Goldhofer

E-MOBILITY AT GOLDHOFER
THE FUTURE OF GROUND HANDLING

AIRPORT TECHNOLOGY

MADE FOR YOUR MISSION

GOLDHOFER
GET ELECTRIFIED!

What began with a blacksmith's shop in 1705 is now a globally operating company with extensive experience and innovative power. Our robust and intelligent transport solutions make your day-to-day work much easier, and with our »IonMaster« technology, we have taken e-mobility in the commercial vehicles sector to a whole new level.

THE FUTURE
IS ELECTRIC

We at Goldhofer are convinced that true sustainability is only possible if our products are technologically sophisticated and are reliable in every respect.

With our groundbreaking »IonMaster« technology, we are able to offer durable, economical vehicles with incredibly high operational readiness and outstanding performance.

We use power trains that have proven themselves in the commercial vehicle industry for our all-electric tractors. With minimal maintenance requirements, the vehicles promise maximum operating comfort and the shortest possible charging times.

Handling is safe and straightforward thanks to the lithium-ion battery.

FACTS
ON E-MOBILITY

1. HIGH-VOLTAGE TECHNOLOGY

+ Goldhofer's e-fleet is equipped with innovative 400 V or 700 V lithium-ion battery technology proven in the commercial vehicle sector
+ High power density ensures especially long range and outstanding performance

2. STATE-OF-THE-ART TECHNOLOGY

+ Using the latest lithium-ion battery technology, Goldhofer promises maximum capacity and efficient energy use
+ Fast intermediate charging enables reliable multi-shift operation

3. SERVICE LIFE

+ Continuous further development means that our e-vehicles could even compete with the service life of diesel vehicles today
+ Second-life applications for battery systems possible in future, e.g. as stationary storage systems

4. RESOURCE CONSERVATION

+ Vehicles with »IonMaster« technology can be configured exactly for any range of applications
+ This is achieved with resource-saving and individually tailored battery packages

5. EFFICIENCY

+ Maximum availability: due to fast loading and extremely short loading times
+ Vehicles with Goldhofer »IonMaster« technology are enormously economical due to their long maintenance cycles with low maintenance outlay

6. ACTIVE TEMPERATURE MANAGEMENT SYSTEM

+ Always keeps batteries in an optimal temperature range
+ Battery heating or cooling during the charging process
+ Cabin heating or cooling during the charging process

»IONMASTER« TECHNOLOGY
EFFICIENT E-MOBILITY

WHAT IS »IONMASTER« TECHNOLOGY?

Goldhofer »IonMaster« Technology takes e-mobility to a new level. The Goldhofer fleet uses technology that has proven itself in the tough use of commercial vehicles on-road and integrates it into an intelligent overall concept.
The modern lithium-ion batteries offer maximum power density and thus optimum runtimes.
With active thermal management and a well thought-out power supply for the active components, the operational and service life of the vehicles is at the highest level. Thanks to recuperation, not only energy consumption is reduced to a minimum, but also brake wear. With fast intermediate charging and the option to charge at any socket without any special infrastructure, multi-shift operation is ensured.

THE LITHIUM-ION BATTERY

+ 400 or 700 V lithium-ion batteries proven in the commercial vehicle industry enable maximum power and endurance
+ Lithium-ion batteries guarantee higher power and power density than lead acid batteries
+ Modularly expandable battery system, configurable for individual deployment requirements
+ Maximum performance with long battery life
+ Multi-shift operation through intermediate charging
+ Fast DC charging and intermediate charging with up to 150 kW

VEHICLE-SPECIFIC BENEFITS

+ Electric power train and battery are maintenance-free
+ Integrated battery management system ensures maximum battery availability and service life
+ Intelligent thermal management system
+ In use worldwide under all environmental conditions, from -30 °C to +52 °C [1]
+ Consistent performance through cooling of the high-voltage components with an environmentally friendly water-glycol mixture

[1] Standard version from -20°C to +42°C, other temperature range with Arctic- and Tropical-Kit

»IONMASTER« TECHNOLOGY
CHARGING INFRASTRUCTURE

THE CHARGING INFRASTRUCTURE

The available charging infrastructure is crucial when it comes to the efficient use of e-vehicles of all kinds. In addition to country-specific sockets, a DC charging station is the most important piece of equipment for a »BISON« E, »SHERPA« E, or »PHOENIX« E. Rapid charging is possible from 70 to 150 kW, depending on the vehicle family and the local infrastructure.

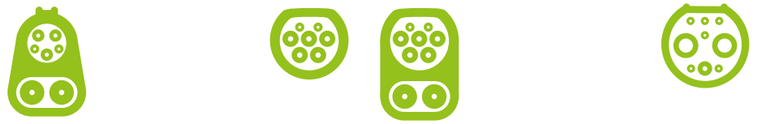
1. CHARGING PLUGS

With Goldhofer »IonMaster« technology, you have the choice between these standard connectors:

CCS TYP 1 | USA
DC

CCS TYP 2 | EU
AC AC/DC

GB/T | CHINA
DC



2. AC/DC CHARGING STATION

+ Standard solution for electrically driven vehicles
+ Enables extremely powerful charging within the shortest possible time

3. AC ON-BOARD CHARGER

+ No separate charging infrastructure necessary
+ Charging at up to 22 kW for all vehicles

SERVICES
FOR E-MOBILITY

To configure the right e-vehicle for your requirements, our experts are on hand to offer advice and support.

We likewise offer support in terms of training and repairs. Even though e-vehicle fleets require minimal maintenance, we offer various services to help you run your fleet as efficiently as possible.

