

JLM-M280kW-700V



Key Features:

- Permanent Magnet Synchronous motor IPM
- Compact and lightweight aluminum frame structure
- Highest efficiency throughout the operation range on the market (~96 %)
- Liquid cooled with water-glycol mixture
- Allowed coolant temperature up to +65°C
- With optional encoder able to produce high starting torque from zero RPM

Typical Applications:

- Traction/ propulsion
- Cars
- Boats
- Drones
- Generator for diesel-electric /serial hybrid applications
- Hydraulic pump applications
- Motorcycles

SPECIFICATIONS

Electrical Properties	
Nominal Voltage AC Line-Line @ 8000 RPM	500Vrms
Nominal current	240Arms
Peak current	400Arms
Torque constant*	0.84Nm/Arms
Peak power	280kW
Nominal inverter frequency	8Khz
Line-Line resistance @ 20 C	0.013 Ohms
Line-Line inductance (DQ)	0.372mH
Pole pair number	5
Voltage stress	IEC 60034-25:2009, Curve A: Without filters for motors up to 500 VAC

*Depending on the advance angle and rotor temperature.

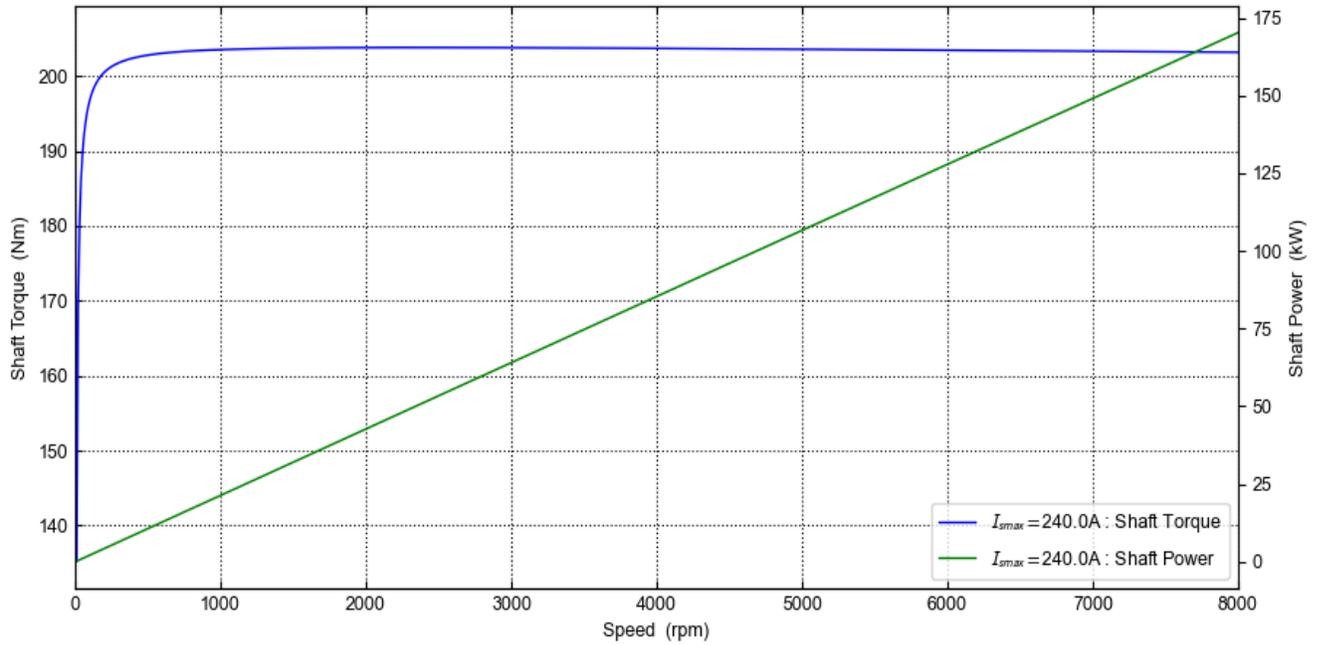
Mechanical Properties	
Total weight	54kg
Moment of Inertia	0.0517 kg.m ²
Nominal RPM	7000 RPM
Max RPM	7500-8000 RPM
Maximum allowance dynamic torque range on the shaft	750Nm
Rotating mass	~14kg
Bearing type	Grease lubricated, C3 Deep groove ball bearing.
Pole pair number	5
Frame material	Aluminum

