



DATASHEET CD 450 EDU

The DeepDrive CD 450 electric drive unit (EDU) contains a permanent magnet synchronous machine based on the DeepDrive Dual Rotor, Radial-Flux electric machine. The integrated SiC-inverter offers best-in-class efficiency at lowest cost.

Motor and inverter can be combined with several gearbox concepts, e.g., 2-stage spur gearboxes or planetary gearboxes. This datasheet focuses on the planetary gear concept providing the smallest possible package and weight. The gearbox ratio can be varied in a range from 6:1 to 10:1.

Target applications are the main drive unit for compact and mid-sized vehicles and all-wheel-drive options for premium electric vehicles with highest efficiency requirements.

KEY FEATURES

- 430 Nm peak motor torque
- Gear ratios from 6.4:1 to 10:1
- up to 4,250 Nm output torque
- up to 2,330 rpm output speed
- 250 kW peak power
- up to 850 V battery supply
- >97.5 % peak efficiency incl. inverter
- <68 kg weight
- CAN-Interface for torque & speed control
- Flexible vehicle interfaces





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PRODUCT DATA

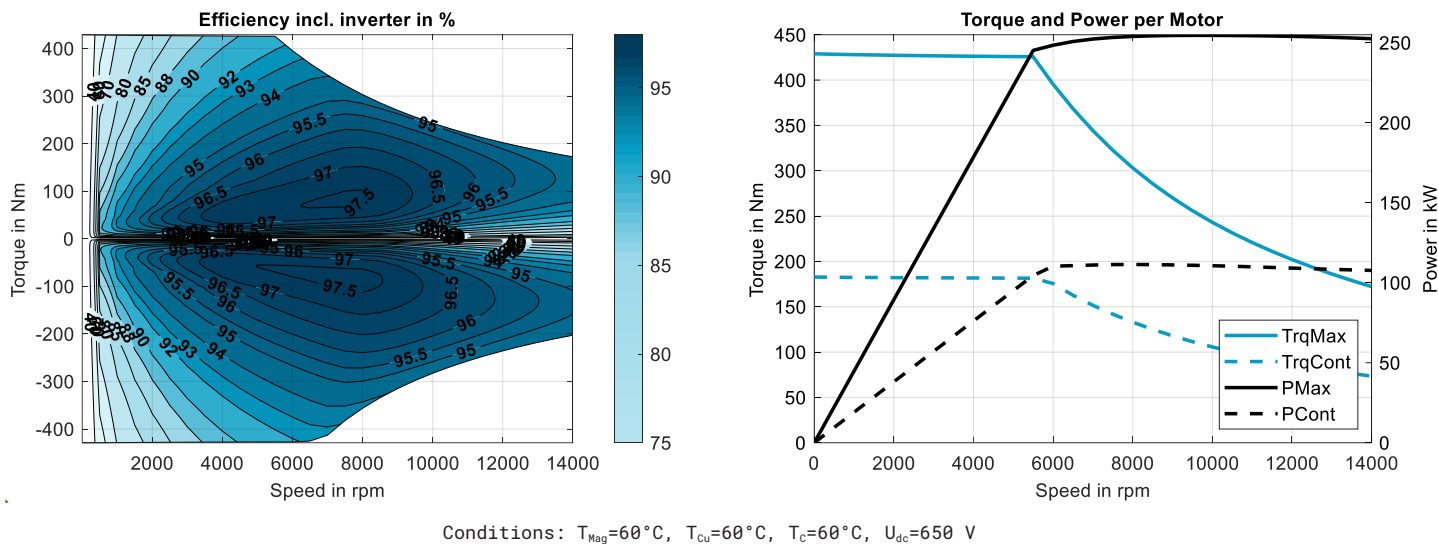
NAME	SYM.	MIN.	TYP	MAX.	UNIT	CONDITIONS / COMMENTS
DC-voltage	U _{dc}	450	650	850	V	lower voltage limit on request
Output torque (30s)	M _{30s}	2,550	3,400	4,250	Nm	gear ratios ¹⁾ : 6 8 10
Output torque (S1)	M _{30s}	1,050	1,400	1,800	Nm	gear ratios ¹⁾ : 6 8 10
Output power (30s)	P _{30s}	250			kW	T _{Mag} =60°C, U _{dc} =650 V
Output power (S1)	P _{Cont}	100			kW	T _C =60°C, Q _C =8 l/min, U _{dc} =650 V
Output speed		1,400	1,600	2,330	1/min	gear ratios ¹⁾ : 10 8 6
Motor torque (30s)	M _{30s}	430			Nm	T _{Mag} =60°C
Motor torque (S1)	M _{Cont}	180			Nm	T _C =60°C, Q _C =8 l/min
DC-current (30s)	I _{DC,30s}	450			A	T _{Mag} =60°C, U _{dc} =650 V
DC-current cont.	I _{DC,cont}	250			A	T _C =60°C, Q _C =8 l/min, U _{dc} =650 V
Motor speed	n _{max}	14,000			1/min	
Coolant temperature	T _C	-40	55	65	°C	derating may occur above 55°C
Coolant flow rate	Q _C	2	8	12	l/min	derating may occur at <8 l/min
Coolant type	water-glycol 50/50				–	
Pressure drop	Δp	<200			mBar	Q _C =8 l/min, T _C =60°C
Mass excl. bearing	m	<68			kg	dry, no coolant
Length	x	280			mm	max. value, see drawing
Width	y	470			mm	max. value, see drawing
Height	z	280			mm	max. value, see drawing
eDrive efficiency	η _{ED}	97.6			%	U _{dc} =650 V, incl. Inverter
EDU efficiency	η _{EDU}	95.3			%	U _{dc} =650 V, see Map

¹⁾other options on request



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EFFICIENCY MAP AND OPERATING LIMITS



DRAWING & CAD ENVELOPE-MODEL
[on request]