High-Density Tungsten Based Metals

Mi-Tech high-density metals provide a unique combination of density, mechanical strength, machinability, corrosion resistance, and economy.

Typical Properties*

	HD17	HD17BB	HD17D	HD17.5	HD17.7	HD18	HD18D	HD18.5
	90% W 6% Ni 4% Cu	90% W 6% Ni 4% Cu/ Fe	90% W 7% Ni 3% Fe	92.5% W 5.25% Ni 2.25% Fe	93% W Balance Ni Fe Mo	95% W 3.5% Ni 1.5% Cu	95% W 3.5% Ni 1.5% Fe	97% W 2.1% Ni .9% Fe
ASTM-B-777-07	Class 1		Class 1	Class 2	Super Chatter Free™	Class 3	Class 3	Class 4
Density Gms/cc	17		17	17.5	17.7	18	18	18.5
Density Lbs/cu. in.	.614		.614	.632	.639	.650	.650	.668
Hardness Rockwell C	24		25	26	30	27	27	28
Ultimate Tensile Strength (PSI)	110,000		125,000	114,000	130,000	115,000	125,000	128,000
Yield Strength .2% offset (PSI)	90,000		88,000	90,000	90,000	85,000	90,000	85,000
Elongation (% in 1")	8		14	12	10	7	12	10
Proportional Elastic Limit (PSI)	45,000		52,000	46,000	60,000	45,000	44,000	45,000
Modules of Elasticity (PSI)	40×10^6		45×10^6	47×10^6	53×10^6	45×10^6	50×10^6	53×10^6
Coefficient of Thermal Expansion X 10-6/°C (20-400°C)	5.4		4.8	4.6	4.5	4.4	4.6	4.5
Thermal Conductivity (CGS Units)	.23		.18	.20	.27	.33	.26	.30
Electrical Conductivity (% IACS)	14		10	13	14	16	13	17
Magnetic Properties	HD 17 = NIL HD 17BB = Slightly Magnetic		Slightly Magnetic	Slightly Magnetic	Slightly Magnetic	NIL	Slightly Magnetic	Slightly Magnetic

*Properties may vary according to size and shape of part.
Composition shown is typical and may change for manufacturing purposes or to meet physical and/or application requirements.
If non-magnetic material is required, it should be specified.

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