

## SOFT FERRITES

"FERRITE DOMEN" \*- LEADER OF RUSSIAN FERRITE DOMAIN

**Ferrite Domen Co.** (a.k.a. Research Institute "Domen"), is the first and only Russian company dealing with R&D and manufacture of all kind of soft, hard and microwave ferrites.

Established in 1959, it created shortly thereafter the genuine technological grounds for volume production of ferrites in a number of plants in ex-USSR.

Now, business activity of Ferrite-Domen Co. is focused on manufacture of quality MnZn and NiZn ferrite cores and technical assistance in implementing ferrite technology and know-how at start-ups and developing companies.



### OUR SOFT FERRITE PRODUCTION

#### Power ferrites

Specs	Unit	Material Grades			
		MnZn		NiZn	
		2500 HMC1	2500 HMC2	250BHC	300BHC
$\mu$	—	4500 (+ 20 °C) 4100 (+120 °C)	4500 (+ 20 °C) 4100 (+120 °C)	250	300
$f_c$	MHz	0,4	—	8	8
$P_{sp}$	$\frac{\mu W}{cm^3 Hz}$	10.5 (+25 °C) 8.7 (+100 °C)	8.5 (+25 °C) 6.0 (+100 °C)	30 (3)	<30 (3)
$tg\delta/m$	$10^{-6}$ (MHz)	—	—	30 (3)	<30 (3)
$B$	mT	290	330	—	320
$B_m$	mT	450	—	—	130
$B_r$	mT	100	—	—	80
$H_c$	A/m	16	—	—	—
$T_c$	°C	>200	>200	>250	>250
$r$	Ohm·m	1	1	$10^4$	$10^4$
$d$	g/cm <sup>3</sup>	4.9	4.9	4,7	4,7



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### MnZn thermostable ferrites for low magnetic fields

Specs	Unit	Material Grades			
		MnZn			
		700HM	1500HM3	2000HM	2000HM3
$\mu$	—	700	1500	2000	2000
$f_c$	MHz	5	1,5	0,5	0,5
$tg\delta_w/m$	$10^{-6}$ (MHz)	<80 (3)	<5 (0,1)	<15 (0,1)	<12 (0,1)
$a_{rmi}$ (0...+70) °C	$10^{-6}$	-0.2...+1.6	-0.2...+1,0	—	0...+1.5
$D_F$	$10^{-6}$	30	15	10	3
$B_m$	mT	380	380	380	360
$B_r$	mT	50	80	120	120
$H_c$	A/m	24	16	16	25
$T_c$	°C	>240	>200	>200	>200
$r$	Ohm·m	20	20	6	20
$d$	g/cm <sup>3</sup>	4,7	4,7	4,7	4,7

### NiZn thermostable ferrites for mean magnetic fields

Specs	Unit	Material Grades				
		NiZn				
		7BH	9BH	30BH	50BH	80BH
$\mu$	—	7	9	30	50	80
$f_c$	MHz	220	650	200	70	30
$tg\delta_w/m$	$10^{-6}$ (MHz)	<680 (70)	<750 (200)	<170 (30)	<180 (20)	<90 (12)
$B_m$	mT (Oe)	70	150 (50)	260 (50)	300	350
$B_r$	mT	60	80	70	200	150
$H_c$	A/m	2240	1600	520	360	280
$T_c$	°C	>450	>450	>450	>450	>400
$r$	Ohm·m	$10^6$	$10^7$	$10^5$	$10^4$	$10^4$
$d$	g/cm <sup>3</sup>	4,0	4,8	4,6	4,8	4,6

### NiZn general purpose ferrites

Specs	Unit	Material Grades				
		NiZn				
		450HH	600HH	800HH	1000HH	1500HHC
$\mu$	—	450	600	800	1000	1500
$f_c$	MHz	—	1,5	0,6	0,4	—
$tg\delta_w/m$	$10^{-6}$ (MHz)	—	<22 (0,1)	25 (0,1)	<50 (0,1)	<25
$B_m$	mT (Oe)	370	310 (10)	—	270 (10)	—
$B_r$	mT	160	140	—	150	—
$H_c$	A/m	40	32	—	20	—
$T_c$	°C	>230	>110	>150	>110	75
$r$	Ohm·m	$10^3$	$10^4$	$10^5$	$10^4$	$10^4$
$d$	g/cm <sup>3</sup>	4,9	4,8	4,8	4,9	4,9



### NiZn switching ferrites

Specs	Unit	Material Grades		
		NiZn Ferrites		
		45BHP	100BHP	200BHP
$\mu$	—	45	100	200
$f_c$	MHz	80	50	15
$tg\delta/m$	$10^{-6}$ (MHz)	<110 (16)	<80 (8)	<55 (3)
$B_m$	mT (Oe)	370 (50)	440 (50)	400 (50)
$B_r$	mT	270	320	250
$H_c$	A/m	620	260	80
$T_c$	°C	>350	>300	>240
$r$	Ohm·m	$10^7$	$10^6$	$10^6$
$d$	g/cm <sup>3</sup>	4,9	4,8	5,0

