

TowFLEX[®]

Aircraft Tugs

TOWBARLESS REMOTE CONTROLLED AIRCRAFT TUGS



SERIES

5





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 TF5 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 Mount
- 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



approach the gear



fit in the nosewheel



close the turntable-gate



lift the aircraft



Single Wheel Nose Gear

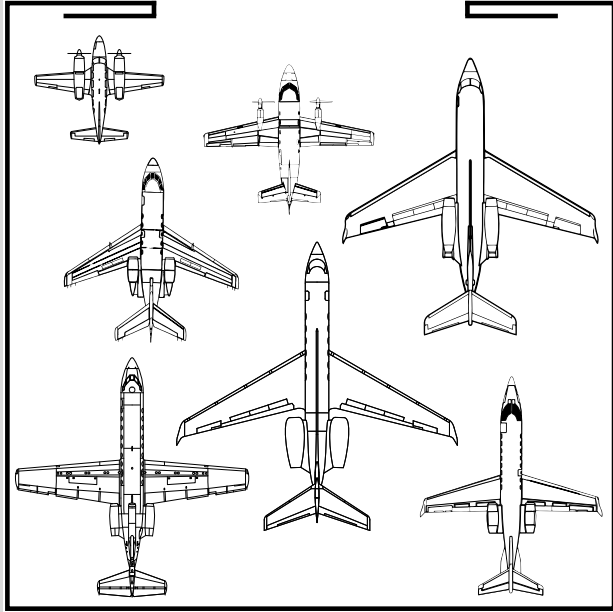


Twin Wheel Nose Gear

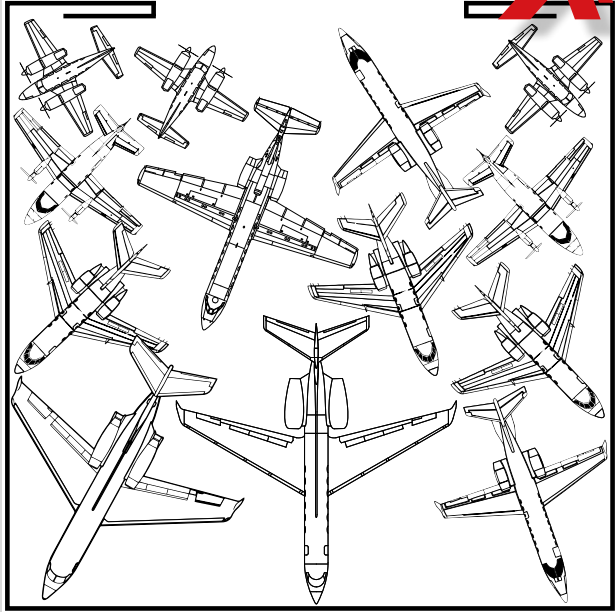


One Person Operation

CONVENTIONAL



WITH TOWFLEX



TowFLEX® technology can help you to significantly increase the number of aircraft you can place in any hangar.

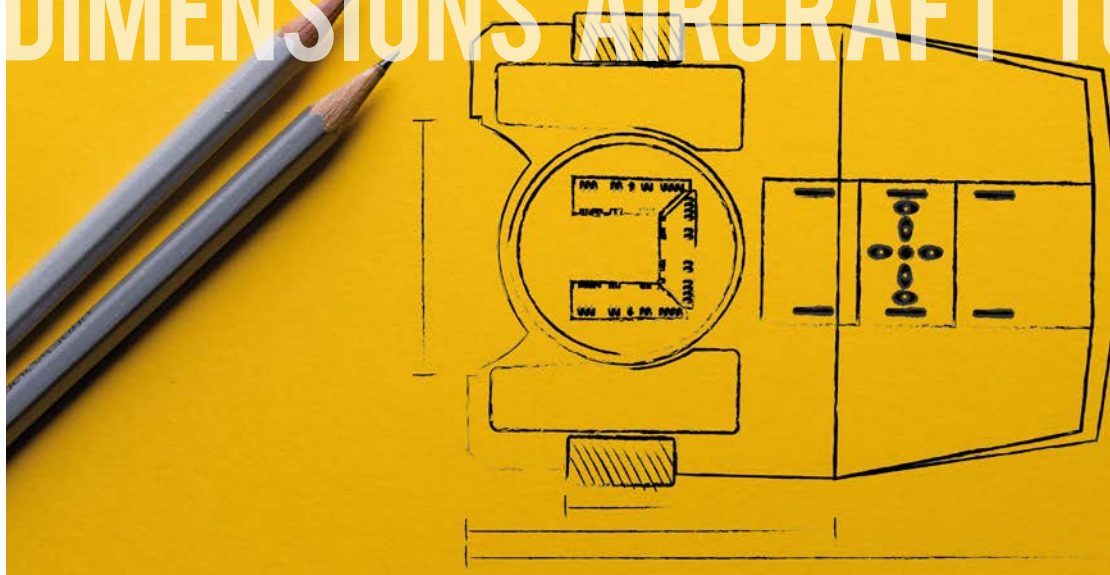
The highly flexible and versatile towing system can create up to 40% additional hangar space, generating additional revenue for the hangar owner/ operator.

