

# Mu49

**Mu49** is a soft magnetic alloy containing 49% nickel and balance iron, with high permeability, relative high saturation, polarization and lowest specific iron-losses.

Mu49 is used to making toroidal cores and core laminations in current transformers and in residual current devices, storage chokes, laminated stacks and shieldings...

## Common Trade Names

Magnifer 50, Alloy 50, High Permeability 49

## Chemical Composition

Grade	C%	P%	S%	Mn%	Si%	Cu%	Ni%	Fe%
Mu49	Max 0.03	Max 0.02	Max 0.02	0.30-0.60	0.15-0.30	Max 0.20	49.0-50.5	Bal.

## Physical Properties

Properties	
Resistivity at 20°C (micro ohm · meter)	0.45
Density (gram/cm <sup>3</sup> )	8.20
Curie Temp °C	500
Melting temperature (°C)	1420

## Average Coefficient Of Thermal Expansion

Temperature °C	10 <sup>-6</sup> °C <sup>-1</sup>
20-100	8.9
20-200	9.27
20-300	9.2
20-400	9.2
20-500	9.4

## Typical Mechanical Properties

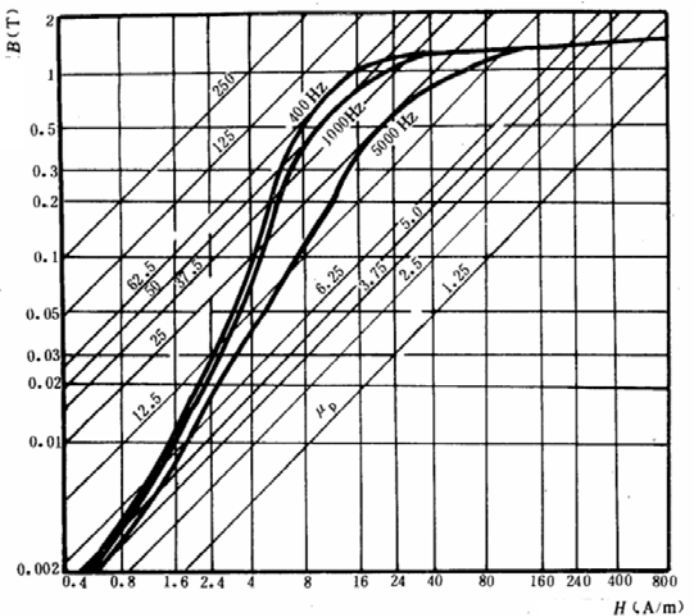
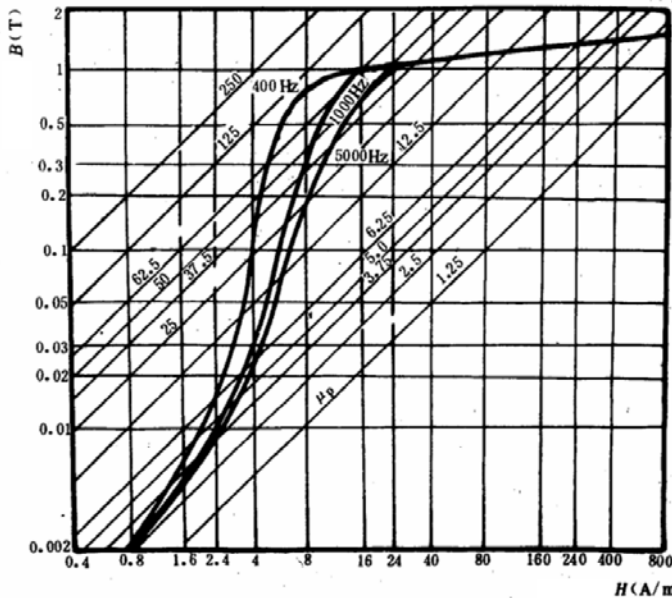
Condition	Brinell Hardness HB	Tensile Strength MPa	Yield Strength MPa	Elongation %
Soft Annealed	130	450	150	37
Hard	170	785	685	3

