

Turtide Axial Flux Motor AF125

The Turntide Axial Flux Motor 125 (AF125) offers exceptional power density, with one of the highest peak power ratings, in its class, at up to 7 kW/kg at 800V_{DC}.

With a peak efficiency of up to 95%, the AF125 is well-suited for high-performance demand in a compact space claim. It offers smooth, quiet operation with low torque ripple while supporting inverter supply voltages of up to 850V_{DC}.



Features

- 3-phase connection for easy interfacing with current inverter technology
- Short and compact motor length
- Configurable options for the top box and coolant port orientation
- Low cogging and low ripple torque give smooth, quiet operation in direct drive applications
- Compact design with flat front and back faces for mounting
- IP67-rated shaft seals (optional)
- Low inertia composite rotor with excellent dynamic stability
- Suitable for inverter supply voltages up to 850V_{DC}
- Liquid cooling using water/glycol for enhanced performance
- Integrated PT100 winding temperature sensors
- Sin/Cos resolver for out-of-the-box compatibility with most commercially available inverters
- Offered in 3,4,5 and 6-turn arrangements, allowing standard offerings to meet the customer-specific torque requirements

Applications



TURNTIDE TECHNOLOGIES

Details are correct at time of publishing

Turntide Technologies designs and manufactures breakthrough electric motors, power electronics and energy storage solutions that optimize performance, reliability, and efficiency in all things that move.

Turntide Technologies, Eighth Avenue, Team Valley Trading Estate, Gateshead, NE11 0QA, UK

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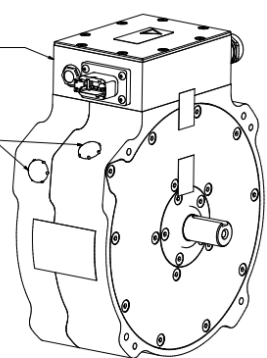
Specification

Voltage Level (V _{DC})	360		800	
Motor Speed	3 turns	5 turns	3 turns	5 turns
Max Speed (rpm)	8000			
Peak Performance (S2-20 seconds)				
Maximum Torque (Nm)	210	230	210	230
Maximum Power (kW)	97	59	175	129
Continuous Performance (S1-60 mins)				
Continuous Maximum Torque (Nm)	85			
Continuous Maximum Power (kW)	55			
Maximum Continuous Current (A _{rms})	190			
Coolant Flow rate				
Recommended Coolant Flow (l/min)	8			
Environmental				
Coolant Temperature Range	-20°C to 85°C	Max Winding Temperature	Up to 170°C	
Ambient Temperature Range	-20°C to 90°C			
Coolant Type	BS6580-1992 or equivalent	IP Rating	IP67, (with optional shaft seal)	
Any temperature above 45°C ambient and 55°C coolant will require a derating in performance from the controller.				
Motor Data Interface				
Thermal interface (Located in the end windings)	2x PT100	Resolver	1x LTN RE-15-1-K68 Single pole pair	
Mass, Dimensions and Drawings				
Weight (kg)	25, Dry weight	Depth (mm)	110	
Diameter (mm)	289	Height (mm)	312.5	

RIGHT SIDE PHASE CABLES AND LEFT SIDE COOLING PORTS

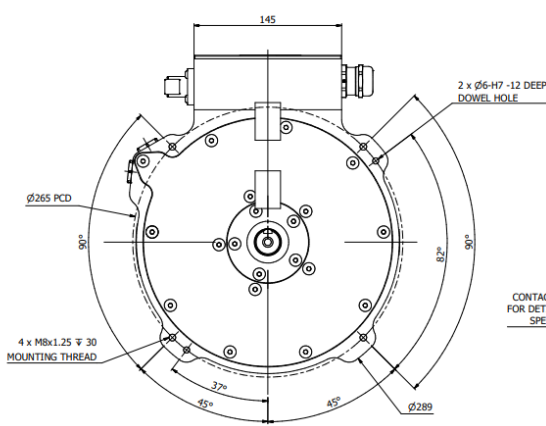
COOLANT PORT CONNECTIONS AND TOP BOX ORIENTATION CONFIGURABLE IN LEFT OR RIGHT WHEN LOOKING FROM DRIVE END

2 x G3/8 12 COOLANT I/O



All dimensions are in mm

MOTOR MOUNTING (SHAFT SIDE)



2 x Ø6-H7 -12 DEEP DOWEL HOLE

Ø265 PCD

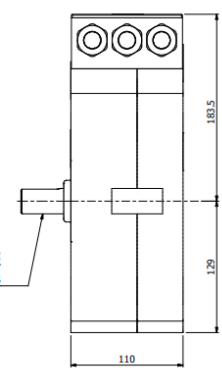
90°

4 x M8x1.25 x 30 MOUNTING THREAD

37°

45°

Ø289



CONTACT TURNTIDE FOR DETAILED SHAFT SPECIFICATIONS

An example shaft is shown for reference. Turntide offers a range of pre-defined shaft geometries (Spline, Key or Smooth). Contact us for more information.