Dimensions	
Diameter, body	286mm
Length, body	260mm
Shaft diameter	35mm
Shaft length	51.6mm

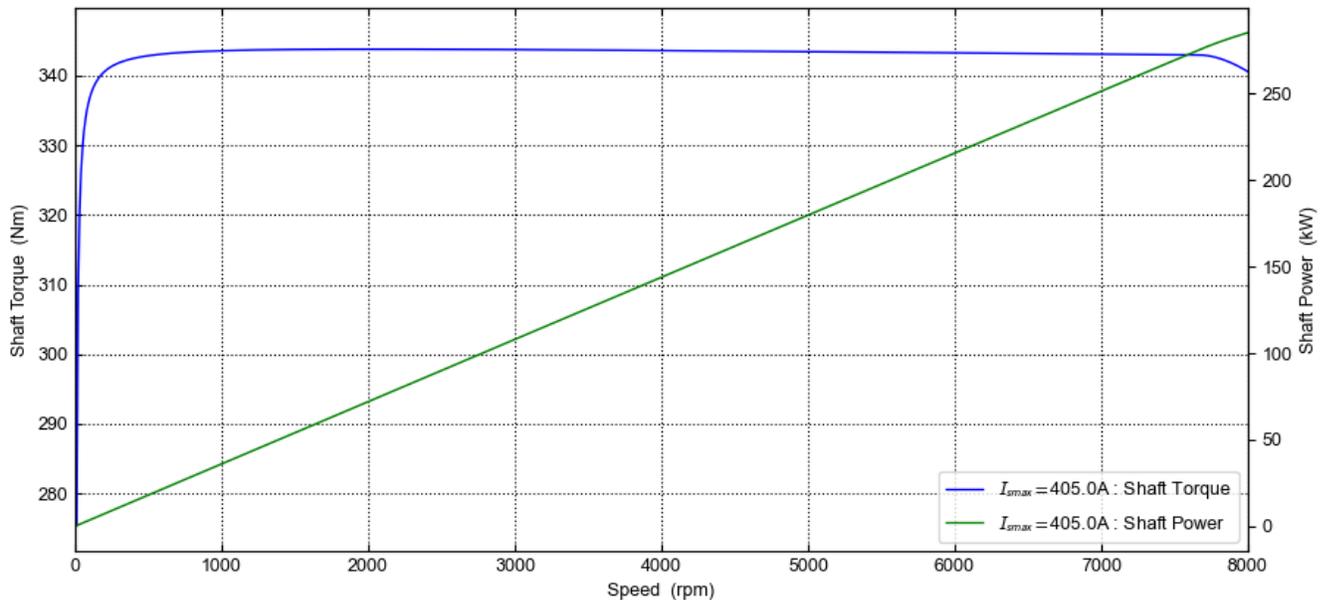
Cooling	
Cooling liquid	Ethylene glycol, with corrosion inhibitor
Cooling liquid flow	8L/min
Coolant circuit capacity	~ 0.3 liters
Maximum operating pressure 3 bar	3 bar
Pressure drop	0.4bar
Motor max. operating temperature	135 degree C
Motor Ambiental operation	-20°C and +80°C

