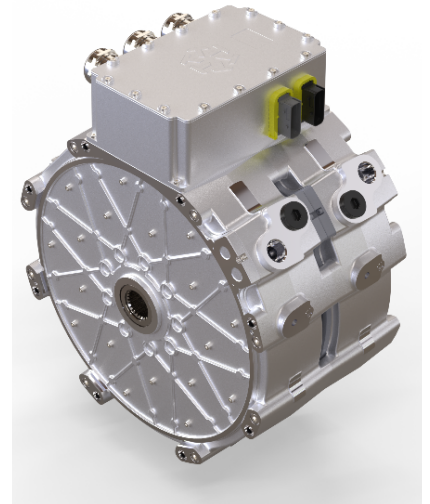


Turntide Axial Flux Motor D Series - AF430D

The Turntide Axial Flux Motor 430 Double stack (AF430D) offers exceptional power density, with one of the highest peak power and torque ratings in its class, at over 6.8 kW/kg and 18.5 Nm/kg at 800 V_{DC}.

The AF430D, with its short 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 850 V_{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
- **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 AF430D delivers the same strong low-speed torque and smooth operation as the AF430S across a 0 to 3,700 rpm range, while scaling performance to support double the power (around 220 kW). This makes it well suited to larger generators, backup and brownout power systems, and energy-intensive industrial applications, including industrial compressors.

Its scalable design also supports hybrid and fully electric medium- and heavy-duty commercial vehicles, as well as off-highway, construction and agricultural vehicles, where both traction and auxiliary power are required. Industrial fans and pumps can also benefit from its high torque density and 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.

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

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Details are correct at time of publishing

TTG-MAN-013
v3.0-13/03/2026

Specification

Performance	3 Turn, 800V _{DC}	6 Turn, 800V _{DC}	3 Turn, 400V _{DC}	6 Turn, 400V _{DC}
Motor Speed				
Max Speed (rpm)	3,700	3,700	3,700	3,700
Peak Performance (S2-20 seconds)				
Maximum Torque* (Nm)	1948.4	1938	1948.4	1938
Maximum Power* (kW)	720	426	430	190
Maximum Current** (A_{rms})	1172	582	1172	582
Continuous Performance (S1-60 mins)				
Continuous Maximum Torque* (Nm)	887.6	887.4	887.6	887.4
Continuous Maximum Power* (kW)	201	174	179	90
Maximum Continuous Current** (A_{rms})	512	254	512	254

*These performance values have been rated at 45 °C ambient, 55 °C inlet coolant, 24 lpm flow rate. At coolant temperatures over 55 °C and/ or ambient over 45 °C derating may be required. DC Voltage, number of 3-phase sets, winding turns and switching frequency will affect the performance envelope and input current requirements. **Maximum current applies to a single inverter with 3 HV cables. In a dual 3-phase setup (6 HV cables), maximum current is split between both inverters. Please contact Turntide for further information.

Operation Conditions

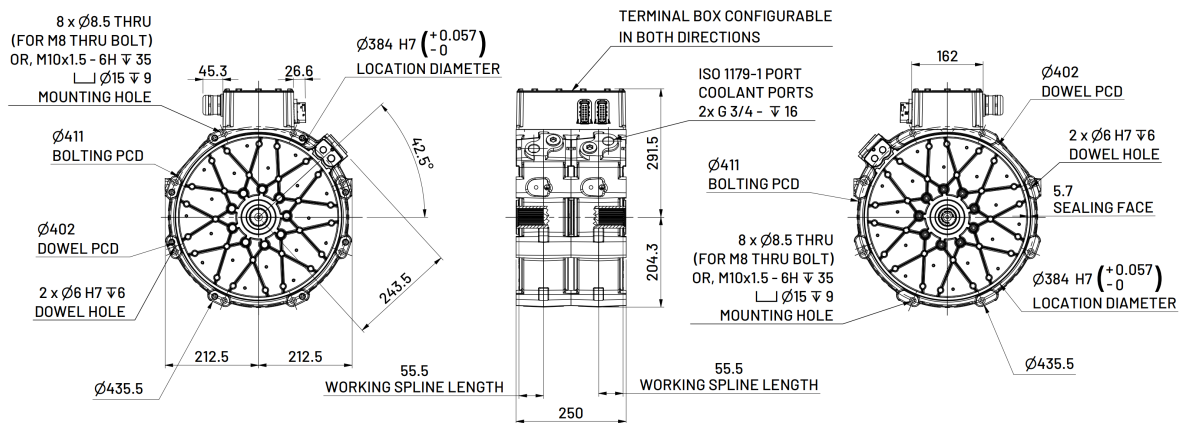
Coolant Temperature Range	-20 °C to 85 °C	Max Winding Temperature	Up to 170 °C
Ambient Temperature Range	-20 °C to 90 °C	IP Rating	IP67 and IP6k9k
Coolant Type	BS6580-1992 or equivalent		