Peak overvoltage support 1kV

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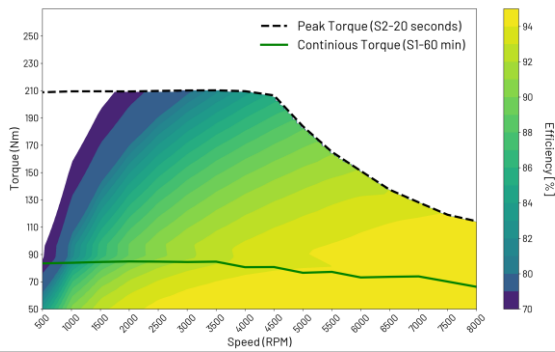
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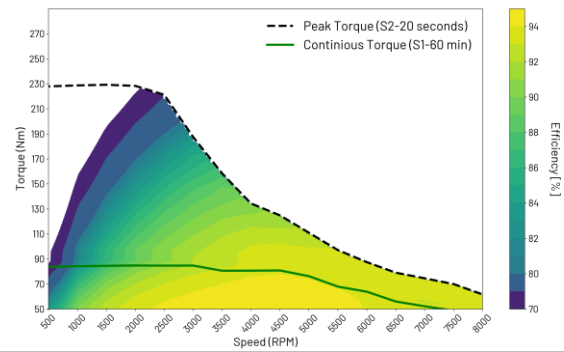
Performance Data Examples

360V_{DC} – 700V_{DC} – 800V_{DC}

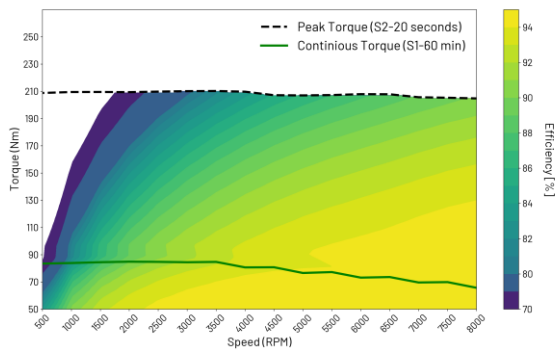
AF125 360V 03Turns



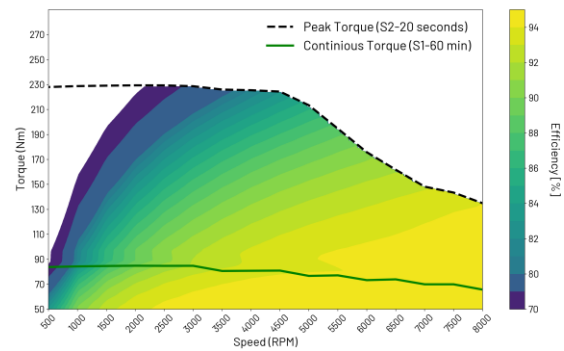
AF125 360V 05Turns



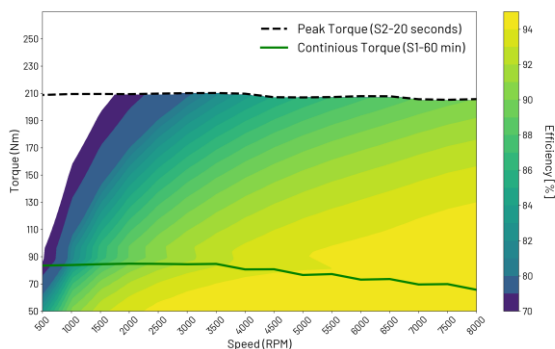
AF125 700V 03Turns



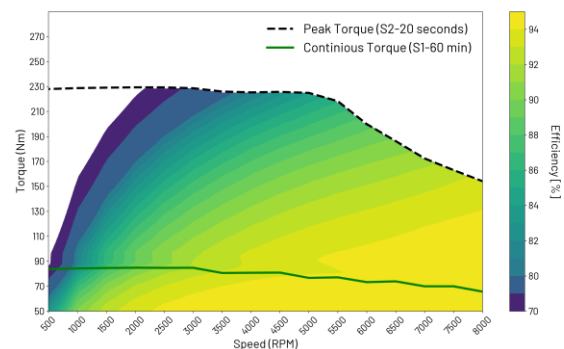
AF125 700V 05Turns



AF125 800V 03Turns



AF125 800V 05Turns



All values in the graphs are quoted for 45°C ambient with coolant at 55°C inlet temperature and 8 LPM flow rate. Efficiency will vary based on Voltages and Turn count.

Graph data is indicative of machine performance, performance may vary based on application and installation. Don't hesitate to get in touch with us for further information.

For more information on this product or Turntide's range of inverters, motors, batteries, pumps and fans, please visit our website or contact our team of experts at electrificationsales@turntide.com.

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