

# Magna EtelligentEco

Magna EtelligentEco is an advanced PHEV solution that makes high-volume SUVs with front-wheel drives more range- and cost-efficient by using software and controls and DHDeco hybrid drive for up to -38 % greenhouse gas reduction in real world daily drive. Best driveability also in purely electric drive mode.



## Complete powertrain solution with BiC Functions



**Front Axle**  
• DHDeco

**Software/Controls**  
• drive controller  
• operation strategy

		X Required for BIC Functionality	Covers all Real World Driving Situations			
			BIC Efficiency	BIC Safety	BIC Dynamics	BIC Convenience
Vehicle Sub Functions	Longitudinal	Launch - Accelerate	X	X	X	X
		Steady State - Sailing	X			X
		Brake - Regenerate	X			
Lateral	Traction		X			
	Stability		X	X	X	
Option	Handling		X			
	Park-Lock		X		X	
ADAS / Cloud	On-Board Connectivity	X	X	X	X	
	Off-Board Connectivity	X	X	X	X	

Powertrain S/W Controls

# Magna EtelligentEco

**Enables -38 % CO2 emission for vehicles in real world driving situations.**

It makes high-volume PHEVs with front-wheel drive more range- and cost-efficient by using an advanced operating strategy.

This technology demonstrator is fully scalable with a gasoline engine and a dedicated hybrid drive (DHD) at the front axle. The DHDeco, the integrated eMachine, inverter and hybrid manager are developments of Magna.



## Features and Specifications

### Front Axle Drive

- 4 gears with eLaunch, eReverse and two gears in electric driving
- Nominal ICE torque: 230 Nm, eBoost up to 300 Nm
- Engine: 100 kW / 1.5 l gasoline
- Electric Machine: 120 kW at 350 V, 200 Nm peak

### Prototype HV Battery

- Discharge Power: max. 135 kW
- Energy Content: 21 kWh

## Competitive advantage/differentiators

- Intelligent operating strategy for real world drive optimization
- Best-in-class efficiency leading to extended range and reduced operating costs
- Best-in-class torque-to-weight ratio
- Integrated system with compact design and no increase in packaging length

## Applications/benefits

- Adjustable drivability by software and clutch modulation, and customizable driving modes
- Charge at standstill and creep
- Scalability allows for customized applications



# Dedicated Hybrid Drive DHDeco

The DHDeco is part of the 230 family, and uses a smart modular scalability approach for Low Torque HV applications. The DHDeco is reduced to four gears (acting as a dedicated hybrid drive) with eLaunch, eReverse and two gears in electric driving.



## Features and Specifications

- Nominal torque: 230 Nm
- Boost torque: up to 300 Nm (E-boost)
- eMotor: 120 kW at 350 V;  
200 Nm peak
- Installation length: 350 mm
- Weight (including oil): 98 kg w/ oil, w/o DMF,  
w/ inverter
- Center distance: 183 mm
- Ratio ensures all-electric drivability up to 135 kph

## Competitive advantage/differentiators

- Best-in-class efficiency leading to extended range and reduced operating costs
- Best-in-class torque-to-weight ratio
- Integrated system with compact design and no increase in packaging length
- Adjustable drivability by software and clutch modulation, and customizable driving modes
- Charge at standstill and creep

## Applications/benefits

- PSM eMachine integrated in transmission housing, cooled by common oil circuit for wet dual clutch and gear set
- Water cooled, transmission mounted inverter
- ICE restart can be operated by transmission at all vehicle speeds

SOP

Ideation

Discovery

Concept

Development

Serial Preparation

in Production