

Specsheet CHD-400e

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English

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CHD-400e 220 kW

The CHD-400e, the link between the electric motor, battery pack, and the switchable range extender. This fully electric and emission-free drive provides 0% emissions in electric mode. The hybrid option offers the ability to switch on the range extender as a supplement/backup if needed. The power of conventional with the power of the future in 1 machine.

Features & Benefits

- // 100% electric drive, without compromises in user-friendliness and/or power.
- // 2 operational modes: full electric and hybrid mode.
- // Flexible installation options, thanks to the "Multi-position e-motor mount.
- // Compatible with virtually all combustion engines, such as hydrogen, biogas, diesel.
- // Future-proof due to versatile applicability and conversion possibilities.
- // Ideal for new construction and retrofit.
- // Low-maintenance installation.

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Application possibilities

- // Industrieel non-road
- // Maritime (subject to classification)

Technical specifications

Electric motor	400 kW (225kW nominal (PM))
Range extender	Cat C3.6 EU Stage V 90 kW by default
Modular battery pack	Minimal 267kWh Battery-pack
Installation length	±1455mm depending on range extender
Installation	Due to the construction of the CHDe, the e-motor can be placed on the same side as the internal combustion engine between $\pm 90^\circ$ and $\pm 270^\circ$ with steps of $\pm 30^\circ$ (depending on the location of the CEM). The e-motor can also be placed between 0° and 360° on the power take off side, with steps of $\pm 30^\circ$ degrees. There are two clutch housing lengths available (to increase centre distance)
CHDe flywheel housing Size	SAE 3 flywheel housing
CHDe Flywheel Size	SAE 10 and 11-1/2 inches

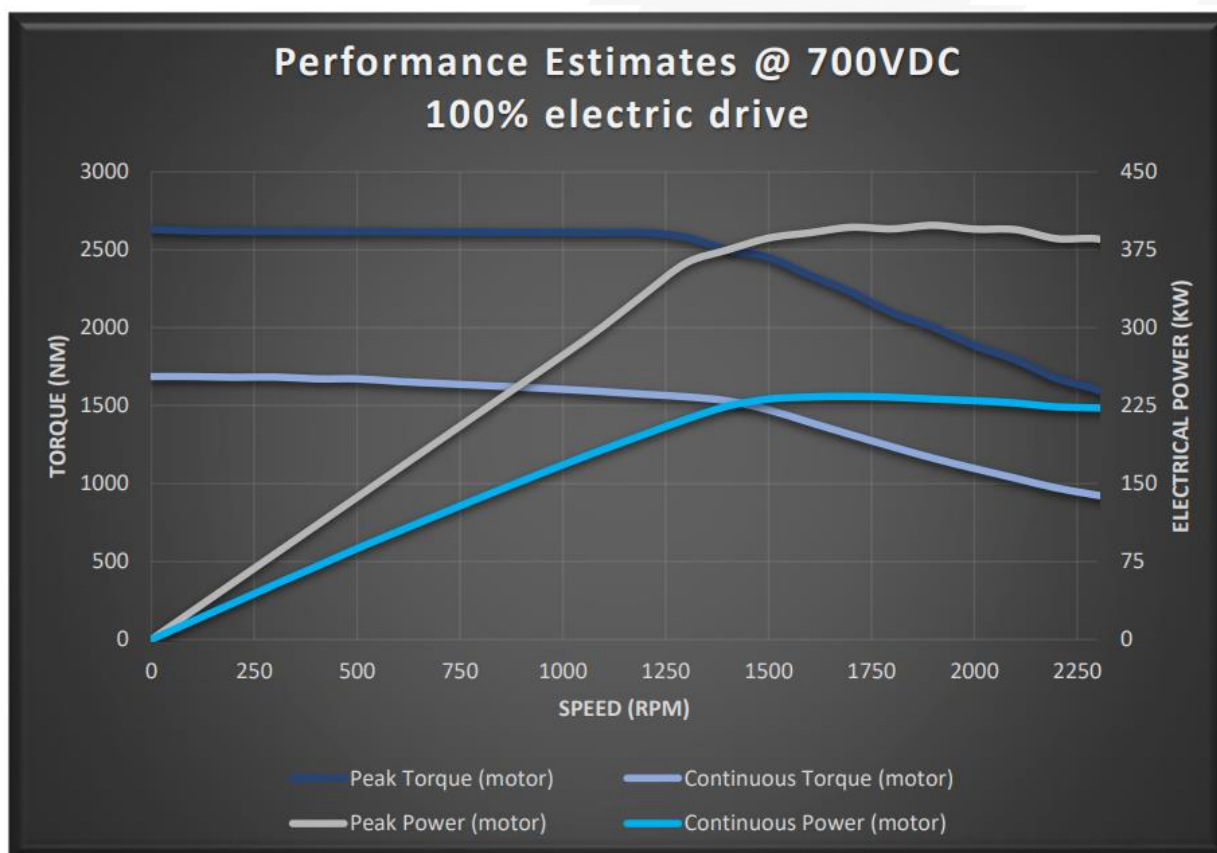


Table 1 performance estimates

The installation above includes (but is not limited to) the following components:

// 12 battery modules (total 267kWh capacity) (separate supplied)

Each battery module consists of:

- +/- 22.3kW/h, 58.4V, Lithium NMC battery
- Cooling water connection
- IP67 BMS CAN bus connection
- IP67 housing
- IP67 vent valve
- Internal fire extinguishing grenade
- IP67 High Voltage Amphenol Connectors

// Active BMS system (separate supplied)

- Stainless steel and aluminum housing
- Reading of, among others:
 - Individual cell temperature monitoring
 - Battery module temperature monitoring
 - Individual cell voltage measurement
 - Current power consumption
 - Current SOC value
 - Current SOH value
 - Current remaining kWh and Ah values
 - Total pack voltage
 - Automatic charger detection and control (CAN bus)

// 1 x 20 kW CAN bus controlled lithium battery chargers IP67 (separate supplied)

- Automatic cell voltage balancing
- Charging current adjustable to the available 400V AC connection (between 16A and 32A)

// 1.6 kW DC/DC (800V-24V) converter (separate supplied)

// 400 kW (220kW nominal) PM electric motor¹

- Weight 190KG
- Oil lubricated and cooled rotor
- Integrated heat exchanger for cooling water

// CAN bus controlled motor controller

- Water-cooled

// CHD400e, clutch housing

- SAE 3 Flywheel housing
- Electric (800NM) coupling for the connected combustion engine
- Internal torsion-vibration damper(s)
- Low maintenance

¹ Voltage, speed and temperature dependent.

- Two-sided Multi position electric motor mounting pad

// Cooling package

- Radiator and aftercooler for the diesel engine
- Radiator for the electric motor and inverter
- High efficient fan with high back pressure capacity
- Electric motor (5.5kW)
- IP66 Inverter for cooling fan e-motor control (Supplied separately)
- Integrated logic for control over CAN bus
- Expansion tank(s) (Delivered separately)

// Cool/heat system batteries (separate supplied)

- Thermal management unit, with 10 kW heating and 8 kW cooling capacity

// Control cabinet with 7" color screen and PLC

- 7" TFT color screen (*optional: vertical mounting possible*)
- Easy to interact with current machine logic (same as a conventional diesel internal combustion engine)
- Reading of, among others:
 - Speed
 - Required power
 - Available power
 - Battery capacity
 - Connected charging cable
 - Remaining run time at current power
 - Temperatures and pressures
 - Force start of charge/discharge cycle with the diesel internal combustion engine.
 - Running hours
 - Service intervals
 - Current SOC, Voltage and Current

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// High Voltage connectors (separate supplied)

- For the batteries
- For the Inverter
- For the chargers

// Cooling water connection couplings for the batteries (separate supplied)

// Commissioning, and installation supervision (2 days)



Optional to deliver

- Combustion engine according to table 2 below
- Electric PTO with SAE B connection pad
- Electric AC Compressor
- Electric Cabin Heater
- Other make/ model/ power of combustion engine
(also with diesel, gas, biogas, hydrogen (H2))
- Modulair expandable batterypack
- Higher load capacity
- Remote monitoring and online support

Possibilities

Due through the wide range of possibilities of the CHD400e, the table below gives an overview of the ways the CHD400e is compatible with several range extender options and an extendable kilowatt power. Adjustable to the desired power and emission.

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CHDe	Electric power	Batterypack	Optional range extender	Optional kW
CHD400e	220 kW	267 kWh or more	H2 (hydrogen)	68
				100
			Diesel Stage V	45
				90/ 100
				150
			Biogas	40
				60
				120
				177

Table 2 CHD400e optional range extenders

Applications possibilities CHDe:

The possibilities for the CHDe are highly diverse. The table below provides an overview of the application possibilities and the flexibility that this installation offers due to its extensive versatility.

Combined Hybrid Drive Electric

Possibilities regarding the CHDe*, depending on machine where the installation is being installed.

* Contact us for the possibilities

	CHD90e	CHD200e	CHD400e	CHD600e
Electric motor	45 kW 90 kW	100 kW 200 kW	200 kW 400 kW	400 kW 600 kW
Minimal power range extender	Minimal 35 kW Maximal 100 kW	Minimal 45 kW Maximal 100 kW	Minimal 45 kW Maximal 150 kW	Minimal 35 kW Maximal 250 kW
Modular batterypack	Minimal of 33 kWh	Minimal of 77 kWh	Minimal 133* limited power available	Minimal of 267kWh
Expandable by:	22,3 kWh	22,3 kWh	22,3 kWh	22,3 kWh
Installation length	Depending on the combustion engine			
Installation	Flexible installation options Due to the construction of the CHDe, the electric motor can be placed on the same side as the combustion engine between $\pm 90^\circ$ and $\pm 270^\circ$ in steps of $\pm 30^\circ$ (*depending on the location of the CEM). Additionally, the electric motor can be placed on the power take-off side between 0° and 360° in steps of 30° .			
CHDe SAE flywheel housing size	3 of 4	3	3 of 2	2 of 1

Table 3 Overview different CHDe options

CHD-400*e*

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