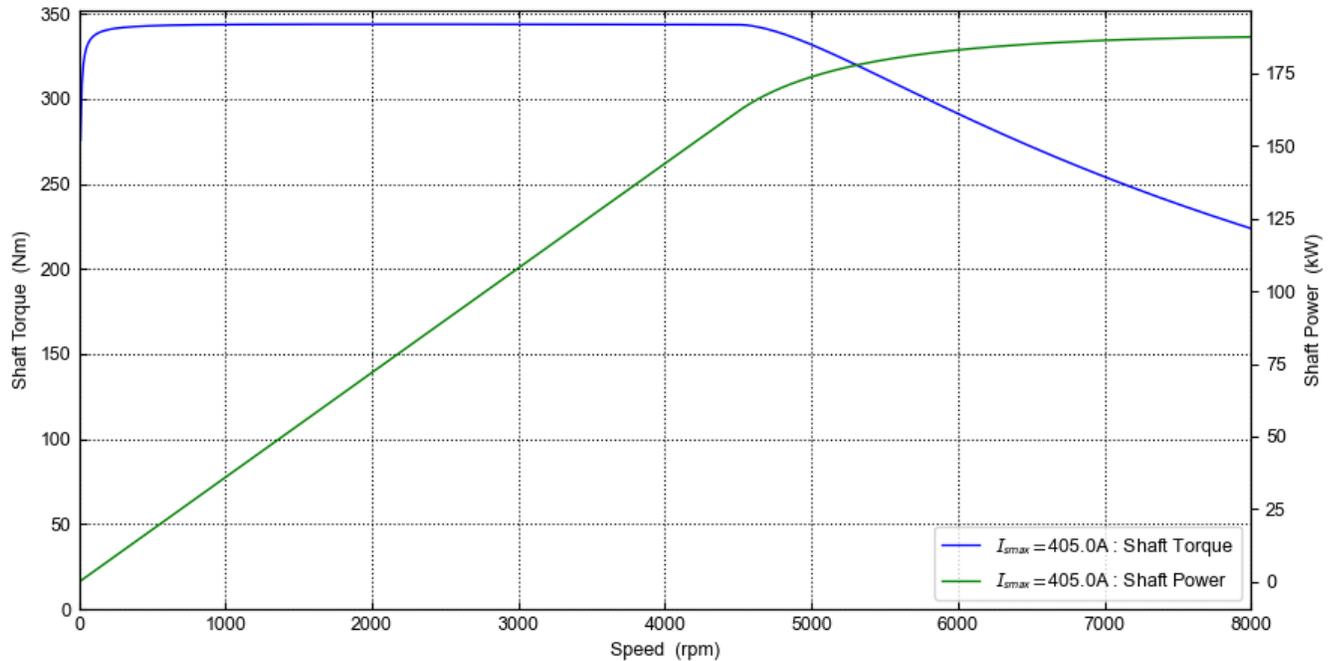
Connections	
Coolant connection	φ 13
HV cables, shielded	3x 50mm ² UL/CSA AWM certification
Cable Type ÖLFLEX® FD 90 CY	Flame-retardant according to IEC 60332-1-2 & CSA FT1 IEC: U0 /U 600/1000 V UL & CSA: 600 V
LV connector Encoder connection (optional) + temp sensors	12P connector
Temperature sensors	2x NTC 10k MF58 Beta B: 3950

Nominal torque and power curve @ 680v



Peak torque and power curve @ 680v





Peak torque and power curve @ 400v

QUICK GUIDE TO LONG MOTOR LIFE

- Do not exceed 8000 RPM. This might destroy the motor. The warranty will void of this speed is exceeded.
- Do not exceed the motor max operating temperature.
- Avoid loading the motor hub and bearing on axial directions. The motor is not designed to take axial loads on the shaft.
- Do not run the motor without coolant, even at no load. The motor generates heat due to eddy currents, and hysteresis in the stator and rotor core. At 7000 RPM the motor creates ~ 1.6kW of heat without any load.

SAFETY INFORMATION / INSTRUCTIONS

Note: Do not disassemble the motor without prior written consent of Joule Motors B.V.

Doing so could create a safety risk and will invalidate the warranty.



