



Datasheet RM300-A

Rangemaker 300



The DeepDrive RM300 in-wheel motor propels vehicles in micro mobility use cases with gross weights <math>< 1.200 \text{ kg}</math>.

The integrated MOSFET inverter, the automotive standard wheel hub unit and the easy-to-use CAN-interface make it plug & play for most electric mobility applications.

The novel motor topology delivers best-in-class efficiency, lowest weight, and inaudible noise emissions.

Key Features:

- ▶ 300 Nm peak torque
- ▶ 22 kW peak power
- ▶ Up to 60 V battery supply
- ▶ 93.8 % overall efficiency
- ▶ 13 kg weight
- ▶ CAN-Interface for torque & speed control
- ▶ Inaudible noise emissions
- ▶ Best-in-class economics
- ▶ Enables concepts without mechanical rear brake

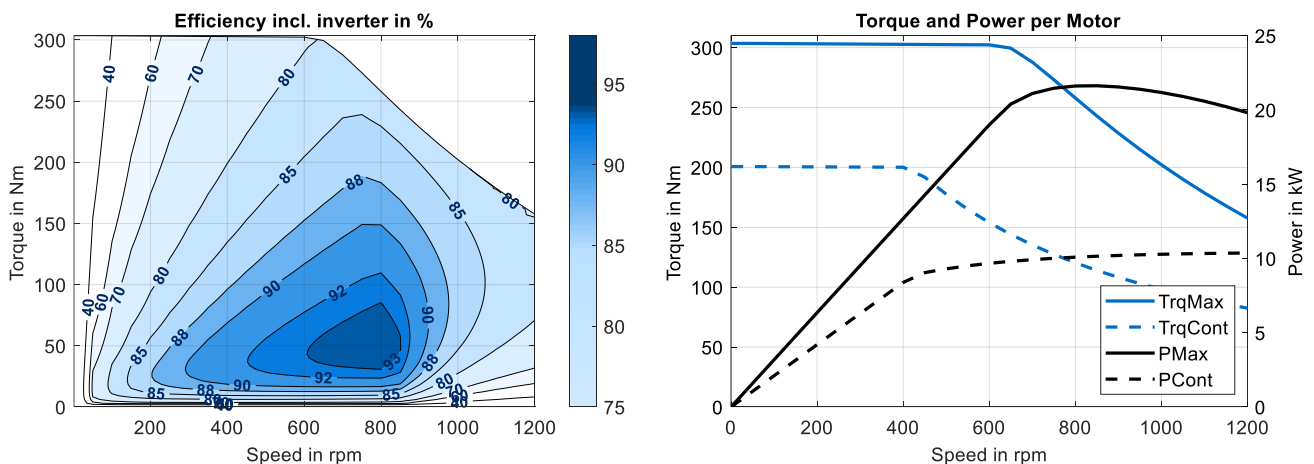
A powertrain to revolutionise micro mobility.



