

Goldhofer



**»PHOENIX« FAMILY
YOUR TRACTORS
FOR THE FUTURE**

TOWBARLESS TOW TRACTORS



MADE FOR YOUR MISSION

»PHOENIX« FAMILY TOWBARLESS TOW TRACTORS FOR THE FUTURE



The »PHOENIX« E turns the best-selling towbarless aircraft tractor into a future-oriented, zero-emission apron vehicle.

With it, the »PHOENIX« family now comprises a wide range of enormously powerful vehicles that can be individually configured.

Regardless of their power train, they are capable of handling all common passenger and cargo aircraft on the market, from the ERJ170 to the B777.



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MODULAR PLATFORM

6



MAXIMUM PERFORMANCE

8



INDIVIDUAL VALUE



MODULAR PLATFORM OVERVIEW

»PHOENIX« E and »PHOENIX« D are powerful, flexible partners on the apron that can be adapted to individual requirements:

As a battery-electric alternative, the »PHOENIX« E is zero-emission and sustainable, while still delivering the same high performance as the diesel tractor.

- + **Uniform design and handling:**
One vehicle, independent of the power train
- + **Geared to your needs:**
Whether with a diesel engine, hybrid solution, or modular battery system
- + **Same performance – same range of aircraft:**
Long-distance towing and pushback with up to 352 t MTOW





AST-2P/X DIESEL ENGINE



AST-2E E ENGINE

RETROFITTABLE GPU



352t AST-2P | 25 km/h | 231 kW

»PHOENIX« D

»PHOENIX« E

AST-2E | 66 kWh | 32 km/h

352 t



352t AST-2X | 32 km/h | 291 kW

AST-2E | 99 kWh | 32 km/h

352 t



AST-2E | 132 kWh | 32 km/h

352 t



AST-2E | 165 kWh | 32 km/h

352 t



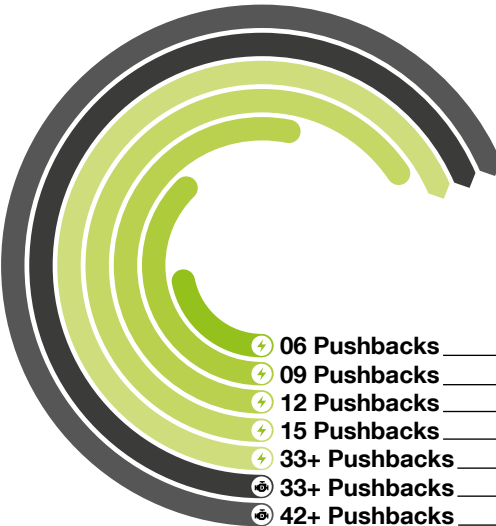
AST-2E with range extender
66 kWh + range extender | 32 km/h

352 t





MAXIMUM PERFORMANCE COUNT ON »PHOENIX«



Framework conditions*
No charging in between
Level roadway
20°C outdoor temperature

⚡ 06 Pushbacks	66 kWh
⚡ 09 Pushbacks	99 kWh
⚡ 12 Pushbacks	132 kWh
⚡ 15 Pushbacks	165 kWh
⚡ 33+ Pushbacks	Range Extender + 66 kWh
⊕ 33+ Pushbacks	231 kW
⊕ 42+ Pushbacks	291 kW



ERGONOMICS

- + All »PHOENIX« models offer uniform operation
- + Extremely quiet operation
- + Spring-suspended cabin with ergonomic operation and outstanding view
- + Excellent driver's cabin air conditioning

SAFETY

- + Maximum driving stability through powered steering axle
- + Energy-saving and environmentally friendly recuperation for smooth braking which is gentle on components
- + Three-circuit service brake system:
Two circuits on the front axle and one on the rear axle, additional two-circuit parking brake for maximum safety
- + Fast, reliable single-lever emergency dumping system

RELIABILITY

- + Robust, long-lasting components made by quality manufacturers
- + Tried-and-tested, maintenance-free mounting device with no ground contact





INDIVIDUAL VALUE

»PHOENIX« AST-2P/X



DIFFERENT
DIESEL ENGINES



AIRCRAFT RANGE
UP TO 352t MTOW



COMMON PARTS
CATALOGUE FOR THE
»PHOENIX« FAMILY



DIAGNOSTICS AND MAINTENANCE

- + Information and error messages as plain text in the multifunction display
- + Minimal maintenance costs thanks to high-quality, low-maintenance components
- + Maintenance-free mounting device for nose wheels
- + Sophisticated maintenance access
- + Goldhofer »LINK« telemetry and maintenance modules



CONCEPT FOR SUCCESS

- + In use on every continent and in all environmental conditions, from -20°C to +50°C
- + 250 vehicles in use worldwide
- + High-speed maintenance towing up to 32 km/h
- + Mixed operation: All conventional passenger and cargo aircraft, from the ERJ170 to the B777, whether pushback or long-distance tow



VEHICLE-SPECIFIC ADVANTAGES

- + Various engine power classes
- + Optional GPU
- + Hydrostatically driven steering axle with limited slip differential:
No shift shocks, hydrostatic deceleration



»PHOENIX« AST-2P

231 kW | 25 km/h | MTOW ≤ 352 t
EU STAGE IIIA | EU STAGE IV | EU STAGE V

»PHOENIX« AST-2X

291 kW | 32 km/h | MTOW ≤ 352 t
EU STAGE IIIA | EU STAGE IV | EU STAGE V



INDIVIDUAL VALUE

»PHOENIX« AST-2E



MODULAR
EXPANDABLE
BATTERY SYSTEM



AIRCRAFT RANGE
UP TO 352t MTOW



GOLDHOFER
»IONMASTER«
TECHNOLOGY



»IONMASTER« TECHNOLOGY

- + Active thermal management for cabins and all high-voltage components:
Heating and cooling for optimal temperature conditions, even during charging, for long battery life
- + Modularly expandable battery system, configurable for individual deployment requirements
- + 700V 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, e.g. as stationary storage systems



CHARGING AND INFRASTRUCTURE

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



VEHICLE-SPECIFIC ADVANTAGES

- + Retrofittable E-GPU
- + High-voltage components cooled by environmentally sustainable water glycol mixture:
Consistent performance, even under extreme environmental conditions
- + Goldhofer »LINK« telemetry and maintenance modules



»PHOENIX« AST-2E

66 kWh | 99 kWh | 132 kWh | 165 kWh
32 km/h | MTOW ≤ 352 t

»PHOENIX« AST-2E WITH RANGE EXTENDER

66 kWh + range extender
32 km/h | MTOW ≤ 352 t



»PHOENIX« FAMILY CONTACT US!

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TECHNICAL DATA SHEETS



»PHOENIX« AST2-P/X



»PHOENIX« AST2-E