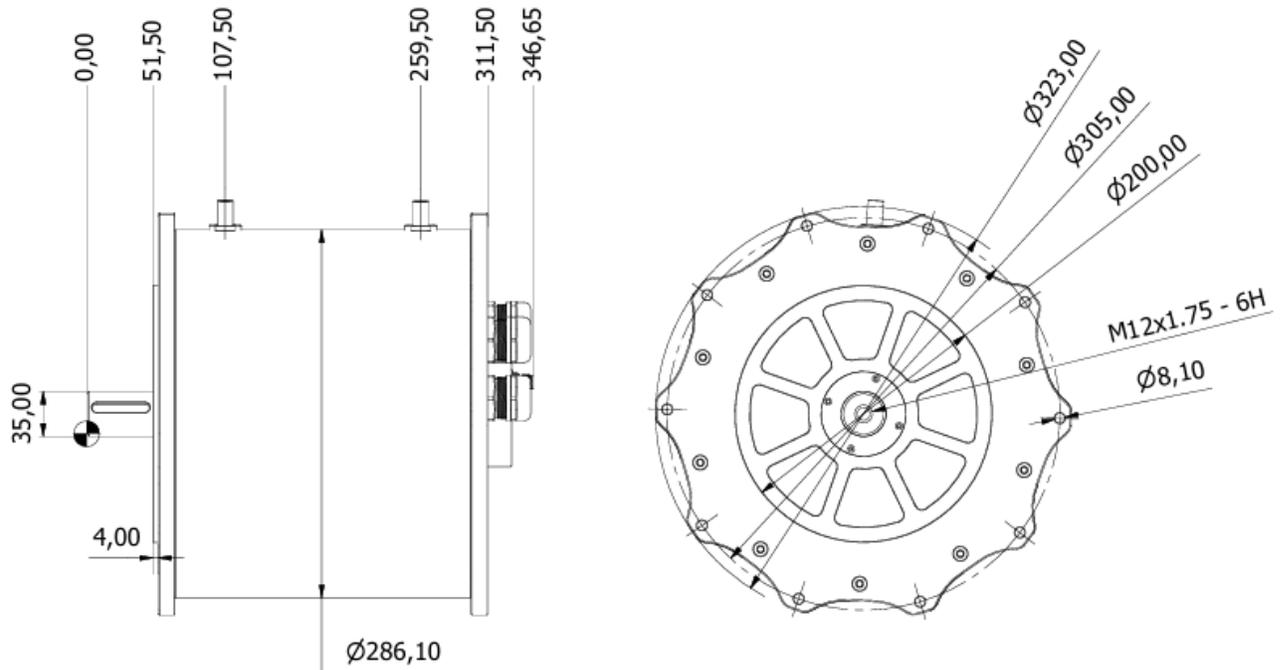
- Under no circumstances should the rotor assemblies be removed from the motor. These assemblies contain powerful magnets capable of generating strong magnetic fields and significant mechanical forces, which may pose serious safety risks when not properly enclosed within the motor housing.



- Motors are components of a high-voltage electrical system. It is essential to ensure that all high-voltage connections are correctly installed, adequately protected against moisture ingress, and properly maintained. All electrical leads and connections must be free from damage and should be inspected regularly to ensure continued safe operation.

- The motor housing and the cables shield should be grounded to the same point to avoid ground loops.
- The motor is not approved to be integrated in a life support system.
- Joule Motors B.V. disclaims any liability for damages, whether direct, indirect, incidental, or consequential, arising from the use or misuse of its motor.
- The motor shall be stored in a dry, dust-free, Storage temperature should be maintained between -20°C and +40°C.
- **DISCONNECT THE HIGH VOLTAGE ELECTRICAL SUPPLY AND FULLY DISCHARGE THE MOTOR CONTROLLER BEFORE HANDLING THE MOTORS.** Please refer to the motor controller manufacturer's product documentation for complete safety and maintenance precautions.

Mechanical drawing:



TECHNICAL SUPPORT

For any inquiries regarding the product or its installation, please contact Joule Motors B.V., Netherlands.

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