

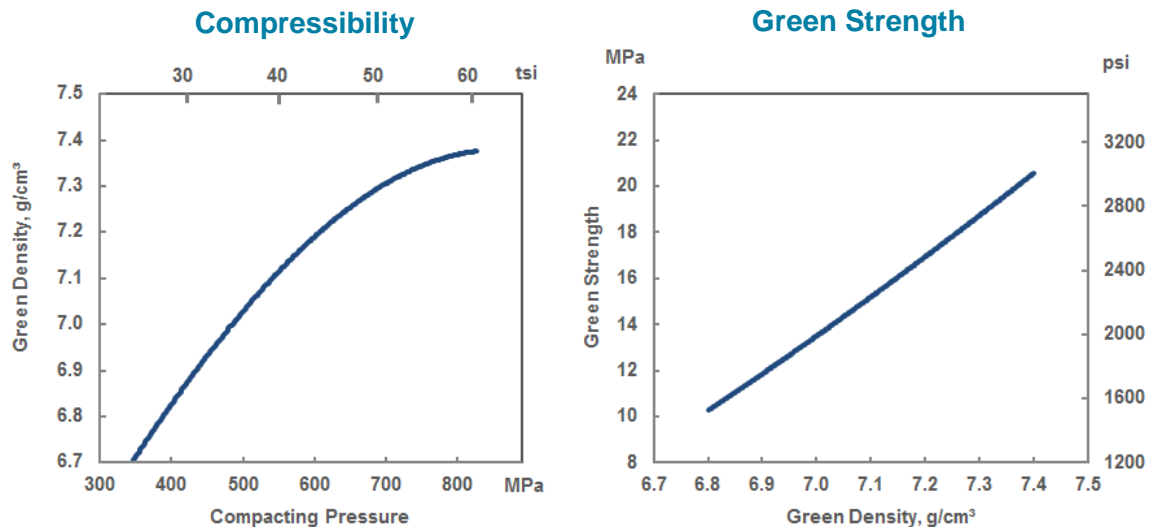
**ATOMET 1001HP** is an ultra pure steel powder designed for soft magnetic P/M applications.

- **High purity** – **ATOMET 1001HP** contains exceptionally low levels of carbon, oxygen, sulphur and manganese.
  - High magnetic permeability
  - High induced magnetization
  - Low coercive force
- **Cleanliness** - high purity and virgin raw materials inherently containing low residual elements coupled with clean steel practices sets a new standard for powder cleanliness.
  - High magnetic permeability
  - High induced magnetization
  - Low coercive force
- **Consistency** - statistical process control, pure raw materials and the use of modern steel-making practices ensure product homogeneity and lot-to-lot consistency.
  - Improved P/M part consistency
- **Compressibility** - single pressed density up to 7.2 g/cm<sup>3</sup> can be achieved with **ATOMET 1001HP** making it an ideal choice for high density P/M magnetic parts.
  - Reduces tool stress
  - Superior magnetic properties

## PHYSICAL AND CHEMICAL PROPERTIES

Chemistry, wt%					U.S. mesh µm	Particle Size Analysis, wt%				A.D. g/cm <sup>3</sup>	Flow s/50 g	Density* g/cm <sup>3</sup>
C	O	S	Mn	Fe		+60	+100	+325	-325			
0.004	0.06	0.009	0.04	99.4+		+250	+150	+45	-45	2.92	25	7.20
						Trace	14	66	20			*@43.5 tsi @600 MPa