Sensor Output

Temperature Sensor Type (Located in the end windings)	4x PT1000, (2x Bearing RTD optional)	Resolver	3 Phase: 1x TSY1040 (4PP) 6 Phase: 2x TSY1040 (4PP)
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Mass, Dimensions and Drawings

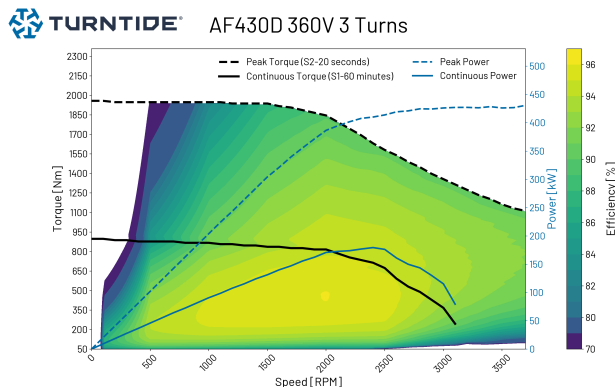
Dry Weight (kg)	105	Depth (mm)	250
Diameter (mm)	435.5	Height (mm)	495.8



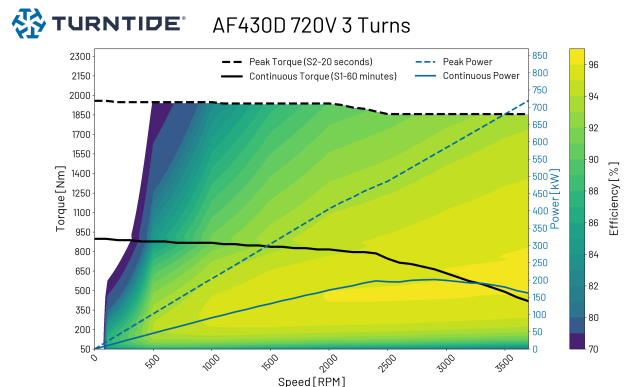
Shaft is a female spline, ISO 4156 (INT 25z x 1.5m x 30P x 5H). For alternative interface requirements, please contact Turntide for further information.