- **User training**
- **Workshop training – upon customer requirements**
- **Stocking, wear/spare parts planning**
- **Goldhofer »LINK« telemetry and maintenance modules**

ALL ABOUT OUR **SERVICES**

CONSULTATION

For optimal overall performance and efficiency, our vehicles can be individually configured – this involves asking four key questions:

1. WHAT IS THE REQUIREMENTS PROFILE FOR THE VEHICLE?

The first step is determining which routes and performance your new e-vehicle will need to handle. If there are major inclines or long alternative routes, this must be taken into account in the configuration.

2. WHAT ABOUT THE EXISTING CHARGING INFRASTRUCTURE?

The most economical and sustainable operation of the e-vehicles is made possible by 400 or 700 V lithium-ion batteries. Rapid charging and opportunity charging enable efficient use of the e-fleet. Using the existing charging infrastructure, as well as our charging options, we work with you to develop the individually ideal charging infrastructure.

3. HOW MANY E-VEHICLES ARE NEEDED?

The first two questions will automatically determine the size of the fleet needed. Through individual configuration and more efficient use, fewer vehicles are needed for the same application profile.

4. HOW IS THE ELECTRIC FLEET MANAGED?

Once the e-vehicles are in use, they are expected to perform their tasks economically. Goldhofer can also provide support here with training and advice, as e-vehicles cannot be used in the same way as diesel vehicles. This means that driving and loading habits will have to be relearned.

INDIVIDUAL VALUE
THE »SHERPA« E

ADJUSTABLE BATTERY CAPACITY

CABIN OPTIONS FOR FLEXIBLE CONFIGURATION

GOLDHOFER »IONMASTER« TECHNOLOGY

ALL ABOUT THE **»SHERPA« FAMILY**

CHARGING AND INFRASTRUCTURE

+ All standard charging plugs available: CCS Typ 1, CCS Typ 2 and GB/T
+ Infrastructure consulting on charging points
+ Rapid DC charging and intermediate charging at up to 70 kW
+ Optional AC charging at up to 22 kW

VEHICLE-SPECIFIC ADVANTAGES

+ Three cabin designs: Cabless, open cab, closed cab
+ Small turning radius of 4.12 m
+ Can be used in all climate conditions in temperatures ranging between -30°C and +52°C [1]
+ 360° view for the driver
+ High-voltage components cooled by environmentally sustainable water glycol mixture: Consistent performance, even under extreme environmental conditions
+ Goldhofer »LINK« telemetry and maintenance system
+ »IonMaster« Technology

»SHERPA« E6
Max towed load ≤ 60 t[2]
1x 40 kWh battery
35 kN Drawbar pull

»SHERPA« E8
Max towed load ≤ 80 t[2]
2x40 kWh batteries
45 kN Drawbar pull

[1] Standard version from -20°C to +42°C, other temperature range with Arctic- and Tropical-Kit
[2] Suitable for pushback

INDIVIDUAL VALUE
THE »BISON« E

MODULAR EXPANDABLE BATTERY SYSTEM

CABIN OPTIONS FOR FLEXIBLE CONFIGURATION

GOLDHOFER »IONMASTER« TECHNOLOGY

ALL ABOUT THE **»BISON« FAMILY**

CHARGING AND INFRASTRUCTURE

+ All standard charging plugs available:
  CCS Typ 1, CCS Typ 2 and GB/T
+ Infrastructure consulting on charging points
+ Intermediate charging enables multi-shift operation
+ Rapid DC charging and intermediate charging at up to 70 kW
+ Optional AC charging at up to 22 kW

FAHRZEUGSPEZIFISCHE VORTEILE

+ Three cabin designs:
  Cabless, open cab, closed cab
+ Can be used in all climate conditions in temperatures ranging between -30°C and +52°C [1]
+ 360° view for the driver
+ High-voltage components cooled by environmentally sustainable water glycol mixture:
  Consistent performance, even under extreme environmental conditions
+ Goldhofer »LINK« telemetry and maintenance system
+ »IonMaster« Technology

»BISON« E 370
75 kW | 105 kN | MTOW ≤ 125 t
80 kWh | 120 kWh | 160 kWh

[1] Standard version from -20°C to +42°C, other temperature range with Arctic- and Tropical-Kit

INDIVIDUAL VALUE
»PHOENIX« AST-2E

MODULAR EXPANDABLE BATTERY SYSTEM

AIRCRAFT RANGE UP TO 352 t MTOW

GOLDHOFER »IONMASTER« TECHNOLOGY

ALL ABOUT THE **»PHOENIX« FAMILY**

CHARGING AND INFRASTRUCTURE

+ All standard charging plugs available: CCS Typ 1, CCS Typ 2 and GB/T
+ Infrastructure consulting on charging points
+ Rapid DC charging and intermediate charging up to 150 kW
+ Optional AC charging at up to 22 kW

VEHICLE-SPECIFIC ADVANTAGES

+ Retrofittable E-GPU
+ Almost maintenance free high-voltage components cooled by environmentally sustainable water glycol mixture: Consistent performance, even under extreme environmental conditions
+ In use on every continent and in all environmental conditions, from -30°C to +52°C[1]
+ Goldhofer » LINK« telemetry and maintenance system
+ 700 V lithium-ion batteries, tried and tested from the commercial vehicle industry for certified, maximum safety, top performance and service life
+ Second-life applications for battery systems possible in future, e.g. as stationary storage systems
+ Goldhofer »LINK« telemetry and maintenance system
+ »IonMaster« Technology

»PHOENIX« AST-2E
80 kWh | 160 kWh | 240 kWh
32 km/h | MTOW ≤ 352 t

[1] Standard version from -20°C to +42°C, other temperature range with Arctic- and Tropical-Kit

Goldhofer

E-MOBILITY AT GOLDHOFER
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