

# Mu80

**Mu80** is a 80% nickel-iron-molybdenum alloy with extremely high initial permeability and maximum permeability with minimum hysteresis loss. Through the reasonable combination of nickel and iron, sufficient magnetic permeability and magnetic saturation induction intensity can be achieved. The elements such as molybdenum and copper are added to increase the electrical resistivity of the material to reduce the eddy current loss after the core is produced, and at the same time, the hardness of the material can be increased.

Mu80 is used to making small transformer, pulse transformer, relay, transformer, magnetic amplifier, electromagnet core, magnetic shielding for weak magnetic or medium magnetic fields.

## Common Trade Names

HyMu 80, Moly-Permalloy, Permalloy 80, Mu-metal

## Chemical Composition

Grade	C%	P%	S%	Mn%	Si%
	Max 0.03	Max 0.02	Max 0.02	0.60-1.10	0.30-0.50
Mu80	Cu%	Mo%	Ni%	Fe%	
	Max 0.20	3.80-4.10	79.0-80.0	Bal.	

## Physical Properties

Properties	
Resistivity at 20°C (micro ohm · meter)	0.55
Density (gram/cm <sup>3</sup> )	8.60
Curie Temp °C	450
Melting temperature (°C)	1450

## Average Coefficient Of Thermal Expansion

Temperature °C	10-6°C -1	Temperature °C	10-6°C -1
20-100	10.3-10.8	20-500	12.3-13.2
20-200	10.9-11.2	20-600	12.7-13.4
20-300	11.4-12.9	20-700	13.1-13.6
20-400	11.9-12.5	20-800	13.4-13.6

## Typical Mechanical Properties

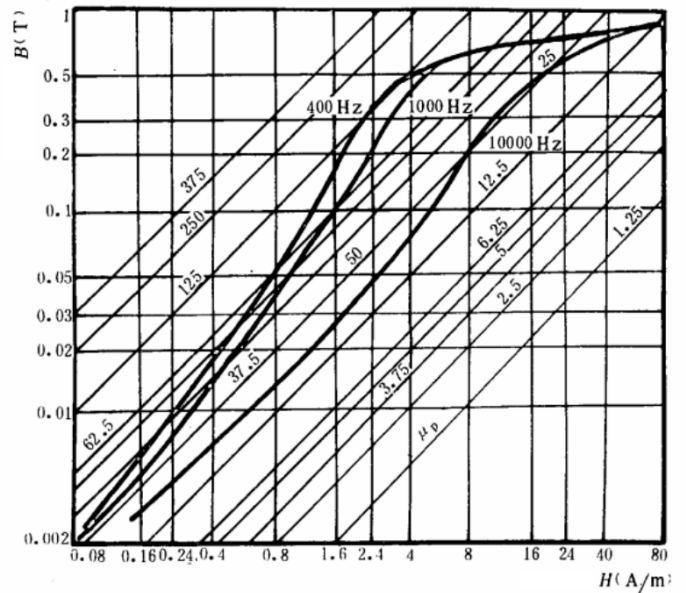
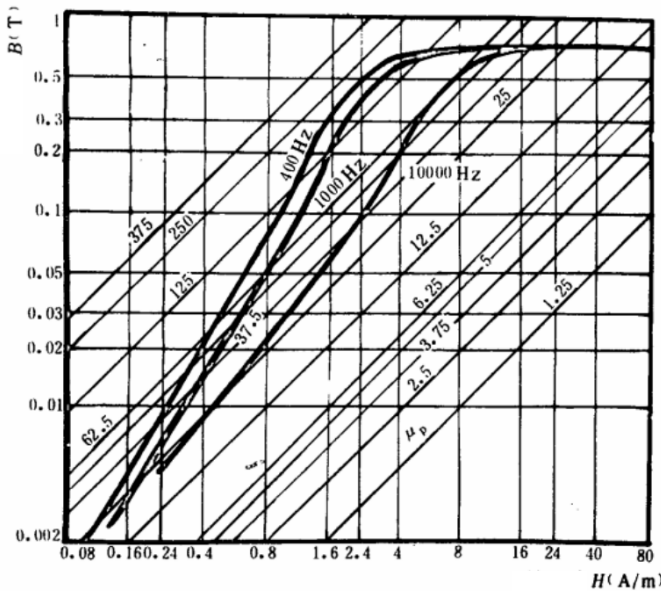
Condition	Brinell Hardness HB	Tensile Strength MPa	Yield Strength MPa	Elongation %
Soft Annealed	120	560	150	50
Hard	210	1030	980	3

