

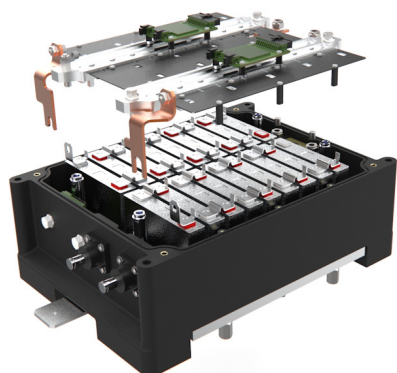
MAHLE Powertrain Design Capabilities



Detailed knowledge of all powertrain systems

Full integration with customer systems

Highly experienced design team



48V High Power
Battery Pack

Powertrain concepts for the future

Creating new powertrains for future vehicles is an ever more challenging task. Whether mild or full hybrid, 2WD or 4WD, conventional ICE, battery electric or fuel cell, designers are faced with a huge choice of possible drivetrain configurations. The engineering details of engines, transmissions, eMotors, battery packs, inverters, cooling systems, fuel systems, intake and exhaust systems all have to be considered at the earliest possible stage in the vehicle development cycle. Critical decisions must be made regarding the interactions between these systems based on an in-depth understanding of numerous factors including packaging constraints, crash behaviour, material properties, durability, serviceability, recyclability, weight and cost. The implications for achieving compliance with the latest vehicle emissions legislation (such as RDE), as well as optimised fuel economy, add even greater degrees of complexity to the powertrain designer's challenge.

MAHLE Powertrain's design team has a wealth of knowledge and experience in all of these areas, reinforced by direct access to MAHLE Group component know-how. We manage the complete product development cycle from initial concept generation to the fully approved production design. Following well established quality driven processes, our software and data transfer tools integrate seamlessly with those of our customers to ensure the cost-effective optimisation of whole powertrain systems.

Contact us:

powertrain@mahle.com

MAHLE Powertrain Ltd.

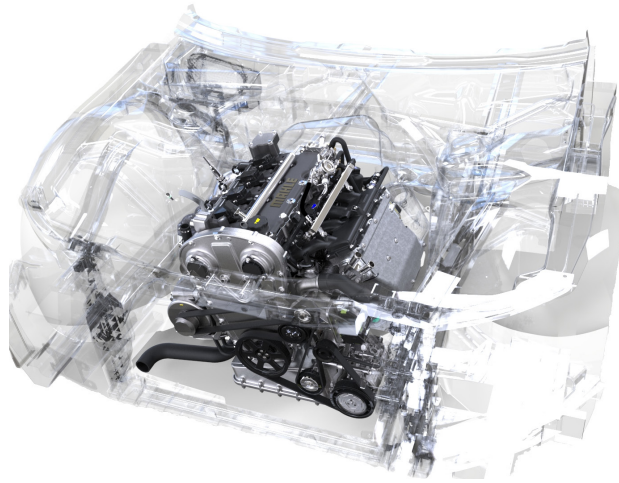
Costin House, St. James Mill Road
Northampton, NN5 5TZ United Kingdom
Tel. +44 (0)1604 738 000

MAHLE Powertrain LLC.

14900 Galleon Court
Plymouth, MI 48170 USA
Tel. +1 734 738-52 01

www.mahle-powertrain.com

MAHLE Powertrain Design Capabilities



Design Capabilities - Concept to Production

ICE Engines

Transmissions

eMotors

Battery Packs

Inverter Integration

Cooling Systems

Fuel Systems

Intake / Exhaust Systems

Vehicle and System Integration

Topological Optimisation

Software, Tools and Services

Data Exchange: Fusion DX, Odette, FTP, Open DXM

PLM Systems: PTC Windchill, TeamCentre Interface

CAD Systems: PTC Creo, Catia V5/V6, Siemens UG NX

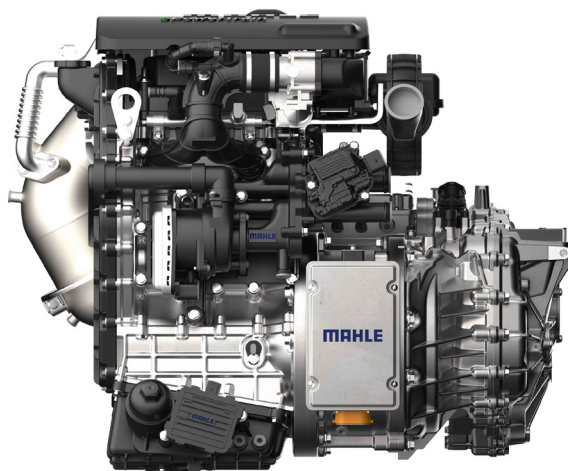
3D Scanning and Printing: Geomagic Wrap, Geomagic X

3D Tolerance Analysis: 3DCS

Visualisation and Clash Detection: Key Shot Rendering, Catia 4D Navigator, Creoview, Vis Mockup, 3D Caliper (Wall Thickness Analysis)

BOM Management: Windchill, SAP

>> MAHLE Modular Hybrid Powertrain



Contact us:

powertrain@mahle.com

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MAHLE Powertrain GmbH

Einsteinring 5
85609 Aschheim, Germany
Tel. +49 89 962915-0

MAHLE Powertrain Ltd.

13.210-877
Jundiaí / São Paulo, Brazil
Tel. +55 11 4589-0400

MAHLE Automotive Technologies (China) Co., Ltd.

No. 1299 Huan Cheng Bei Road, Fengpu Industrial Park
201 401 Shanghai, Fengxian District, China
Tel. +86 21 5136-0595