

Mechanical & thermal characteristics of materials

Characteristics	Unit	Ni-Zn ferrite	Mn-Zn ferrite	Hight density Ni-Zn	Hight density Mn-Zn	Permalloy	Pure iron	Aluminum
Flexural strength δ_B	MPa	118	98	137	118		372	
Vickers hardness HV		650	550~580	700	650	120	70	40
Tensile strength δ_T	MPa	20~49	20~49	29~78	29~78	735	196~294	127
Compressive strenath δ_C	MPa	780	780	Left	880		440	
Young's modulus E	GPa	98~196	137~196	157~255	127	16~19	196	69
Poisson's ratio ν		0.2~0.25	0.2~0.25	0.2~0.25	0.2~0.25	0.27~0.3		
Thermal expansion coefficient α	$10^{-7}/^{\circ}\text{C}$	95~97	120~125	95~97	116~145	130	117	250
Thermal conductivity κ	j/sec·m· $^{\circ}\text{C}$	16	9.7	16	9.7	17~50	76	223
Specific heat C_p	j/kg· $^{\circ}\text{C}$	756	1090	756	1090	420	462	924
Density d	kg/m ³ ($\times 10^3$)	5.0	4.8	5.3	5.1	8.15~ 8.62		

Stainless steel	Phosphor bronze	BaTiO ₃	Al ₂ O ₃	Quartz glass	Glass for head	Phenol resin (Casting)	Epoxy resin (Moulding)
		147~245	294			78~108	88~137
300	190	800~850	1650	1120	350~550	124~128 (Rock well)	80~100 (Rock well)
980	637		245			49~59	29~88
			2060		390~780	69~206	98~127
196	98	176	363	76	54	39	20~29
	0.22	0.25	0.25	0.14	0.24~0.28	0.4	0.4
100	180	90~100	73	5.5	90~120	250~600	550~600
23	67	3.4	21	1.26	1.26	0.126 ~0.252	0.168
504	378		798	756		1600 ~1760	1050
		4.3~4.4	3.8		3.0~6.0	1.25~1.30	1.11~1.23