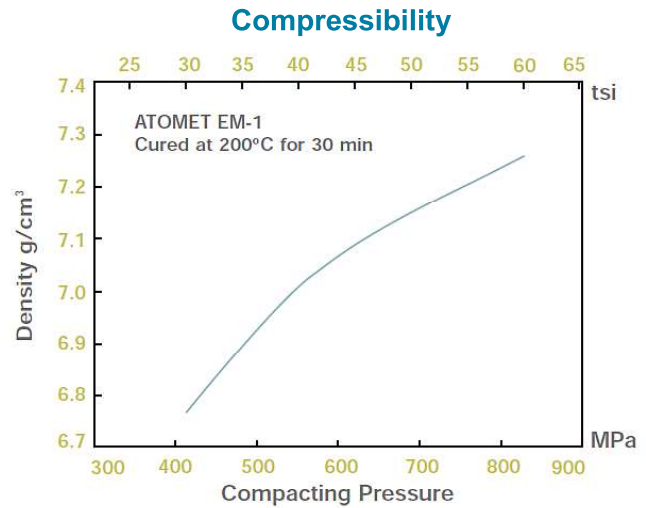
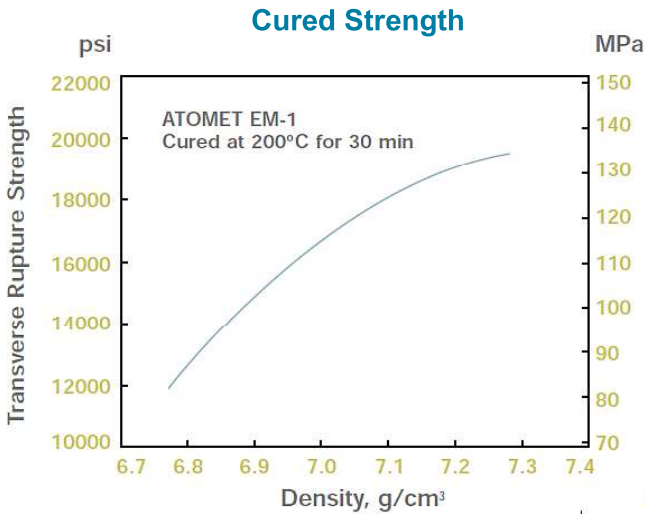
MAGNETIC PROPERTIES

DC characteristics

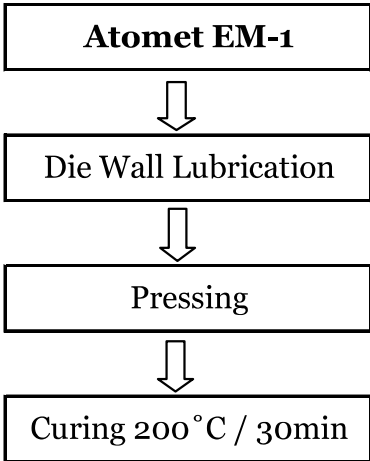
μmax		290
Bmax at applied field of 150 Oe (11.9k A/m)	Tesla	1,4

Core loss at 1,0 Tesla

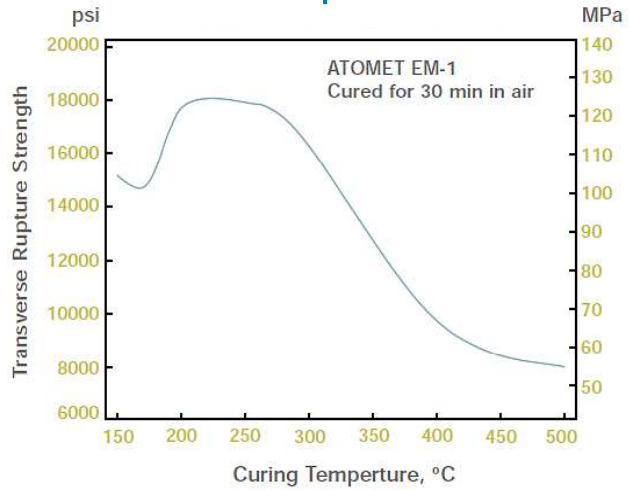
	60 Hz	400 Hz	1000 Hz
W/lb	5	35	99
W/kg	11	77	218



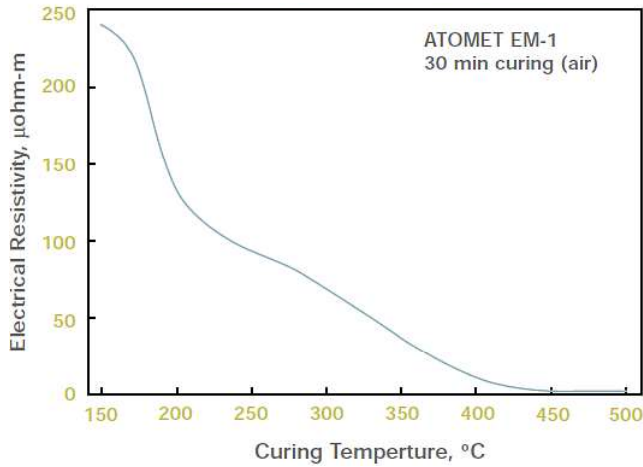
PROCESS FLOW



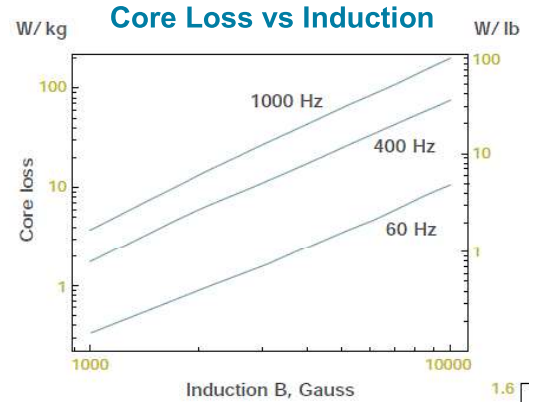
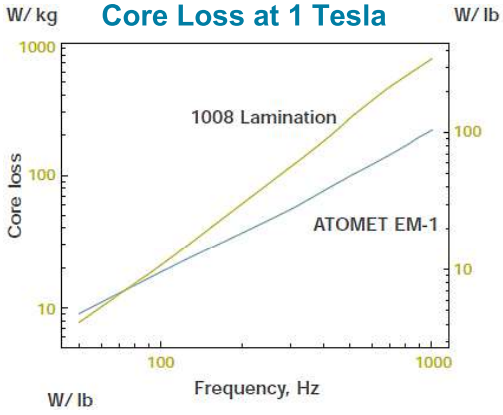
Strength VS. Curing Temperature



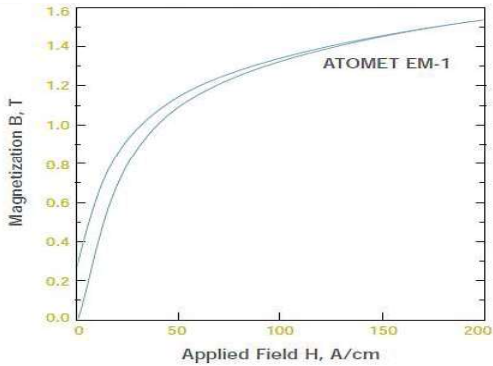
Resistivity VS. Curing Temperature



MAGNETIC PROPERTIES



Typical DC Magnetization



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