



eDrive
Systems

Axial Flux Electric Motor Range

GKN EVO eDrive Systems offers permanent magnet motors based on proprietary axial flux technology that can be used in conjunction with custom built or standard industrial inverters. Bespoke and integrated solutions for OEM applications are developed on demand.



Design

The GKN EVO Axial Flux motor is a three-phase permanent magnet motor that uses proprietary axial flux technology to deliver very high torque and power density in a compact and lightweight unit. This makes it particularly suitable for use in electric and hybrid vehicles where low weight and compact packaging are important in delivering optimum efficiency in performance and design. The “disc” shape of the motor makes it particularly beneficial in applications where there is limited space available, for example between a combustion engine and a transmission in a hybrid vehicle. It can also be used with GKN Driveline’s eTransmission range to offer a complete eDrive solution.

Key Features

- > Very high torque and power density
- > Low cogging torque
- > Compact design with flat front and back faces for mounting
- > Integrated resolver for rotor position
- > Liquid cooling for enhanced performance
- > Through shaft and customised versions available

Specifications

PM Synchronous Axial Flux Motors	AF125*	AF130	AF140	AF230	AF240
Maximum Speed [rpm]	12000	8000	5000	8000	5000
Nominal Torque [Nm]	100	145	260	290	580
Peak Torque (for up to 60s) [Nm]	170	250	400	500	800
Peak Torque (for up to 20s) [Nm]	220	350	600	700	1200
Nominal Output Power [kW]	59	64	94	128	188
Peak Output Power (for up to 60s) [Nm]	85	100	150	200	300
Peak Output Power (for up to 20s) [Nm]	100	140	220	280	440
Coolant Flow Rate [l/min]	6	8	8	12	12
Length [mm]	110	110	110	212	212
Diameter [mm]	258	300	380	300	380
Weight [kg]	22	30.5	42	57	82
Nominal Battery Voltage** [V DC]	350/600	350/650	350/650	350/650	350/650
Ke [Vs/rad] (rms pp)	0.33/0.55	0.49/0.82	0.81/1.62	0.49/0.82	0.81/1.62
Kt [Nm/A] (rms line)	0.57/0.95	0.8/1.33	1.36/2.27	0.8/1.33	1.36/2.27
Number of Turns**	3/5	3/5	3/6	3/5	3/6

* Limited availability for evaluation ** other configurations on request

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