

# VAKOS 纳米晶共模电感铁芯应用

## 铁基纳米晶合金

铁基纳米晶合金是通过快速凝固技术制备形成的一种新型软磁材料。铁基纳米晶合金由铁、硅、硼、铌、铜组成。铁基纳米晶合金具有高饱和磁感应强度、高导磁率、低矫顽力、低损耗等优异软磁性能，作为在金属软磁材料中具有最佳性能价格比的纳米晶合金材料，可以替代硅钢，坡莫合金和铁氧体成为中高频变压器、互感器、电感元器件的理想材料。

## 纳米晶合金材料特性

1.高饱和磁感、高磁导率 High saturation magnetic flux density and high Permeability	铁基纳米晶软磁合金可同时具有高饱和磁感应强度（1.25T）和高的初始磁导率（>80000），有利于铁芯体积小，高精度发展 The Antainano® soft magnetic alloy has both high saturation magnetic induction (1.25T) and high initial permeability(> 80000), Small size and high precision of the cores.
2.低损耗 Low core loss	相当于Fe基非晶1/5的铁损，100kHz, 300mT下损耗低至50W/kg，更低的温升 1/5th the core loss of Fe-based Antaimo® metal, 100kHz\300mT lower loss to 50W/kg, lower temperature rise.
3.低矫顽力 Low coercive force	静态下矫顽力低至1.5A/m以下 In static condition, the coercive force is as low as 1.5A/m.
4.低磁伸 Low magnetostriction	接近于零的饱和磁致伸缩系数，因而有极低的工作噪音 $\lambda_s \sim 0$ , very low noise.
5.优异的温度稳定性 Excellent temperature characteristics and small aging effects	在-50°C~150°C温度区间内材料性能的变化率范围±10% Small permeability variation (less than ±10%) at a temperature range of -50°C~150°C.
6.优良的频率特性 Excellent characteristics over wide frequency range	在较宽频率范围内具有出色的磁导率特性及低的损耗 High permeability and low core loss over wide frequency range.
7.磁性能的可调性 Flexibility to control magnetic properties“B-H curve shape” during annealing	可通过施加不同强度的横磁、纵磁或不加磁场的热处理获得不同类型的磁性能，如低剩磁型、高矩形比型、高磁导率型等 Three types of B-H curve squareness, high, middle and low remanence ratio, corresponding to various applications.

如表为套壳规格尺寸，如需涂装则另行提供规格书。表内無的尺寸也可另行製作

铁芯编码 Producion NO	铁芯尺寸 nominal core dimensions	护盒尺寸 finished dimensions			截面积 iron cross section	磁路长度 mean path length	铁芯质量 weight	单匝电感量		对应 VAC 型号
	OD x ID x HT	OD	ID	HT	AFe	lFe	mFe	10kHz	100kHz	
	mm x mm x mm	mm	mm	mm	(c m <sup>2</sup> )	cm	g	μH		
VK-9.8*6.5*4.5 V01	9.8 x 6.5 x 4.5	11.3	4.3	6.1	0.059	2.56	1.09	18.9-36.4	4.7~9.3	W914
VK-12*8*5 V01	12 x 8 x 5	14.2	6.7	6.7	0.08	3.14	1.63	18.7-36.0	4.6~9.2	W902
VK15*10*5 V01	15 x 10 x 5	17	8.1	6.8	0.1	3.93	2.54	18.7-36	4.6~9.2	W965
VK-22*12*10 V01	20 x 12 x 10	22.5	10.6	12.4	0.32	5.02	11.58	61.2-117.6	15.1-30.1	
VK-22*17*10 V01	22 x 17 x 10	24.7	15.6	12.2	0.2	6.12	8.82	26.7-51.3	6.56-13.1	
VK-23*18*10 V01	23 x 18 x 10	25	16	12.5	0.2	6.4	9.5	≥25	≥6.5	
VK-25*20*10 V01	25 x 20 x 10	27.7	13.2	12.8	0.2	7.06	10.17	23.1-44.4	5.69-11.4	W523
VK-25*16*10 V01	25 x 16 x 10	27.5	13.8	12.4	0.36	6.44	16.68	45.7-87.8	11.2-22.5	W380
VK-30*20*10 V01	30 x 20 x 10	33	17.7	13.3	0.4	7.85	22.61	41.6-80.0	10.2-20.5	W423
VK-32*20*10 V01	32 x 20 x 10	35	17.7	13.3	0.48	8.16	28.2	48.0-92.3	11.8-23.6	
VK-30*20*15 V01	30 x 20 x 15	33.5	17.8	17.8	0.6	7.85	33.91	62.4-120	15.4-30.7	W514
VK-38*23*20 V01	38 x 23 x 20	41	20	23	1.2	9.57	83	78.8-152	22.5-42	
VK-40*32*15 V01	40 x 32 x 15	44.7	28.7	18.7	0.48	11.3	39.07	34.7-66.7	8.53-17.1	W422
VK-40*25*15 V01	40 x 25 x 15	43.4	21.6	18.9	0.9	10.2	66.13	72.0-138.5	17.7-35.4	W424
VK-40*25*20 V01	40 x 25 x20	43.5	21.6	23	1.2	10.2	88.5	48.7-94.2	21-40.6	
VK-50*40*20 V01	50 x 40 x 20	53.3	37.1	23	0.8	14.1	81.39	34-65.7	10.1-20.3	W516
VK-64*41*25 V01	64 x 41 x 25	63	39	26	2.21	16.5	265	≥45	≥15	
VK-65*50*25 V01	65 x 50 x 25	68.3	46.3	28.8	1.5	18.1	194.99	67.8-130.4	16.6-33.4	W517
VK-80*50*20 V01	80 x 50 x 20	83.7	46.7	24.6	2.4	20.4	352.68	77.1-137.8	22.7-44.0	V140
VK-100*80*20 V01	100 x 80 x 20	104	75	23	1.6	28.3	320	23.9-44.5	9.59-17.8	
VK-102*76*25 V01	102 x 76 x 25	107.3	70.3	30.4	2.6	27.9	523.15	76.0-146.0	18.7-37.4	W468
VK-103*75*30 V01	103 x 75 x 30	109	69	36	3.23	28	655	50.8-94.4	20.3-37.7	
VK-130*100*30 V01	130 x 100 x 30	136	94	36	3.47	36.1	920	42.1-78.3	16.9-31.5	
VK-160*130*25 V01	160 x 130 x 25	166	124	31	2.89	45.6	950	7.9-51.7	11.1-20.7	