

**Material properties (continued)**

Preferred application			Power transformers			
Material			N 49 <sup>1)</sup>	N 92	N 27	N 67 <sup>2)</sup>
Base material			MnZn	MnZn	MnZn	MnZn
	Symbol	Unit				
Initial permeability ( $T = 25\text{ °C}$ )	$\mu_i$		1500 $\pm 25\%$	1500 $\pm 25\%$	2000 $\pm 25\%$	2100 $\pm 25\%$
Flux density ( $H = 1200\text{ A/m}$ , $f = 10\text{ kHz}$ )	$B_S(25\text{ °C})$	mT	490	500	500	480
	$B_S(100\text{ °C})$	mT	400	440	410	380
Coercive field strength ( $f = 10\text{ kHz}$ )	$H_c(25\text{ °C})$	A/m	38	24	23	20
	$H_c(100\text{ °C})$	A/m	33	13	19	14
Typical frequency range		kHz	300 ... 1000	25 ... 500	25 ... 150	25 ... 300
Hysteresis material constant	$\eta_B$	$10^{-6}/\text{mT}$	< 0,4	< 1,4	< 1,5	< 1,4
Curie temperature	$T_C$	°C	> 240	> 280	> 220	> 220
Mean value of $\alpha_F$ at 25 ... 55 °C		$10^{-6}/\text{K}$	—	—	3	4
Density (typical values)		kg/m <sup>3</sup>	4800	4850	4750	4800
Relative core losses (typical values)	$P_V$					
25 kHz, 200 mT, 100 °C		kW/m <sup>3</sup>	—	70	155	80
100 kHz, 200 mT, 100 °C		kW/m <sup>3</sup>	—	410	920	525
300 kHz, 100 mT, 100 °C		kW/m <sup>3</sup>	330	410	—	560
500 kHz, 50 mT, 100 °C		kW/m <sup>3</sup>	80	230	—	—
1 MHz, 50 mT, 100 °C	kW/m <sup>3</sup>	475	—	—	—	
Resistivity	$\rho$	$\Omega\text{m}$	17	8	3	6
Core shapes			RM, EFD, ELP, Toroid	RM, ETD, EFD, ER, E, ELP, Toroid	P, PM, ETD, EC, ER, E, U, Toroid	ETD, EFD, E
Other material properties (graphs) see page			72	84	62	75

1) Improved, new data  
2) Not for new design