### MnZn high permeability ferrites

Specs	Unit	Material Grades				
		MnZn				
		4000HM	6000HM	6000HM1	8000HM	10000HM
$\mu$	—	4000	6000	6000	8000	10000
$f_c$	MHz	0,1	0,005	0,1	0,06	0,05
$tg\delta/m$	$10^{-6}$ (MHz)	<35 (0,1)	<45 (0,1)	<10 (0,1)	<40 (0,03)	<35 (0,02)
$a_{rm}$ (0...+70) °C	$10^6$	—	—	0/+1.5	—	0/+1.5
$D_F$	$10^6$	—	—	2	—	—
$B_m$	mT	350	350	350	350	350
$B_r$	mT	130	110	80	100	100
$H_c$	A/m	8	8	4	5	4
$T_c$	°C	>110	>110	>125	>110	>110
$r$	Ohm·m	0,5	0,1	1	0,2	0,1
$d$	g/cm <sup>3</sup>	4,7	4,8	4,8	4,85	4,9

### NiZn absorber ferrites

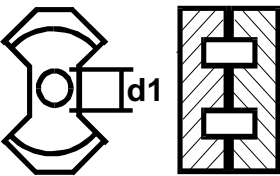
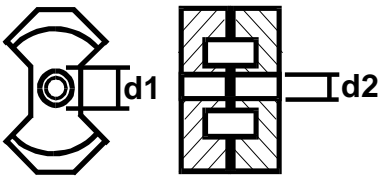
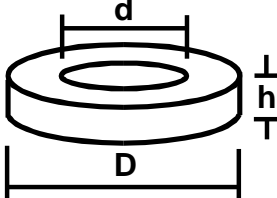
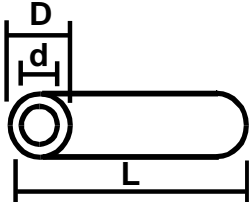
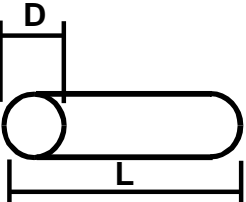
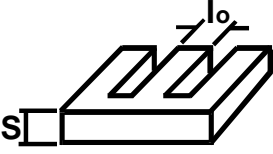
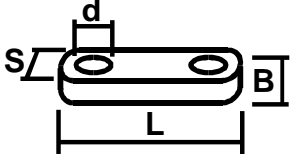
Specs	Unit	Material Grades	
		NiZn	
		400BHDP	800 BHDP
$\mu$	—	400	800
$f_c$	MHz	0,5	0,5
$tg\delta/m$	$10^{-6}$ (MHz)	100 (0,1)	<210 (1)
$B_m$	mT (Oe)	—	320 (10)
$B_r$	mT	—	90
$H_c$	A/m	—	22
$T_c$	°C	>190	>130
$r$	Ohm·m	$10^4$	$10^5$
$d$	g/cm <sup>3</sup>	4,9	4,9



## Symbols

$\mu$	Initial permeability	$H_C$	Coercive force
$f_C$	Critical frequency	$T_C$	Curie temperature
$P_{sp}$	Specific bulk magnetic loss	$D_F$	Disaccommodation factor
$tg\delta/\mu$	Relative loss factor	$a_{rmi}$	Relative temperature coefficient
$B$	Flux density	$r$	Specific resistance
$B_m$	Max. magnetic flux density	$d$	Density
$B_r$	Residual flux density		

## STANDARD SHAPES AND DIMENSIONS of MnZn and NiZn FERRITE PARTS

Type	RM – cores		
KB4 KB5x2 KB6x3 KB6 RM6S KB8x4 KB8 KB10 KB12 KB14x5			
	KBd1	KBd1xd2	
Type	K – Ring Cores	Type	T – Tube Cores
K 1,6x1x0,8 K 2,5x1x1,2 K 4x2,5x1,2 K 4x2,5x1,5 K 4x2,5x1,6 K 5x2x1,5 K 5x3x1 K 5x3x1,5 K 7x4x2 K 10x6x3 K 12x5x5,5 K 12x6x4,5 K 12x8x3 K 14x9x4,5 K 16x10x4,5 K 20x12x6 K 25x15x12 K 28x16x8 K 28x16x9 K 32x20x6 K 32x20x9		T 1,8x0,8x2,7 T 2,7x1,2x4 T 3,9x1,6x4,8 T 3x1x12 T 4,5x1,5x4,5	
	K DXdXh (mm)		T DXdXL (mm)
		Type	C – Rod Cores
		C 6,3x25 C 8x28 C 8x32 C 8x100 C 10x120	
			C DXL (mm)
Type	E - Cores	Type	Tp – Two-aperture Cores
E 4x4 E 5x5 E 6x6 E 7x7 E 12x15		Tp 3,5x2x2,4/1-2 Tp 7x4x3/2-1.8 Tp 8,5x5x1,5/1,5-2 Tp 8,5x5x4,5/1,5-2 Tp 9,1x5,4x3,3/1,6-2	
	E loXS (mm)		Tp LXBXS/d-n (mm) n- number of holes