## DC Magnetic Properties

Form	Width or Diameter	Permeability $\mu$ 0.08	Maximum Permeability $\mu$ m	Coercive Force Hc	Saturation Induction Bs
	mm	mH/m	mH/m	A/m	T
		$\geq$	$\geq$	$\leq$	$\geq$
	0.005	12.5	44	6.4	0.75
	0.01	17.5	87.5	4.8	0.75
	0.02-0.04	20.0	112.5	4.0	0.75
	0.05-0.09	22.5	137.5	2.8	0.75
Strip/Sheet	0.10-0.19	25.0	162.5	2.0	0.75
	0.20-0.34	28.0	225	1.6	0.75
	0.35-1.00	31.0	250	1.2	0.75
	1.10-2.50	28.0	225	1.6	0.75
	2.51-3.00	26.3	187.5	2.0	0.75
Plate	3-22mm	25	125	2.4	0.75
Rod/Bar	8-100	25	125	2.4	0.75

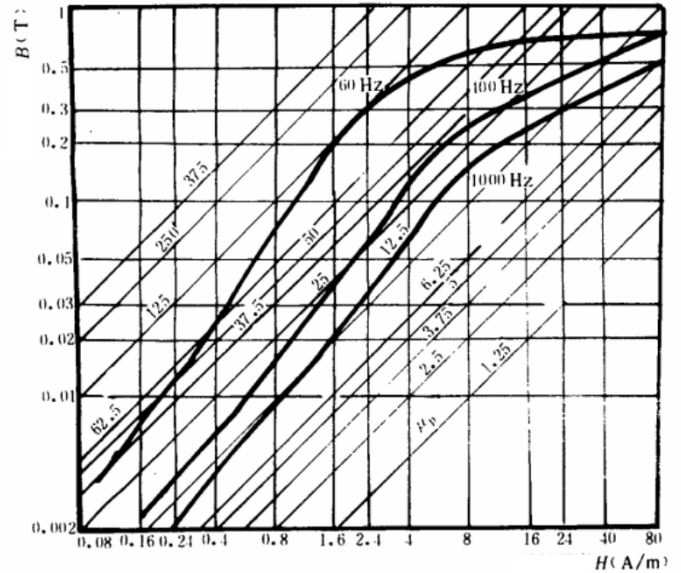
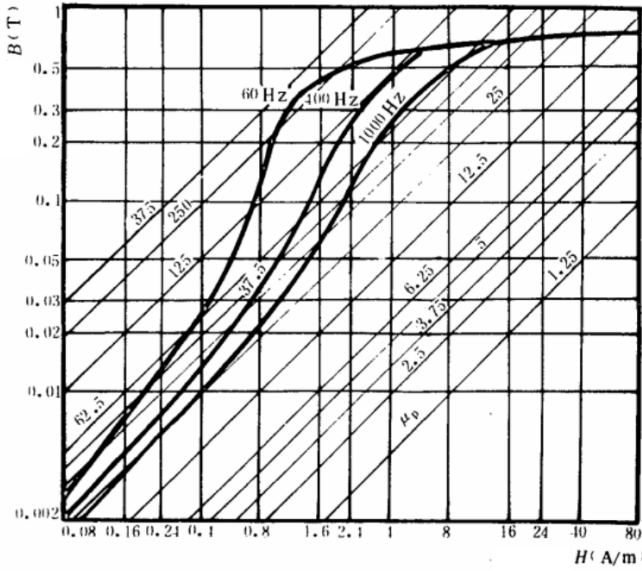
## Magnetizing Curve

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