ARCANUM ALLOYS

OPTICORE™

0.007" (0.18-mm)
Opticore 7 Non-Oriented Electrical Steel

SPATIALLY OPTIMIZED DIFFUSION ALLOY (SODA)

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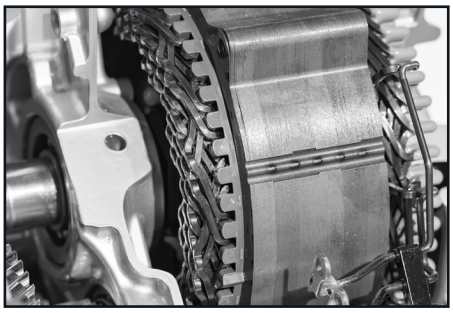
Opticore 7 is a fully processed, non-oriented electrical steel designed for use in high-frequency applications such as highspeed motors and generators used in the aerospace and medical industries, amongst others. Opticore 7 is made using Acanum Alloys' spatially optimized diffusion alloy (SODA™) manufacturing technology and is offered at a nominal thickness of 0.007 inches.



Arcanum Alloys Inc., head-quartered in greater Grand Rapids, Michigan, USA, uses a revolutionary platform technology to dramatically improve the steel manufacturing process. Arcanum Alloys uses its technology to make Spatially Optimized Diffusion Alloy (SODA™) products. In the SODA process, alloying elements such as Silicon, Aluminum, Manganese, etc. are introduced to the steel by vapor transport after it has reached a finished or semi-finished form. This technology allows the surface and bulk properties of the steel to be decoupled, allowing the performance of each region to be independently optimized. Arcanum Alloys' Opticore™ product category is a range of light-gauge Non-Oriented Electrical Steels (NOES).

SPECIFICATIONS

MAGNETIC CORE LOSS

Induction (T)	Core Loss (W/kg) @ Frequency (Hz)											
	50	60	100	200	400	600	1000	2000	4000	6000	8000	10000
0.10	0.02	0.02	0.04	0.08	0.21	0.35	0.65	1.80	5.80	11.38	19.78	30.21
0.20	0.07	0.08	0.14	0.31	0.74	1.30	2.51	6.79	20.33	39.44	67.88	100.49
0.40	0.22	0.26	0.47	1.04	2.55	4.43	8.99	24.52	70.18	133.32	225.41	340.87
0.70	0.53	0.64	1.16	2.65	6.59	11.53	24.05	66.67	193.40	370.00	621.99	942.44
1.00	0.93	1.13	2.06	4.79	12.10	21.36	45.59	129.30	389.93	768.31	1304.32	2030.58
1.20	1.28	1.55	2.77	6.62	16.81	29.85	65.20	188.00	584.84	1176.05	2050.42	3190.67
1.30	1.50	1.83	3.27	7.79	19.78	35.19	78.39	226.98	717.87	1456.89	2534.27	3949.43
1.40	1.82	2.18	3.89	9.23	23.29	41.36	102.66	292.08	893.07	1852.50	3173.19	4990.09
1.50	2.12	2.60	4.67	11.07	27.99	49.86	117.86	355.91	1164.69	2414.59	4166.27	6521.74
1.60	2.45	3.02	5.43	12.91	32.67	58.33	145.24	457.50	1537.00	3203.06	5488.49	8715.71
1.70	2.79	3.43	6.22	14.83	37.81	68.37	186.18	600.17	2047.42	4281.48	7363.31	10948.2

MAGNETIC FIELD STRENGTH

Induction (T)	Magnetic Field Strength (A/m) @ Frequency (Hz)											
	50	60	100	200	400	600	1000	2000	4000	6000	8000	10000
0.10	30.45	27.84	27.70	26.74	30.37	30.51	29.72	35.49	50.27	62.20	77.07	89.45
0.20	39.10	35.85	35.68	35.79	39.70	34.10	46.36	56.43	77.60	97.50	124.53	145.18
0.40	51.59	47.52	46.99	47.65	54.44	60.12	69.81	88.98	120.62	151.54	195.72	234.44
0.70	70.43	65.62	63.88	62.12	70.98	79.62	96.49	127.51	179.10	232.00	307.36	374.71
1.00	97.51	91.95	88.16	82.08	89.69	99.52	123.30	169.51	255.96	347.70	461.22	581.24
1.20	137.51	128.51	113.97	113.54	118.21	126.25	149.31	206.66	328.22	459.33	617.28	771.54
1.30	186.14	174.59	157.60	155.60	158.10	163.55	184.58	232.61	377.91	533.11	708.89	888.21
1.40	434.88	368.63	332.16	329.71	328.89	331.56	333.15	396.60	504.01	639.63	832.14	1043.68
1.50	969.51	952.70	929.28	928.62	925.79	929.40	932.79	979.56	1091.99	1242.40	1427.84	1688.67
1.60	2193.76	2185.66	2169.05	218206	2171.52	2177.12	2175.09	2254.28	2320.07	2435.75	2635.42	2993.83
1.70	4278.51	4273.90	4261.08	4276.69	4264.54	4274.11	4281.35	4395.83	4483.44	4625.31	4895.16	4849.48

OTHER TYPICAL PROPERTIES

Density:	7.55-g/cm3
Resistivity:	42-μΩ·cm
Yield Strength:	42-KSI (290-MPa)
Tensile Strength:	55-KSI (379-MPa)
% Elongation in 2":	13%
Hardness (Knoop):	171 HK
Thickness Variation:	± 0.0005" (0.02-mm)
Coeff. of Thermal Expansion:	12.6E-6-K-1