TowFLEX
Aircraft Tugs

TOWBARLESS REMOTE CONTROLLED AIRCRAFT TUGS

TURN YOUR PLANE ON THE SPOT.

SERIES 4

360°
FOR AIRCRAFT UP TO 30,000LBS / 14,000KG

FACTS

- Easy Handling
- Remote Controlled
- Towbarless
- One Person Operation
- No Driving License required
- Quick Load & Release of Nose Wheel
- All Electrical - No Hydraulics

- Practically Maintenance Free
- Extreme low Operating Costs
- Applicable for a wide Variety of Aircraft
- Enables to utilize all Hangar Space
- patented 360° Technology
- Turning an Aircraft on the Spot
- More Flexibility
TURNING THE AIRCRAFT ON THE SPOT

Moving an aircraft the conventional way with a tug and towbar or a traditional towbarless tug, requires a lot of space. In order to steer the aircraft, considerable movement is required. Turning the nose gear can only be achieved by moving the aircraft forward or back.

Extreme caution is required to prevent nose gear oversteering and to avoid damage to the sensitive nose wheel landing gear. The aircraft must be moved several yards before the nose gear can be turned and to steer in a new direction. This conventional method requires significant space during aircraft maneuvering.

That’s revolutionary, highly innovative, unique and unmatched compared to any other product in the market. Towing and maneuvering aircraft with TowFLEXX® is easy, much safer, and definitely the smartest and most advanced method of handling fixed wing aircraft and helicopter.

MOVING THE TUG WITHOUT TURNING THE NOSEWHEEL
To operate the best way possible, the TF4 comes with several supporting features, helping you and the people around to stay safe and make your groundhandling experience not only efficient but fun!

**FEATURES**

- Preventing Nose Gear Damage with 360° Technology
- Turn the Aircraft without turning the Nose Gear
- Quick Coupling & Decoupling
- Easy to handle Remote Control
- Intelligent Microprocessor Motor & Speed Control
- LED Lighting Front & Rear
- LED Lighting Nose Gear Cradle
- High Capacity Battery Pack with long Service Life
- Extended Charging Cycle Time
- Extreme low Maintenance
- Environmentally friendly
- No Exhaust
- Silent
- Fast and easy to operate
- Weatherproof
- Up to two Years Warranty
TowFLEX® technology can help you to significantly increase the number of aircraft you can place in any hangar.

The highly flexible and versatile towing system can create up to 40% additional hangar space, generating additional revenue for the hangar owner/ operator.

**CONVENTIONAL**

**WITH TOWFLEX**

**IMPROVED EFFICIENCY**

**MAXIMIZED SAFETY**

**INCREASED PROFIT**

**UP TO 40% ADDITIONAL HANGAR SPACE**
DIMENSIONS AIRCRAFT TUG TF4

LOW PROFILE DESIGN FOR MORE FLEXIBILITY

The TF4 will be delivered in a customized wooden box. Once the box is opened and the tug unstrapped, the TF4 is ready to operate! The only thing left to do: maneuvering the tug out of the box.

1. open the wooden TF4 transport box
2. loose all the straps and foil
3. maneuver carefully out of the box

*For a more detailed unboxing-manual just contact us.
**AIRCRAFT**

- Cessna Citation up to XLS+
- Cessna C680
- Syber Jet
- Pilatus PC-12 and PC-24
- Phenom 100
- Phenom 300
- Learjet
- Gulfstream G150
- Hawker 400 - 800
- Piaggio P180 Avanti
- King Air
- Dornier DO-228
- Jetstream
- Embraer EMB

* all aircraft for the 3 series

**HELIQUPTER**

- Agusta
- Airbus Heli
- Sikorsky

+ most helicopters for the 3 series

**WORKS WITH**

![Logo montage with various company logos]

*This is just an excerpt of possible aircraft to work with. There is no special connection between the mentioned manufacturers and towflexx.*

**FITS MOST AIRCRAFT UP TO 30,000LBS**
All Towflexx-products are designed to work in every weather condition. Whether it is dry and hot, mild and wet or extremely cold, your tug will be ready. Our systems are equipped with all terrain tires to provide the best traction possible. The electrical systems are sealed to prevent the intrusion of water and dust. Additionally all steel and metal parts are treated against corrosion.

