Soft Magnetic Metal Powder Cores

FERRITE DOMEN Co. is the long - time leading company which performs R&D and manufacture of all classes and types of soft magnetic and microwave ferrites.

Besides, it also deals with the cores produced on the base of metal powders of

- **Molybdenum Permalloy (MPP cores)**
- **Permalloy 50% Ni (High Flux cores)**

Generally, initial powders are the grains of corresponding metal with their individual insulation, so the cores of those materials have the structure of distributed air gap what in the case of ferrites is provided by slitting the cores or grinding the central part (leg) of E-type and RM-type cores.

The metal powder cores have some important features used effectively in communication and electrotechnic power circuits:

- High specific resistance
- Low hysteresis losses
- High saturation flux density
- Excellent stability of induction in AC and DC
- High long-term stability of parameters
- Polyamide 11 (Rilsan) 100% coating against voltage breakdown of 4 kV to 8 kV, according to specific orders.

Symbols

μ_i	- Initial permeability
f	- Operational frequency
f_c	- Critical frequency
$tg\delta_\mu$	- Relative loss factor
H_m	- External magnetic field
$TK\mu_i$	- Temperature coefficient of initial permeability

Molybdenum Permalloy Powder cores (MPP)
80% Ni, 3% Mo

Molybdenum Permalloy Powder cores (MPP) find the wide application in electronic and electrical circuits where high Q-value of inductances and long-term stability of parameters are the critical factors. They effectively show their attractive features as energy storage chokes in AC-DC, DC-DC and DC-AC convertors, as electronic ballasts in energy saving light lamps, as inductive elements of various filters etc.

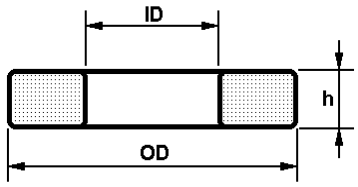
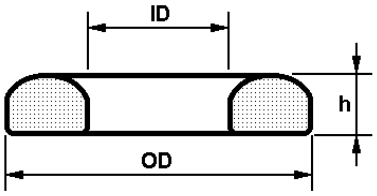
Material Grade	μ_i	f, MHz	f_c MHz	$tg\delta_\mu \cdot 10^3$		TK $\mu_i \cdot 10^6$ 1/°C	
				H_m =24 A/m	H_m =72 A/m	(-60 + 85) °C	(-60 +155) °C
MP 14	12...14	1.0	5.0	—	20.0	+200	—
MP 20	20	1.0	1.0	—	30.0	+200	—
MP 60	60	0.03	0.3	—	5.9	+100	+120
		0.1		12.0	12.9	+100	+120
MP 100	100	0.03	0.3	—	10.3	+100	+120
		0.1		22.8	24.3	+100	+120
MP 125	125	0.03	0.1	—	18.0	+120	+150
		0.1		45.0	48.0	+120	+150
MP 140	140	0.03	0.1	—	20.0	+120	+150
		0.1		48.5	51.5	+120	+150
MP 160	160	0.03	0.1	—	37.5	+150	+180
		0.1		105.0	108.0	+150	+180
MP 250	250	0.03	0.03	45.0	50.0	+200	+250

High Flux cores

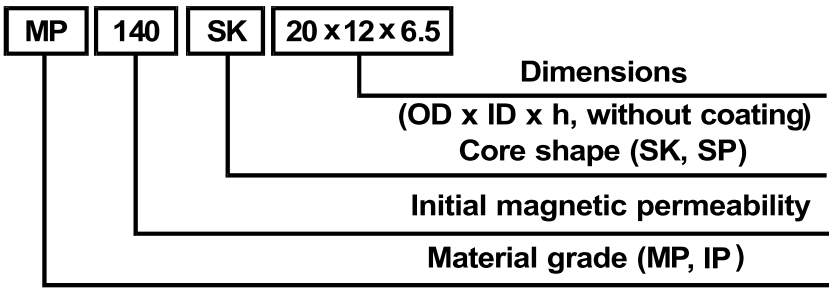
High Flux cores are based on permalloy material with 50% Ni compared with 81% Ni for molypermalloy. They feature high saturation flux density of 15.000 G vs. 7.000 G for MPP cores and are ideal for in-line filters and for pulse chokes where they demonstrate high energy storage.

Material Grade	μ_i	f MHz	f_c MHz	$tg\delta_\mu \cdot 10^3$ H_m =72 A/м	TK$\mu_i \cdot 10^6$ 1/°C (-60 + 100) °C
IP 14	14	3	< 5.0	20	+200
IP 20	20	1	< 1.0	30	+200
IP 60	60	0.3	< 0.3	40	—
IP 125	125	0.1	< 0.3	50	—
IP 147	147	0.1	< 0.1	100	+180
IP 160	160	0.05	< 0.1	130	+250

Dimensions of Toroid Cores

Core Shape	Dimensions, mm					
	without coating			coated		
	OD	ID	h	OD,max	ID,min	h,max
SK - type 	7	4	3	7.6	3.50	4.1
	10	6	3	10.8	5.50	4.1
	10	6	4.5	10.8	5.50	5.6
	12	5	5.5	12.8	4.50	6.6
	13	7	5	13.8	6.56	6.1
	17	10	6.5	17.8	9.56	7.6
	20	12	6.5	20.8	11.63	7.6
SP - type 	15	7	4.8	15.8	6.56	5.9
	15	7	6.7	15.8	6.56	7.8
	19	11	4.8	19.8	10.53	5.9
	19	11	6.7	19.8	10.53	7.8
	24	13	5.2	24.8	12.63	6.3
	24	13	7.0	24.8	12.63	8.1
	27	15	5.2	27.8	14.52	6.3
	27	15	6	27.8	14.52	6.8
	36	25	7.5	—	—	—
	36	25	9.7	—	—	—
	44	28	7.2	—	—	—
	44	28	10.3	—	—	—
	52	36	10	—	—	—
	52	36	14	—	—	—

Part Number Example



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