DATASHEET
CSD 450 EDU

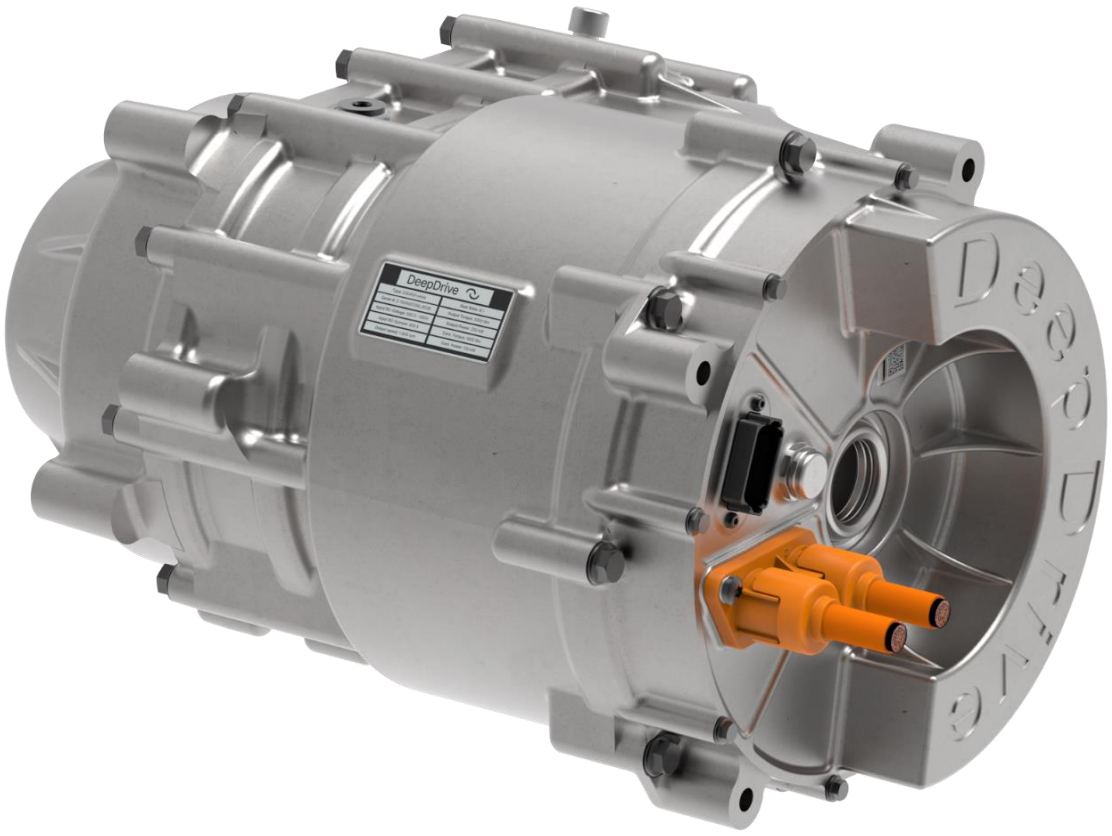
The DeepDrive CSD 450 electric drive unit (EDU) with a novel, dual-rotor, radial-flux electric machine and an integrated SiC-inverter offers best-in-class efficiency at lowest cost.

A two-stage, spur gearbox with coaxial output shaft minimizes space consumption at a very low cost level. Gearbox ratio can be varied in a range from 6.4:1 to 9:1.

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

All values based on simulation and subject to change.

KEY FEATURES
- 430 Nm peak motor torque
- Gear ratios from 6.4:1 to 9:1
- up to 3.800 Nm output torque
- up to 2.000 rpm output speed
- 230 kW peak power
- up to 850 V battery supply
- >95 % peak efficiency
- <68 kg weight
- CAN-Interface for torque & speed control
- Flexible vehicle interfaces



For further information on the product, please contact

sales@deepdrive.tech

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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}	2,700	3,400	3,800	Nm	gear ratios[1)]: 6.4 | 8 | 9
Output torque (S1)	M_{30s}	1,400	1,600	2,000	Nm	gear ratios[1)]: 6.4 | 8 | 9
Output power (30s)	P_{30s}	230			kW	T_{Mag}=60°C, U_{dc}=650 V
Output power (S1)	P_{Cont}	145			kW	T_C=60°C, Q_C=8 l/min, U_{dc}=650 V
Output speed		1,400	1,600	2,000	1/min	gear ratios[1)]: 9 | 8 | 6.4
Motor torque (30s)	M_{30s}	430			Nm	T_{Mag}=60°C
Motor torque (S1)	M_{Cont}	200			Nm	T_C=60°C, Q_C=8 l/min
DC-current (30s)	$I_{DC,30s}$	400			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}	12,800			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	380			mm	max. value, see drawing
Width	y	470			mm	max. value, see drawing
Height	z	270			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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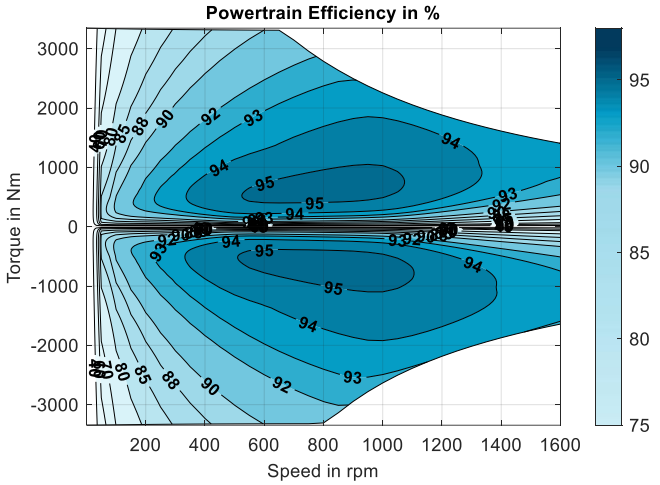
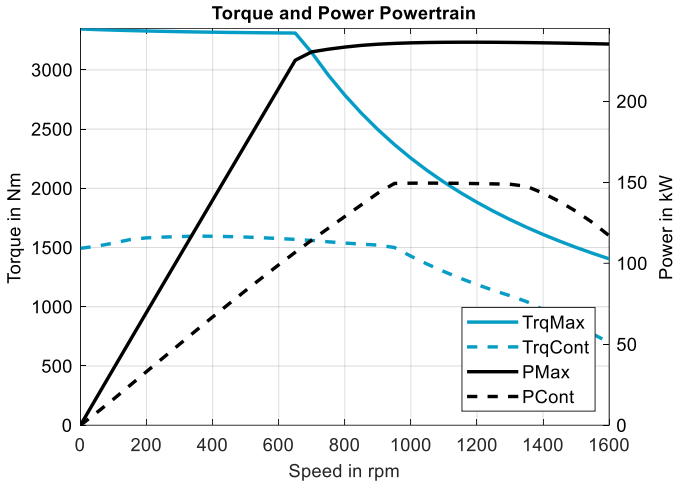
EFFICIENCY MAP AND OPERATING LIMITS





Conditions: T_{Mag}=60°C, T_{Cu}=60°C, T_{C}=60°C, U_{dc}=650 V, Gear ratio=8

DRAWING & CAD ENVELOPE-MODEL

[on request]