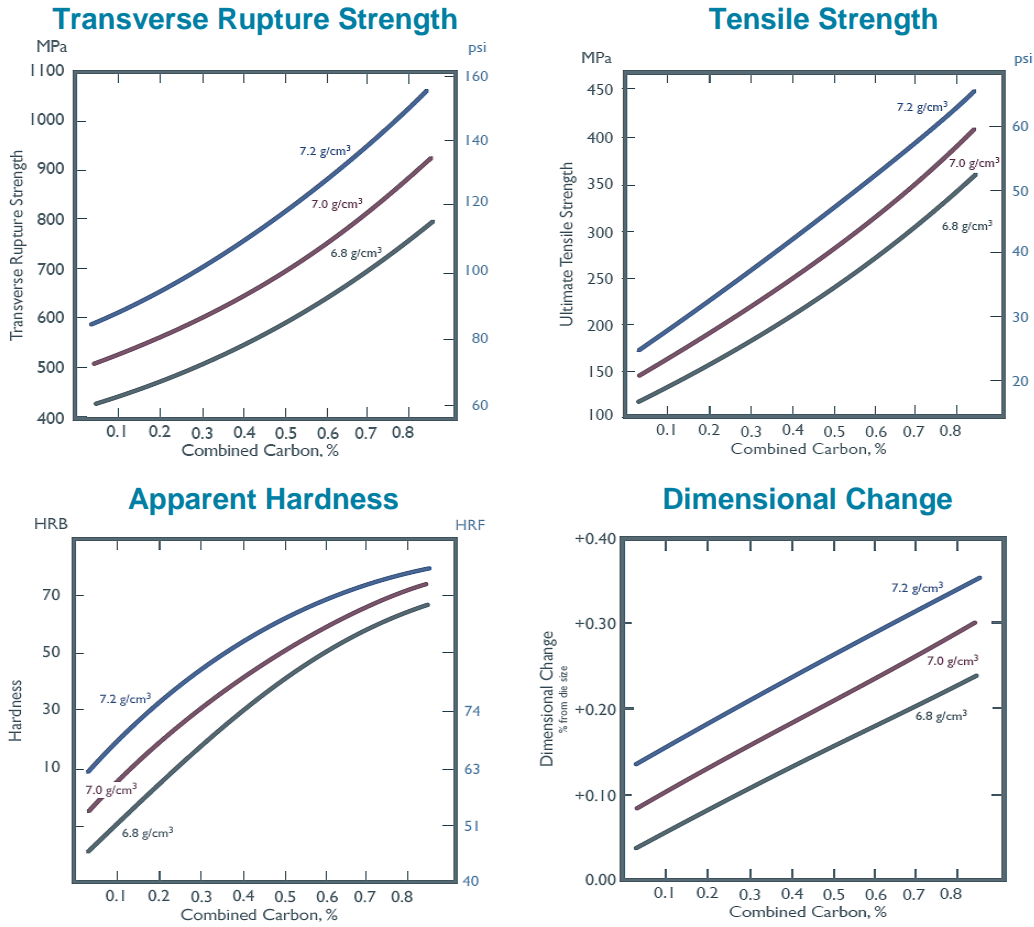
## COMPACTING PROPERTIES



**ATOMET 1001HP + 0.5% Wax**

## AS-SINTERED PROPERTIES - Carbon Steels

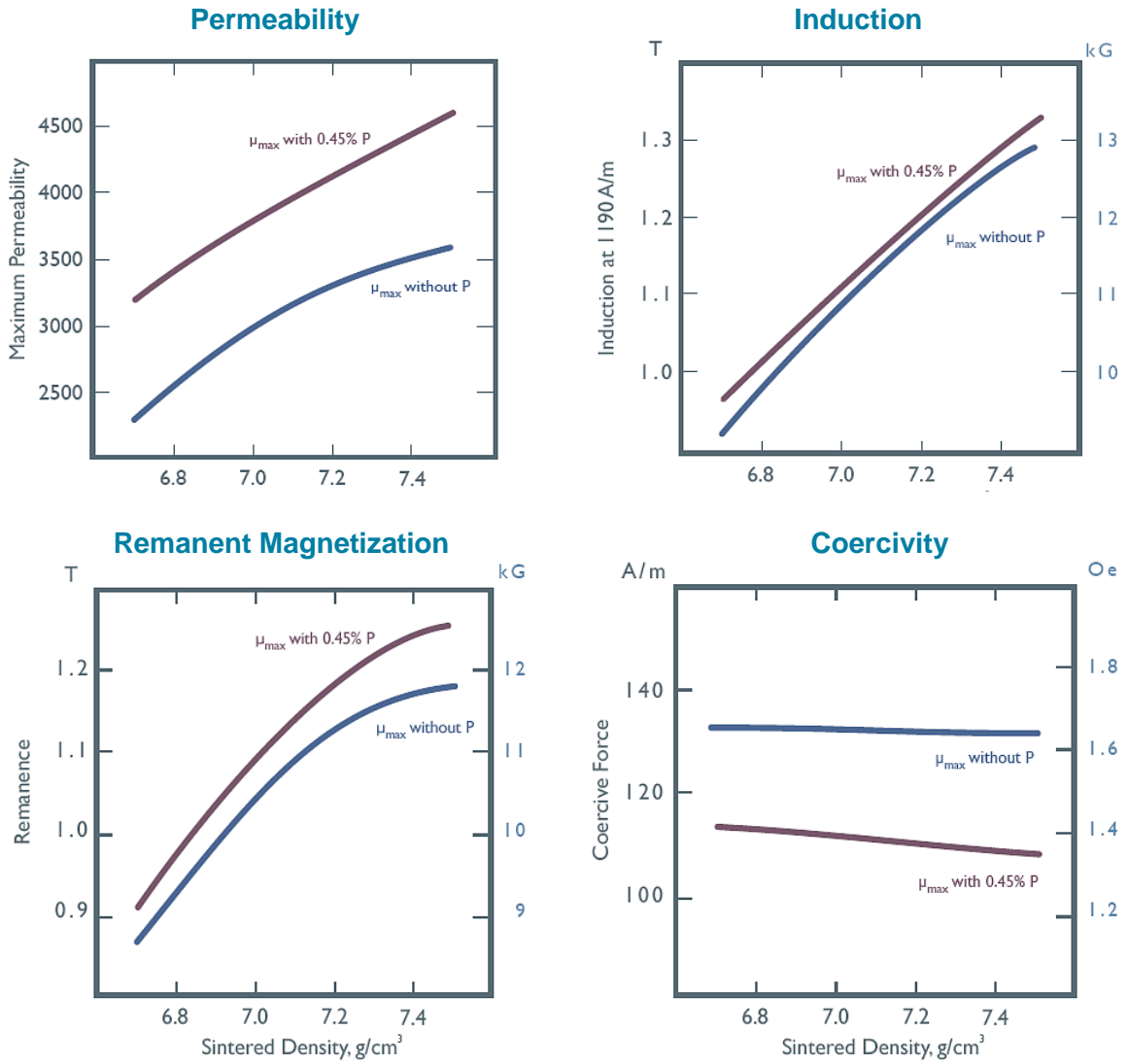
Composition: **ATOMET 1001HP** + graphite + 0.5% ZnSt.  
 Sintered in a rich endothermic atmosphere at 1120°C (2050°F) for 30 minutes.



Material Designation Code	Green Density	Added Graphite	Combined Carbon	Transverse Rupture Strength		Apparent Hardness	Dimensional Change	Combined Carbon	Tensile Strength		Yield Strength (2% offset)		Elongation
				MPa	kpsi				MPa	kpsi	MPa	kpsi	
MPIF Std 35	g/cm <sup>3</sup>	%	%	MPa	kpsi	HRB (HRF)	%	%	MPa	kpsi	MPa	kpsi	%
	6.8	0	0.05	425	61.8	(48)	0.05	0.06	120	17.6	90	13.2	7.4
	7.0	0	0.04	505	73.4	(55)	0.09	0.04	145	20.9	90	13.2	10.3
F-0000	7.2	0	0.03	580	84.3	9	0.14	0.03	170	24.4	95	14.0	13.1
	6.8	0.3	0.31	505	73.0	19	0.11	0.34	185	27.2	160	22.8	3.9
	7.0	0.3	0.30	590	85.5	30	0.15	0.32	220	31.7	170	24.9	6.0
F-0005	7.2	0.3	0.29	690	100.0	42	0.20	0.31	255	36.9	185	26.9	7.9
	6.8	0.5	0.49	575	83.3	39	0.15	0.51	235	34.4	175	25.2	3.6
	7.0	0.5	0.48	670	97.5	49	0.20	0.51	280	40.4	185	27.2	5.0
	7.2	0.5	0.47	790	114.3	59	0.25	0.50	320	46.0	200	29.2	6.5