Performance Maps

360 V_{DC} 3T Motor



720 V_{DC} 3T Motor



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

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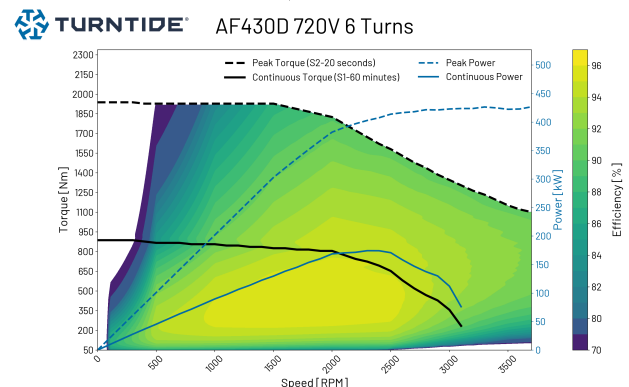
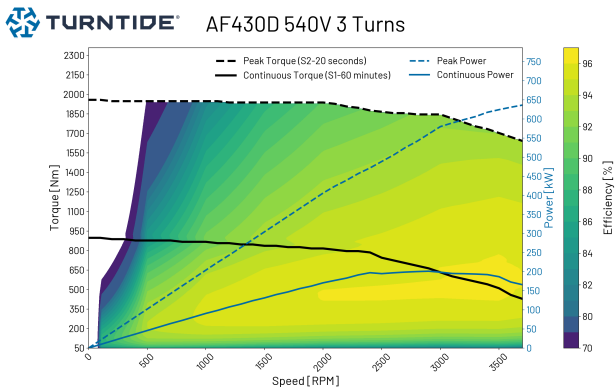
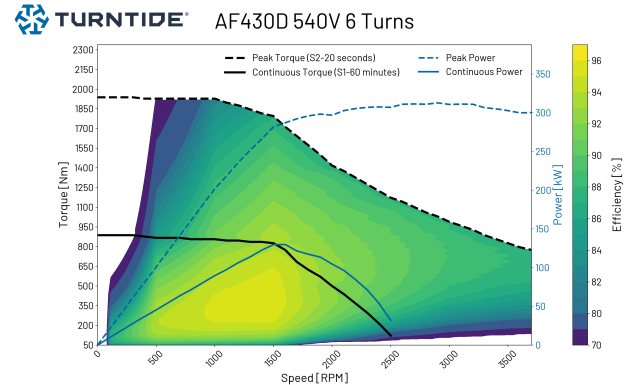
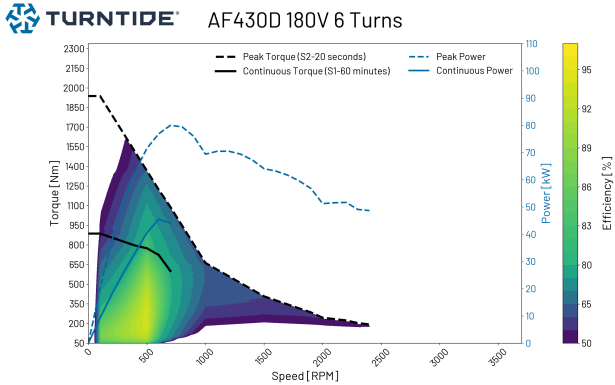
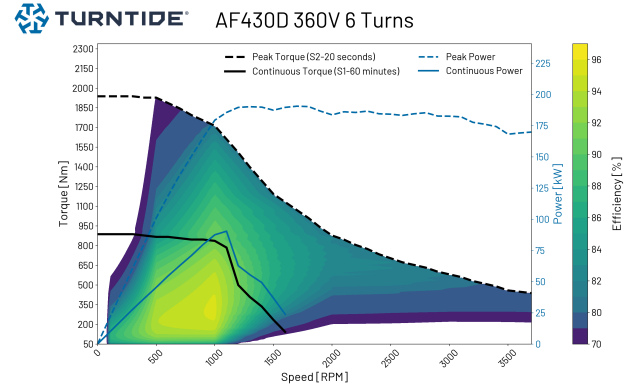
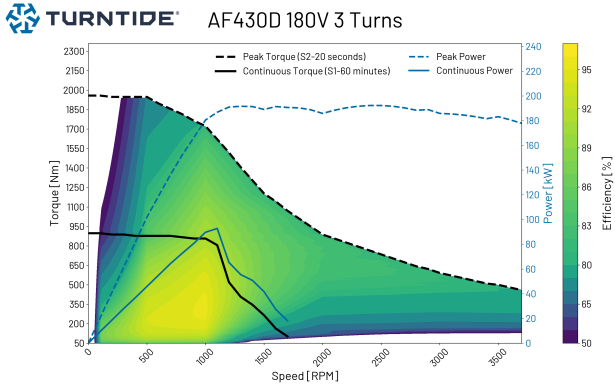
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Performance Data Examples
 180V_{DC} - 360V_{DC} - 540V_{DC} - 720V_{DC}



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