Product Data

Name	Sym.	Min.	Typ.	Max.	Unit	Conditions / comments
DC-voltage	U_{dc}	-	55	60	V	
LV-Supply voltage	U_{LV}	8	12	16	V	
LV-Supply current	I_{LV}	0.4	0.8	1.5	A	in operation, $U_{LV}=12\text{ V}$
Peak torque (30s)	M_{30s}	-	300	-	Nm	$T_{Mag}=40^{\circ}\text{C}$
Cont. Torque	M_{Cont}	-	200	-	Nm	$T_C=40^{\circ}\text{C}$, $Q_C=8\text{ l/min}$
Peak power (30s)	P_{30s}	-	22	-	kW	$T_{Mag}=40^{\circ}\text{C}$, $U_{dc}=55\text{ V}$
Cont. power	P_{Cont}	-	10	-	kW	$T_C=40^{\circ}\text{C}$, $Q_C=8\text{ l/min}$, $U_{dc}=55\text{ V}$
DC-current (30s)	$I_{DC,30s}$	-	480	-	A	$T_{Mag}=40^{\circ}\text{C}$, $U_{dc}=55\text{ V}$
DC-current cont.	$I_{DC,cont.}$	-	200	-	A	$T_C=40^{\circ}\text{C}$, $Q_C=8\text{ l/min}$, $U_{dc}=55\text{ V}$
Magnet temperature	T_{Mag}	-40	40	80	$^{\circ}\text{C}$	derating above 80°C
Copper temperature	T_{Cu}	-40	40	180	$^{\circ}\text{C}$	
Coolant temperature	T_C	-40	40	60	$^{\circ}\text{C}$	
Coolant flow rate	Q_C	4	8	-	l/min	derating may occur at $<8\text{ l/min}$
Coolant type	water - glycol 50/50				-	
Pressure drop	Δp	-	50	-	mBar	$Q_C=8\text{ l/min}$, $T_C=60^{\circ}\text{C}$
Speed	n_{max}	-	1200	-	1/min	limited by U_{dc} / field weak.
Mass excl. bearing	m	-	13	-	kg	dry, no coolant
Diameter	D_{max}	-	314	-	mm	max. value, see drawing
Length	l_{max}	-	125	-	mm	incl. inverter, see drawing
Peak efficiency	η_{max}	-	93.8	-	%	$T_{Mag}=40^{\circ}\text{C}$, $T_{Cu}=40^{\circ}\text{C}$, $U_{dc}=48\text{ V}$
Cycle eff. WLTP class 2	η_{WLTP}	-	87.0	-	%	$m_{car}=500\text{ kg}$, $cwA=0.54\text{m}^2$

Efficiency map and operating limits

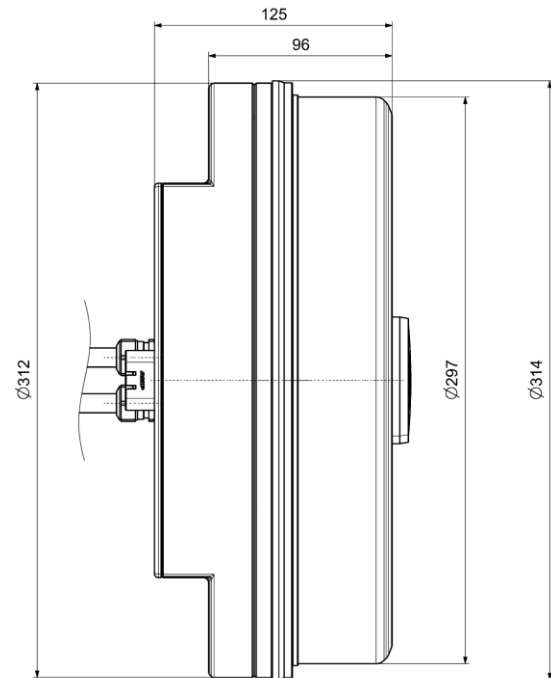
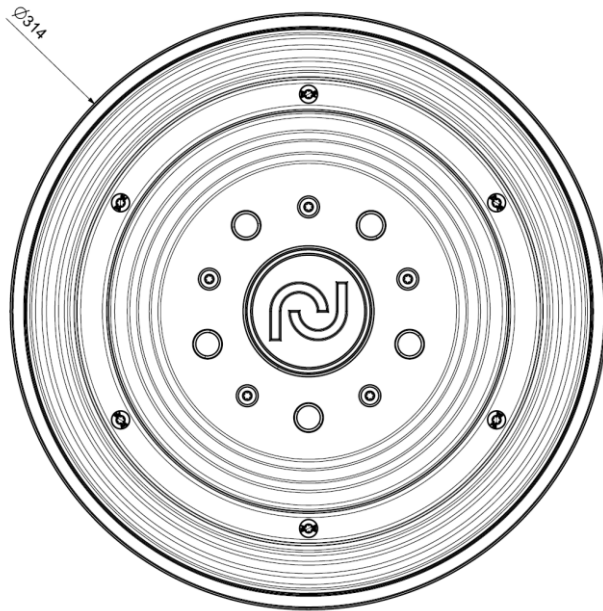


Conditions: $T_{Mag}=40^{\circ}\text{C}$, $T_{Cu}=40^{\circ}\text{C}$, $T_C=40^{\circ}\text{C}$, $U_{dc}=55\text{ V}$



Drawings & Mechanical Interfaces

Preliminary, CAD envelope-model on request



For further information on the product,
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