OPTIONS

The TowFLEXX® TF4-Series is available with following options:

- Extended Wheel Lift Arms for very large Nose Wheel Tires (e.g. some King Air and Others)
- Enlarged Battery Pack
- Custom color option
- Customized control settings
- Snow Chain

Please consult with us to determine the best and most suitable configuration option for your aircraft.
## Vehicle Drive System
Twin Electrical 2 x powerful high-torque Rotary Drive Gear Motor, 24V, 1.400W each, total 2.800W DC effective power, IP44

## Motor Drive Control System
Motor Speed Control Inverter with integrated diagnostics & variable speed control, 320A

## Transmission
Advanced and robust Multi-Speed Parallel Shaft Gear Transmission

## Steering
Via motor control, extremely maneuverable and intelligently programmed. Steering is performed through different Rotating Speed Signals directed to both micro processor-controlled wheel motors. These microprocessors carefully control the torque proportionally to each of the drive wheels

## Brake System
Multi-Stage regenerative, decelerating and electromagnetic Brake System. At the moment the motor comes to a stop, the electromagnetic brake is automatically activated (Inherent Resistance)

## Drive Tires
Optimum Tread Depth Multi-Terrain Heavy Duty Wheels for best traction, 18 x 7-8 (2.3 tons bearing load each) 10 Bar

## Front Wheel
2 x Heavy Duty Puncture Proof Caster Wheel, height 305 mm, (12") solid center 80 mm (3.15")

## Batteries
Set of 2 x 200Ah maintenance-free Deep Cycle Lead-Gel Battery Pack incl. short circuit protection

## Battery Charger
Advanced Timer Circuit Battery Charger for uninterrupted service incl. auto shutdown function, 120-230V, 900W, 37.5A

## GPU
24V Power Socket to supply power to optional Accessories

## Nose Gear Lift Capacity
1.500 kg / 3.300 lbs (Max. 13.200 lbs)

## Max Towing Capacity / Aircraft MTOW
14.000 kg / 30.000 lbs MTOW 24.950 kg / 55.000 lbs Tractive Power

## Width of Wheel
500mm (19.68")

## Depth of Wheel
400mm (15.75")

## Time to load & fix Aircraft in
10 Seconds

## Remote Control Technology
Lightweight Waterproof Remote Control to „pilot” the ROTV’s movement and actions, easy to use, incl. fail-safe frequency spread spectrum technology (standard 902 - 928Mz) approved for airport operation

## Vehicle Lighting (Front & Rear)
Energy saving, but strong LED Headlights illuminating driving direction (front & rear)

## Working Lights
Energy saving LED Illumination for the coupling and aircraft interface area

## Safety Light
Energy saving LED Amber Blinking Light

## Drive / Movement Signal / Beeper
Impulse activated and via remote control shift-able - Included

## Electric Safety Features
Triple E-Stop Safety Feature with direct battery connector switch

## Drive Direction Indicator
All Direction Indicator LED Lights

## Overall Length
1.800 mm (70.87")

## Overall Width
1.500 mm (59.06")

## Overall Height
450 mm (17.72") / Cross Bracket 510mm (20.08")

## Wheel Base
1.350 mm (53.15") Drive Wheels, one Center Support Wheel

## Ground Clearance
100 mm (3.94")

## Turning Radius
1490 mm (58.66")

## Nose Gear Cradle / Bracket Lifting Height
110 mm (4.33")

## Shipping Weight including Batteries
600 kg (1.320 lbs)

## Speed Empty
6 km/h (3.83 miles/h) controlled

## Speed Loaded
4 km/h (2.49 miles/h) controlled

## Range in km and Miles
Approx. 3 km (1.87 miles) in step

## Battery Capacity / Service Time in Days and Hours
2 - 3 days in step depending on workload and average usage (4 hours continuously at full load)

