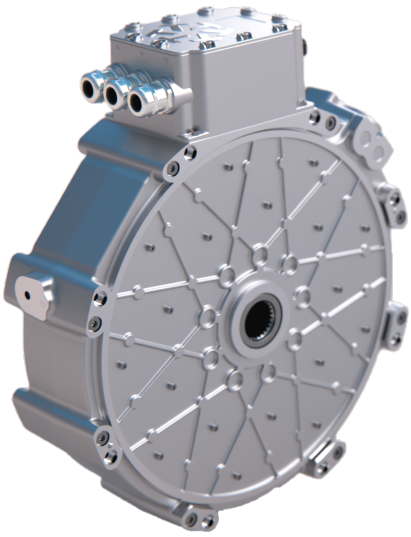
Turntide Axial Flux Motor S Series – AF430S

The Turntide Axial Flux Motor 430 Single Stack (AF430S) offers exceptional power density, with one of the highest peak power and torque ratings in its class, at over 7 kW/kg and 19 Nm/kg at 800V_{DC}.



The AF430S, with its short motor axial length, is well-suited for high-performance applications in a compact space claim. The unique magnetic topology coupled with electromagnetic, thermal, and manufacturing optimisation results in a breakthrough product offering with exceptional features. It offers smooth, quiet operation with low torque ripple while supporting inverter supply voltages of up to 850V_{DC}.

Features

- **Peak efficiency** of 96% at continuous load, equivalent to the highest efficiency class of IE4
- **Indirect liquid cooling** using standard medium of water-ethylene-glycol for high power density
- **Through-shaft** female spline as per ISO 4156, enabling dual output system integration and through-torque transmission
- **Designed for operation** up to 850 VDC and peak overvoltage support up to 1 kV VDC
- **Low cogging and torque ripple**, allowing smooth system operation and low NVH characteristics
- **Axially stackable motor design platform**, enabling scaled torque and power levels
- **Product configuration** to provide flexibility in high voltage connections (glands or Amphenol Powerlok), top box orientation, stator turn-count, interface adaptors
- **Stator winding turn-count configuration options** allow the maximisation of the torque-speed performance envelope across different application voltage levels and current capabilities
- **Durable construction** with testing to ISO 16750 environmental standards
- **Ingress protection** rated to IP67 and IP6K9K

Applications

The AF430S is designed to provide strong torque at low speeds, working smoothly within a 0 to 3,700 rpm range that aligns well with most diesel engines. This feature makes it ideal for generators and electric vehicles that need reliable power at lower speeds. Its adaptable design suits mobile generators, backup systems, micro-grids, and hybrid or fully electric light and medium commercial vehicles. The AF430S is also a solid option for off-highway, construction, and agricultural machines, supporting both movement and equipment use. Vehicles needing power and traction, as well as industrial applications like fans and pumps, can take advantage of its dependable performance.



TURNTIDE TECHNOLOGIES

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.

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Details are correct at time of publishing

