



**Goldhofer**

# »PHOENIX« FAMILY YOUR TRACTORS FOR THE FUTURE

TOWBARLESS TOW TRACTORS



**MADE FOR YOUR MISSION**



# »PHOENIX« FAMILY TOWBARLESS TOW TRACTORS FOR THE FUTURE



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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**

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**MAXIMUM PERFORMANCE**

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**INDIVIDUAL VALUE**





# MODULAR PLATFORM OVERVIEW

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»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 776,000 lbs MTOW





AST-2P/X DIESEL ENGINE

AST-2E E ENGINE

RETROFITTABLE GPU



776,000lbs AST-2P | 16 mph | 310hp

»PHOENIX« D

»PHOENIX« E

AST-2E | 66 kWh | 20mph 776,000lbs



776,000lbs AST-2X | 20 mph | 390hp

AST-2E | 99 kWh | 20mph 776,000lbs



AST-2E | 132 kWh | 20mph 776,000lbs



AST-2E | 165 kWh | 20mph 776,000lbs

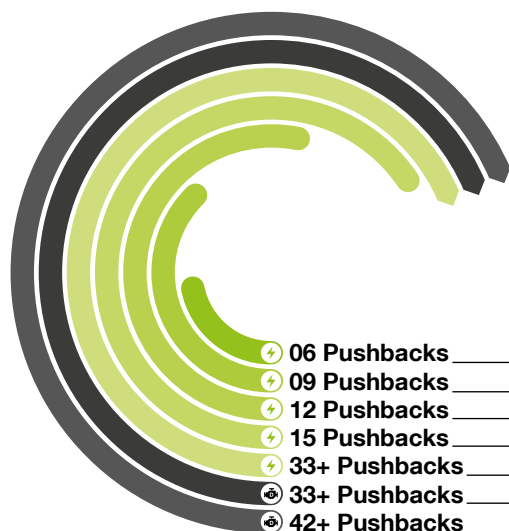


AST-2E with range extender  
66 kWh + range extender | 20mph 776,000lbs





# MAXIMUM PERFORMANCE COUNT ON »PHOENIX«



## Framework conditions\*

No charging in between  
Level roadway  
20°C outdoor temperature





## ERGONOMICS

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- + 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

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- + 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

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- + 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  
776,000 lbs 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 20 mph
- + 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

310 hp | 16 mph | MTOW ≤ 776,000 lbs  
US TIER 3 | US TIER 4f

### »PHOENIX« AST-2X

390 hp | 20 mph | MTOW ≤ 776,000 lbs  
US TIER 3 | US TIER 4f



# INDIVIDUAL VALUE

## »PHOENIX« AST-2E



MODULAR  
EXPANDABLE  
BATTERY SYSTEM



AIRCRAFT RANGE  
UP TO  
776,000 lbs 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
- + 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, 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 150 kW
- + Optional AC charging at up to 22 kW



## 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  
20 mph | MTOW ≤ 776,000 lbs

### »PHOENIX« AST-2E WITH RANGE EXTENDER

66 kWh + range extender  
20 mph | MTOW ≤ 776,000 lbs



## »PHOENIX« FAMILY GET IN TOUCH WITH US!

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### TECHNICAL DATA SHEETS

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»PHOENIX« AST2-P/X



»PHOENIX« AST2-E