## Operating Temperature
(-15°C to +50°C)

## Operating Humidity
Max 90% Relative Humidity

## Construction
Heavy Duty Chassis and Steel Construction with welded Steel Plate and Polymers protected by Powder Primer and top-rated automotive High-Gloss Enamel Paint with high quality protective Polyurethane Coating to prevent rust, scratches and corrosion. Sturdy, rugged, and durable design with industrial strength for commercial use and applications

## Standard Color
Light Grey - Anthracite, and Dark Blue Metallic, galvanized (custom colors are optionally available)

## Applicable for Aircraft
Wide range of aircraft. Please consult to obtain specific aircraft confirmation.

## Warranty
Up to 2 Years Limited Warranty

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## SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance</td>
<td>Compliant with all applicable Norms &amp; Regulations. Product meets and exceeds all Standards in its respective Classification. Radio Control conforms to EU CE and US FCC Regulations</td>
</tr>
<tr>
<td>Construction</td>
<td>Heavy Duty Chassis and Steel Construction with welded Steel Plate and Polymers protected by Powder Primer and top-rated automotive High-Gloss Enamel Paint with high quality protective Polyurethane Coating to prevent rust, scratches and corrosion. Sturdy, rugged, and durable design with industrial strength for commercial use and applications</td>
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<tr>
<td>TF2</td>
<td>TF3</td>
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<td><img src="image1" alt="" /></td>
<td><img src="image2" alt="" /></td>
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<tr>
<td><strong>Load</strong></td>
<td>up to 4 tons</td>
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<tr>
<td></td>
<td>8,800lbs</td>
</tr>
<tr>
<td><strong>Aircraft Type</strong></td>
<td>Airplanes &amp; Robinson Helicopters</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>500W</td>
</tr>
<tr>
<td><strong>Handling</strong></td>
<td>manually</td>
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<tr>
<td><strong>360° Axis</strong></td>
<td>-</td>
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<tr>
<td><strong>Wheeladjustment</strong></td>
<td>manually</td>
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<tr>
<td><strong>Tiller Control</strong></td>
<td>yes</td>
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<tr>
<td><strong>Battery life</strong></td>
<td>around 3km / 1.9mi</td>
</tr>
<tr>
<td><strong>12V Socket</strong></td>
<td>yes</td>
</tr>
<tr>
<td><strong>Front-/Backlight</strong></td>
<td>front</td>
</tr>
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<td><strong>Time to load Aircraft</strong></td>
<td>5 - 10 Seconds</td>
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<tr>
<td><strong>Ground Power Supply</strong></td>
<td>24V</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>70kg / 154lbs</td>
</tr>
<tr>
<td><strong>Dimensions (WxLxH)</strong></td>
<td>520 x 1700 x 700mm</td>
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<tr>
<td></td>
<td>20,47” x 66,93” x 27,56”</td>
</tr>
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All listed units are available in custom configurations. To check if your aircraft fits, please check our website or consult us. Modifications to service, construction and material within the framework of technical progress remain reserved, without the customer being able to derive rights therefrom.
TowFLEXX® tow equipment and ground handling systems are advanced German engineered products, applying latest technologies, unmatched quality and precision.

Our ultra modern high-tech factory is the best example of cost-effective high-quality manufacturing. It is one of the most modern factory floors of its kind, like a Swiss watch, with the same level of precision.

A high degree of automation with a multitude of other advanced manufacturing technologies, including laser cutting, innovative combined bonding and welding.

The factory follows production methods that sets the standard for world-class manufacturing facilities.