




BAUMÜLLER

E-Drive System and Hybrid Drive System for Farm and Wheel Loaders

Environmentally friendly and powerful

be in motion

E-drive system for farm and wheel loaders



The Baumüller e-drive system

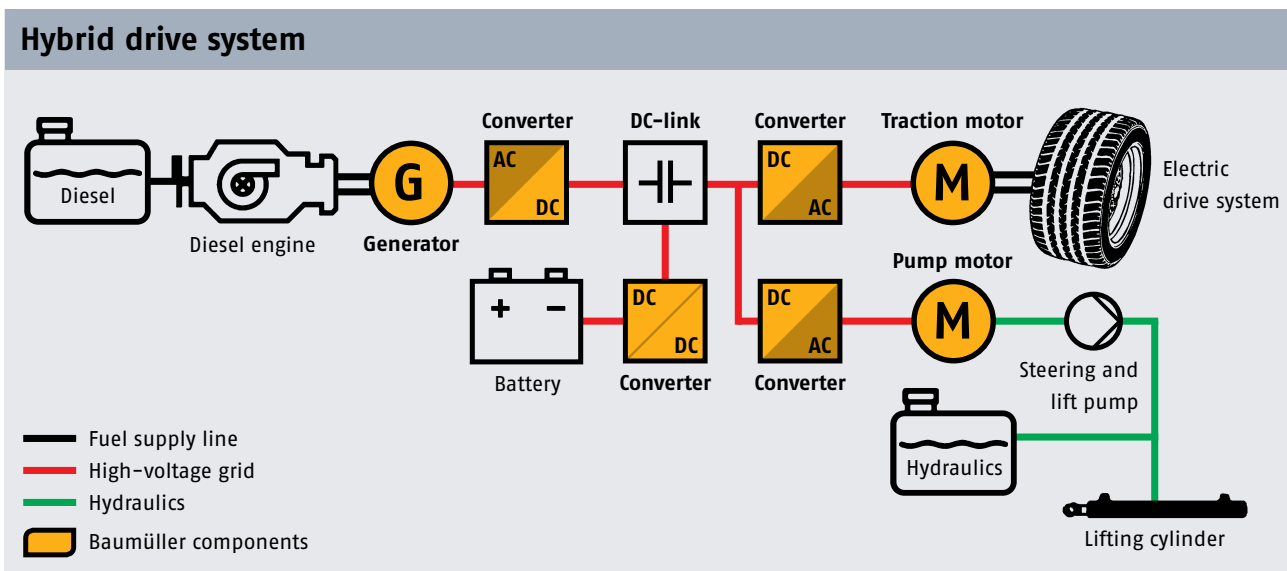
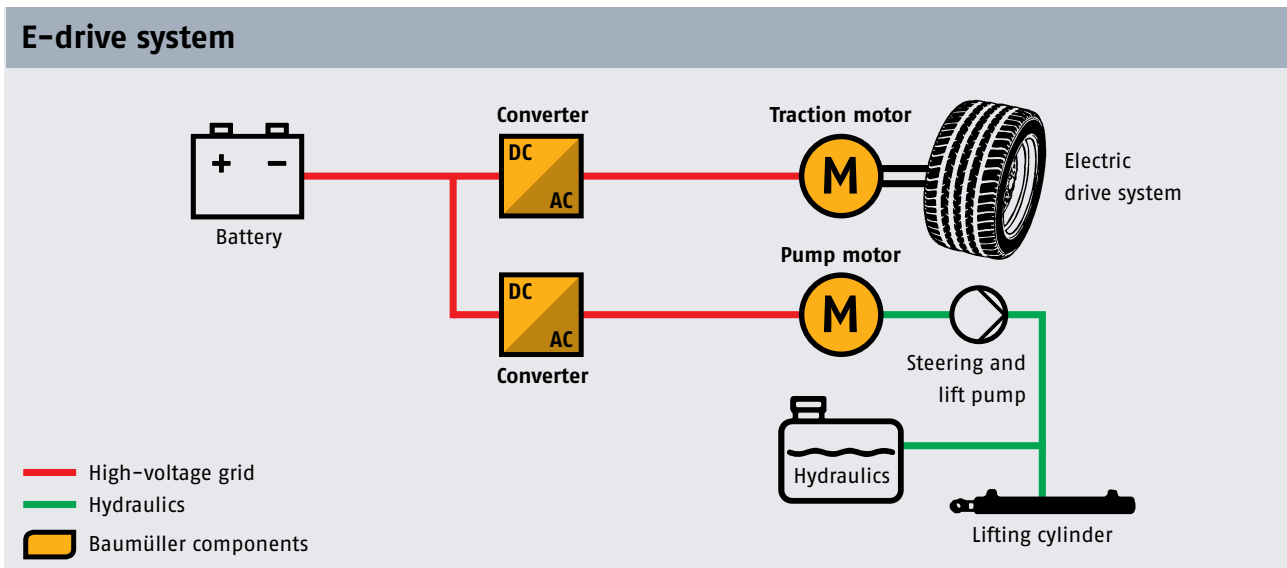
- Completely practical
- Cost-efficient in the long term
- Optimized driving behavior

Environmentally friendly and powerful

Electric farm and wheel loaders are a real alternative to diesel-powered vehicles. With their dynamic and powerful driving behavior, electric vehicles master the usual tasks with flying colors and they do this with operating durations of up to five hours, flexible charging options and minimum noise pollution.

In addition to the electric drive system, Baumüller also offers the option of integrating the diagnostic and remote maintenance tool BAUDIS IoT. In this way, necessary service measures can be predicted and operating times and loads can be optimally monitored and evaluated.

