



Somaloy® Technology for Electric Motors

Somaloy makes it possible to design innovative, compact and powerful electric motors to suit a specific application – instead of restricting the application to the motor's limitations.

The secret is the unique 3D properties of components made of Somaloy. Using Somaloy, it becomes possible to define a magnetic field in three dimensions and to create improved or entirely new machine concepts.

The wide Somaloy product portfolio makes it easy to define the optimal solution for your application from line frequency up to several kHz.

Somaloy opens the way for compact, light and cost-efficient solutions.

Benefits

- Up to 60% size and weight reduction
- Natural choice for TFM/Claw-pole and linear brushless DC motors
- Cost-efficient material for high speed motors

Recommended Materials for Electric Motors

For motor applications, Somaloy grades are available in various formulations. The press-ready mixes combined with optimized processing result in components with different performance levels.

- Somaloy 3P targets applications where high permeability and high strength are essential.
- Somaloy 5P offers new opportunities in applications requiring low losses.
- High resistivity (HR) products have specifically been developed to maintain low eddy-current losses in large cross-sections.



Typical Data

Somaloy Material	Resistivity [$\mu\Omega\cdot m$]	TRS [MPa]	B@10000 A/m [T]	μ_{max}	Core Losses @ 1T [W/kg]			
					5x5 mm*			15x15 mm
					100 Hz	400 Hz	1000 Hz	1000 Hz
Baseline								
1P Somaloy 130i	8 000	35	1.40	290	12	54	145	147
1P Somaloy 700	400	40	1.56	540	10	44	131	158
1P Somaloy 700 HR	1000	35	1.53	440	10	46	134	145
High strength, high permeability								
3P Somaloy 700	200	125	1.61	750	10	46	137	189
3P Somaloy 700 HR	600	120	1.57	630	11	48	137	157
3P Somaloy 1000	70	140	1.63	850	10	46	144	287
Lowest losses								
5P** Somaloy 700 HR	700	60	1.57	600	6	32	104	115
5P** Somaloy 130i	12 000	40	1.44	300	8	35	103	104

* Magnetic properties measured on toroids (OD 55 ID 45 H 5 mm).

** Limited market release. Contact Höganäs.