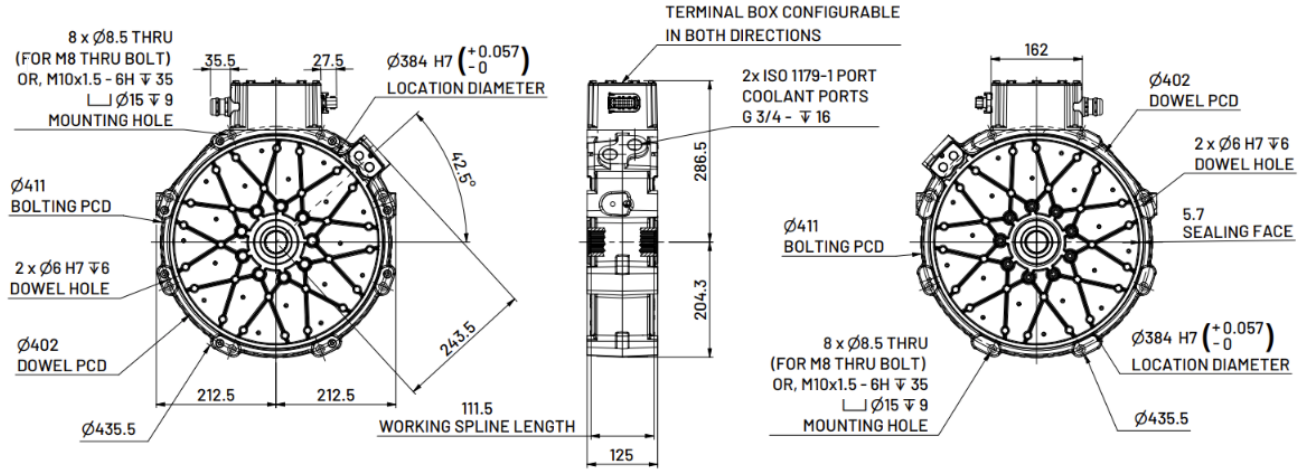
TTN-MAN-026
V5.0 – 22/10/2026

Specification

Performance	3 Turn, 720V$_{DC}$	3 Turn, 360V$_{DC}$
Motor Speed		
Maximum Speed (rpm)	3,700	3,700
Peak Performance (S2-20 seconds)		
Maximum Torque* (Nm)	990.8	990.8
Maximum Power* (kW)	367	221
Maximum Current* (A$_{rms}$)	598	598
Continuous Performance (S1-60 mins)		
Continuous Maximum Torque* (Nm)	409	409
Continuous Maximum (Rated) Power* (kW)	98	82
Maximum Continuous Current* (A$_{rms}$)	235	235

These performance values have been rated at 45°C ambient, 55°C inlet coolant, 12 lpm flow rate. At coolant temperatures over 55°C and/ or ambient over 45°C derating may be required. DC Voltage, winding turns and switching frequency will affect the performance envelope and input current requirements. Please contact Turntide for further information.

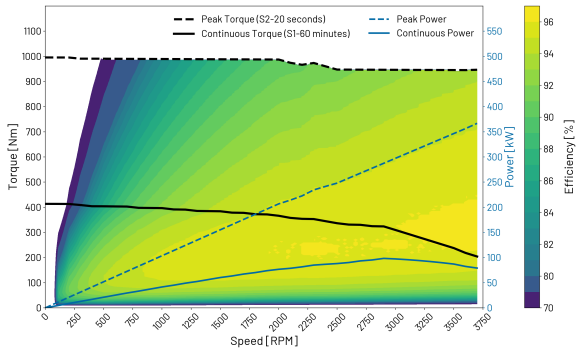
Operation Conditions			
Coolant Temperature Range	-20°C to 85°C	Max Winding Temperature	Up to 170°C
Ambient Temperature Range	-20°C to 90°C		
Coolant Type	BS6580-1992 or equivalent	IP Rating	IP67 and IP6K9K
Sensor Output			
Temperature Sensor Type (Located in the end windings)	2x PT1000 (1x Bearing RTD optional)	Resolver	1x TSY1040 (4PP)
Mass, Dimensions and Drawings			
Dry Weight (kg)	52	Depth (mm)	125
Diameter (mm)	435.5	Height (mm)	490.8



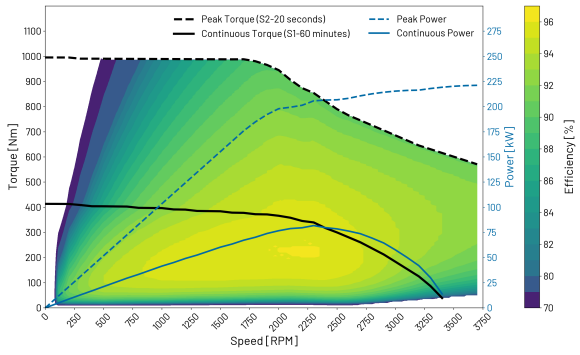
Shaft is a thru female spline, ISO 4156 (INT 25z x 1.5m x 30P x 5H). For alternative interface requirements, please contact Turntide for further information.

Performance Maps

TURNTIDE AF430S 720V 3 Turns



TURNTIDE AF430S 360V 3 Turns



Efficiency and performance are indicative only and may vary depending on voltage, motor configuration, application, and installation.

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