

AKKA

PASSION FOR
TECHNOLOGIES

INTEGRATED HYBRID MODUL

HYBRID MODUL CONCEPT FOR COMMERCIAL VEHICLE APPLICATION

As one of the leading engineering companies in the automotive sector the AKKA Group offers customized solutions for hybrid and e-drive systems.

The combination of comprehensive technical expertise (e.g. operating mode simulation, hybrid specific vehicle application and -validation) and various testing-equipment (component test benches and powertrain test benches) allows us to create conceptual solutions and development of e-drive powertrains.

We proved our competence in various projects for passenger vehicles. Now we also offer innovative e-drive solutions for commercial vehicles.

SYSTEM DESCRIPTION

- Drive configuration: Parallel hybrid with integrated starter-generator
- Clutch: intergrated between internal combustion engine and electric motor to uncouple the engine completely designed as multi-disc wet clutch
- Hybrid modul: Integrated in timing case cover
- Actuation: Hydraulic
- Space requirement (axial): Only 45 mm (vs. non-hybrid variant), due to integration in timing case

OUR ADDED VALUE

- Extensive expertise in design and development of powertrain
- Expertise of hybrid development in numerous hybrid and e-drive projects
- Access to AKKA Group project house „E-Mobility“
- In-house-development of the complete powertrain (turnkey-project)



Automotive



Aerospace



Railway



Energy



Life Sciences



Telecoms



Space



Services and
Informations Systems



Defence



Oil and Gas



Consulting



OPERATING MODES

- Start /stop function
- Electric driveaway / electric driving
- Boost function
- Regenerative braking
- Load point shifting
- Crawling (specific for commercial vehicles)

ADVANTAGES

- Reduction of fuel consumption and emissions
- Faster and easier engine starting by direct start or inertial pulse start
- Elimination of the belt drive by full electrification of engine components
 - Load-based operation
 - Lower motor length

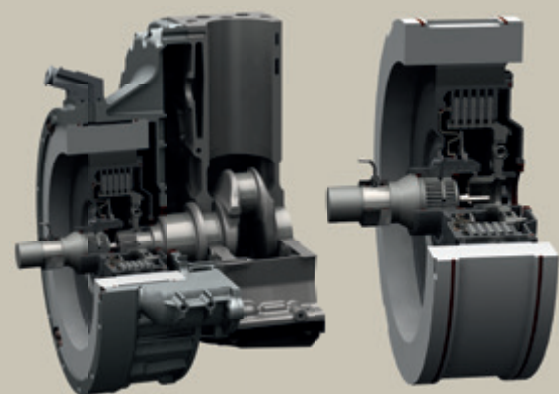
FEATURES

SPECIFICATION OF THE ELECTRIC MOTOR

- Design: watercooled permanent magnet synchronous
- Dimensions: Ø 452 mm x 152 mm
- Power $P_{\text{short/perm}}$: 105 kW / 75 kW
- Torque $M_{\text{short/perm}}$: 795 Nm / 375 Nm

SPECIFICATION OF INTERNAL COMBUSTION ENGINE

- Monovalent CNG engine
- Design: Inline-4-cylinder
- Capacity: 5990 ccm
- Power: $P_{\text{max}} = 220 \text{ kW} @ n = 1800 \text{ rpm}$
- Torque: $M_{\text{d,max}} = 1200 \text{ Nm} @ n = 1200 \text{ rpm}$



Hybrid module with combustion engine

Hybrid module without combustion engine