## DC Magnetic Properties

Form	Width or Diameter	Permeability $\mu$ 0.4 (0.4A/m)	Maximum Permeability $\mu$ m	Coercive Force Hc	Saturation Induction Bs
	mm	mH/m	mH/m	A/m	T
		$\geq$	$\geq$	$\leq$	$\geq$
Strip/Sheet	0.05-0.09	2.5	35	20	1.5
	0.10-0.19	2.9	40	14.4	1.5
	0.20-0.34	3.3	50	11.2	1.5
	0.35-0.50	3.8	62.5	9.6	1.5
	0.51-1.00	3.8	62.5	9.6	1.5
Plate	1.10-2.50	3.5	56.3	9.6	1.5
Plate	3-22mm	3.1	31.3	14.4	1.5
Rod/Bar	8-100	3,1	31.3	14.4	1.5

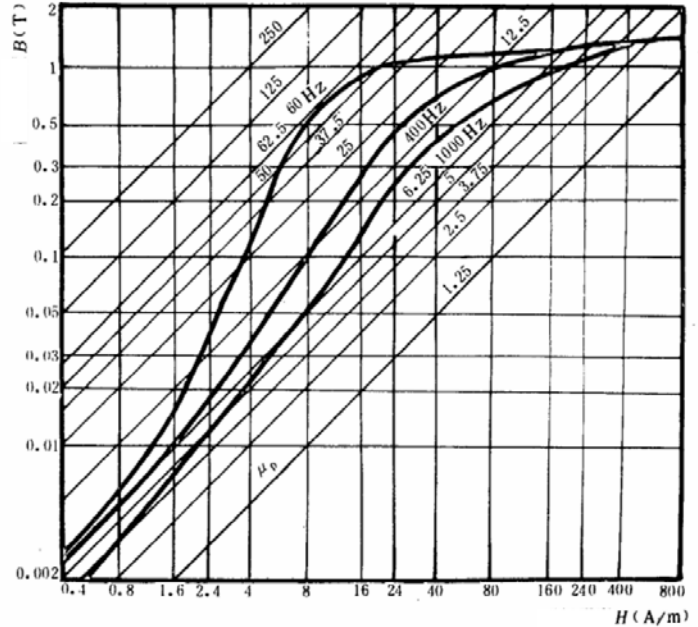
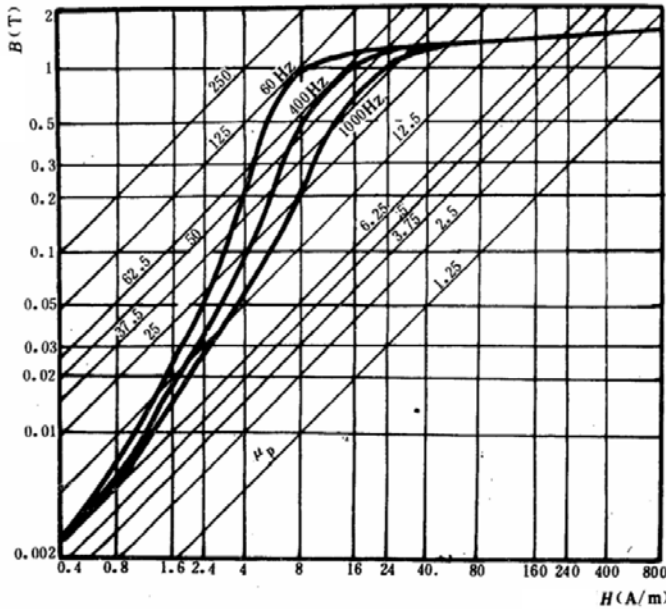
## Magnetizing Curve

Table on the left: 0.02mm thickness, on the right: 0.05mm thickness



### Magnetizing Curve (Continued)

Table on the left: 0.1mm thickness, on the right: 0.35mm thickness



### Available Forms

1, Sheet/Plate

Condition: cold rolled

2 Wire/Rod

Condition: Bright annealed, dia. 0.01-15mm, in coil or cut lengths

4, Bar

Condition: Hot rolled, forged, annealed, pickled, ground

5, Strip/Ribbon

Condition: Cold rolled, thickness 0.01-5mm

6, Tube/Capillary Tube

Condition: OD 0.2-15mm, Wall 0.015-3mm