Proven technology for modern e-drive systems



Advantages of our drive solutions

E-drive system

- Lower operating costs
- Also usable indoors
- Lower maintenance costs
- Lower emissions

Hybrid drive system

- Longer operation duration by using the range extender
- Operation without existing e-charging infrastructure
- Electric operation possible
- Quick refueling

The flexible e-drive system as a modular solution



Battery

- Lithium ion battery
- Expandable modular concept
- Quick charging without a memory effect is always possible
- Nominal voltage: 260..400V



Control system

- Software programming with CoDeSys
- CAN 2.0 B interface
- Sturdy design



Converter

- Mobile 4-quadrant converter
- Water or oil-cooled
- Nominal current: 50..450 A
- Nominal voltage: 24..700V



Traction motor

- Electric motor with high performance
- Water or oil-cooled
- Externally toothed shaft

Pump motor

- Servo motor for high dynamics
- Water or oil-cooled
- Internally toothed shaft
- Pump support



DC/DC converter

- Voltage supply for vehicle electronics
- Air-cooled
- Nominal voltage: 12..14V



System engineering and commissioning of prototypes

Implementation of your individual e-drive concept, from concept to serial production:

Engineering, system programming, user interface, installation, commissioning, test run and series production

Advantages of the e-drive system from Baumüller

Efficiency

- 1. Concept:** One electric motor for the traction and for the hydraulics
- 2. Operating costs:** The electric vehicle has lower operating costs than the diesel vehicle
- 3. Availability:** Longer maintenance intervals of the drive system and the mechanical brake of the electric vehicle

Usage behavior

- 1. Driving behavior:** Better driving dynamics, more precise maneuvering and optimal metering of hydraulics due to two separate electric drive systems
- 2. Quick charging:** Interim charging during breaks of 30 minutes up to 80% of the total charge – completely practical and possible at all times
- 3. Eco function:** Extended run time due to pre-programmed driving profiles and limited dynamics

Possible applications

- 1. Freedom from emissions:** Use also possible in emission-sensitive urban areas as well as indoors, in tunnels, underground, etc.
- 2. Field of application:** Up to 20 km/h without or up to 40 km/h with street approval
- 3. Charging options:** On-board charging system with Schuko® isolated ground receptacle or with an external quick charger

Drive

- 1. Modularity:** Modular system for small and large farm/wheel loaders, connection of different battery sizes, combination with a speed-variable range extender possible
- 2. Degree of efficiency:** High degree of efficiency of the electric drive with efficient electric motors, recuperation of brake energy and energy management system
- 3. Installation space:** Flexible integration thanks to the high power density of the electric drive system

Diagnostics and remote maintenance of e-drive systems

BAUDIS IoT – Increased efficiency for e-drive systems

Optimization

- Fleet benchmarks
- Efficiency analysis and predictable maintenance
- Drive and charge cycle optimization

Intelligent data and visualization

- BAUDIS IoT software analyzes the data
- Visualization for different devices
- The scope of information and user levels can be adjusted individually

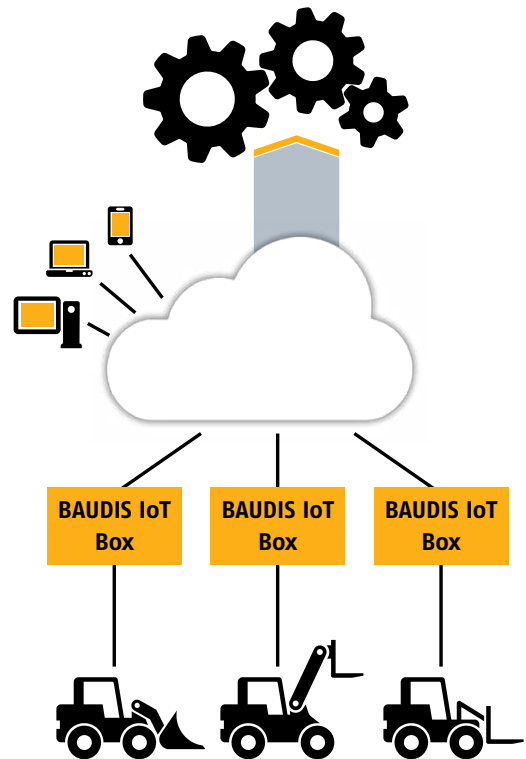
Data recording and transmission

- BAUDIS IoT box collects the data from different sources
- Data transmission via W-LAN, LAN, LTE to data storage unit (for example: Cloud, local server)

Data source (motors, sensors, control unit)

Monitored parameters:

- | | |
|-----------------------|----------------|
| • RPM | • Air humidity |
| • Motor temperature | • Load changes |
| • Runtime | • Impact loads |
| • Ambient temperature | • Power peaks |



Life cycle management - E-drive systems from a single source

Consultation

Development of a concept for the electrification of farm and wheel loaders with innovative e-drive systems

Engineering

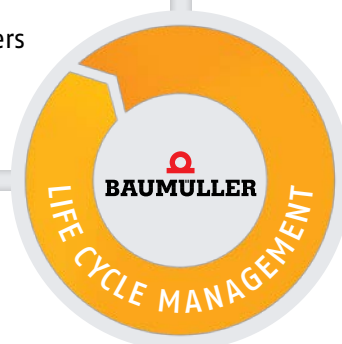
Implementation of an e-drive system – from battery management to the control system to the user-friendly user interface

Service

Maintenance and repair of electric motors, drive and control electronics as well as machine testing and spare parts supply

Hardware / Software

Development, production and sale of flexible e-drive systems as well as customer-specific applications for farm and wheel loaders





Should you have further questions regarding the subject farm and wheel loaders from the Baumüller Group please contact us by sending an email to:

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