AS-SINTERED MAGNETIC PROPERTIES - Fe and Fe-0.45%P

Sintered in a hydrogen based atmosphere at 1120°C (2050°F) for 60 minutes.



## TYPICAL MAGNETIC PROPERTIES

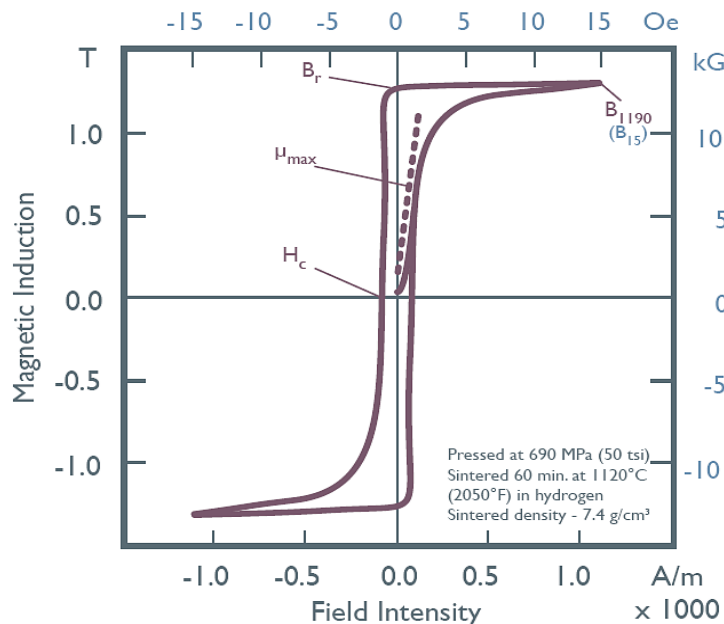
### ATOMET 1001HP + 0.5% Glyco PM100

Sintered Density g/cm <sup>3</sup>	Sintering Temperature		Induction at 1190 A/m (15Oe)		Remanence Br		Maximum Permeability $\mu_{max}$	Coercive Force	
	°C	(°F)	T	(kG)	T	(kG)		A/m	(Oe)
6.8	1120	2050	0.98	9.8	0.93	9.3	2560	132	1.66
7.0	1120	2050	1.09	10.9	1.04	10.4	2975	131	1.65
7.2	1120	2050	1.18	11.8	1.13	11.3	3285	131	1.65
7.4	1120	2050	1.26	12.6	1.17	11.7	3500	131	1.64
	1160	2030	1.26	12.6	1.20	12.0	3600	119	1.50
7.6	1120	2050	1.32	13.2	1.18	11.8	3605	131	1.64
	1160	2030	----	----	----	----	----	----	----

### ATOMET 1001HP + 0.45% P + 0.5% Glyco PM100

g/cm <sup>3</sup>	°C	(°F)	T	(kG)	T	(kG)	$\mu_{max}$	A/m	(Oe)
6.8	1120	2050	1.02	10.2	0.97	9.7	3395	112	1.41
7.0	1120	2050	1.11	11.1	1.08	10.8	3780	111	1.39
7.2	1120	2050	1.20	12.0	1.18	11.8	4130	109	1.37
7.4	1120	2050	1.29	12.9	1.24	12.4	4445	107	1.35
	1160	2030	1.32	13.2	1.28	12.8	5000	96	1.20
7.6	1120	2050	1.37	13.7	1.24	12.4	4720	106	1.33
	1160	2030	1.37	13.7	1.30	13.0	6300	72	0.90

Hysteresis Curve



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