**IMPROVED EFFICIENCY
MAXIMIZED SAFETY
INCREASED PROFIT**

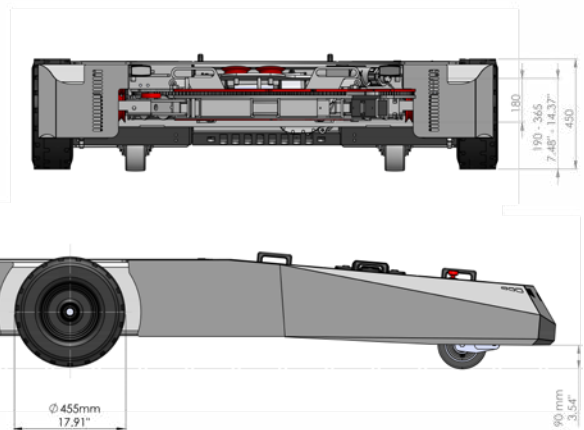
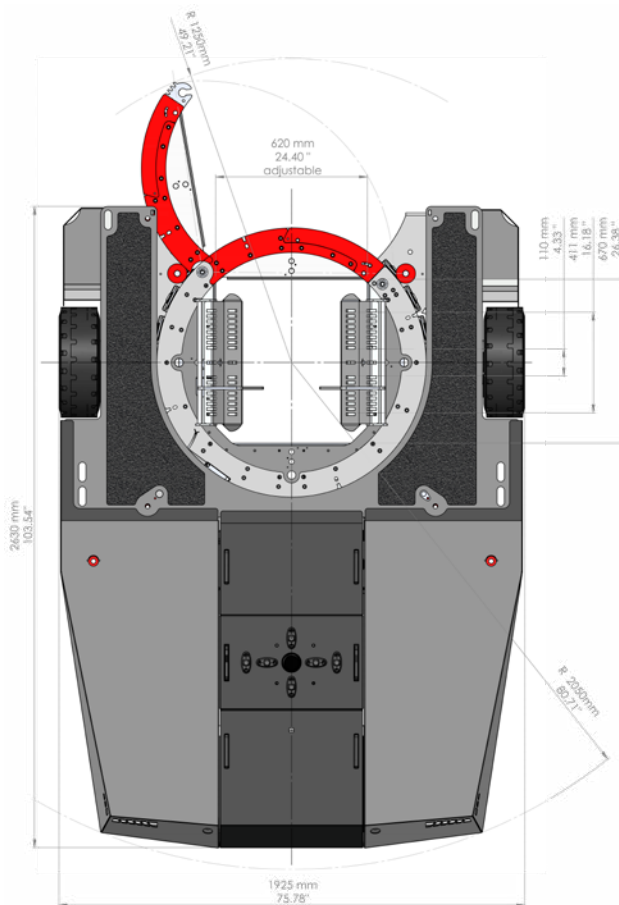


UP TO 40% ADDITIONAL HANGAR SPACE

DIMENSIONS AIRCRAFT TUG TF5



LOW PROFILE DESIGN FOR MORE FLEXIBILITY



PROFESSIONAL PACKAGING

The TF5 will be delivered in a customized wooden box. Once the box is opened and the tug unstrapped, the TF5 is ready to operate! The only thing what's left to do: maneuvering the tug out of the box.

- ▶ open the wooden TF5 transport box
- ▶ loose all the straps and foil
- ▶ maneuver carefully out of the box



*For a more detailed unboxing-manual just contact us

AIRCRAFT

- All Cessna Citation
 - Hawker 900/1000/4000
 - Challenger 300/350/600/650
 - Legacy 450/500/600/650
 - Gulfstream G280
 - Gulfstream G350/G450/G500/G550/G650
 - Dassault Falcon 50/900/ 2000/5X/7X/8X
 - Bombardier Global Epress/5000/6000/7000/7500
 - Embraer Lineage 1000E
 - Dornier DO-328
 - ATR Turboprop
 - DASH Turboprop
 - SAAB Turboprop
 - Military F15/F16/F18/F35/A10
- + **all aircraft for the 3 & 4 series and many more**

HELICOPTER

- Agusta
- Airbus Heli
- Sikorsky

+ **most helicopters for the 3 series**



WORKS WITH*



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



All Towflexx-products are designed to work in every wheather 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 treatet against corrosion.

OPTIONS

The TowFLEXX® TF5-Series is available with following options:

- Nose wheel insert bracket for very light single engine aircraft with very small nose gear tires and / or wheel fairings
- Baggage tray
- Custom color & lighting option
- GPU
- Snow Chain

Please consult with us to determine the best and most suitable configuration option for your aircraft.





SPECIFICATIONS

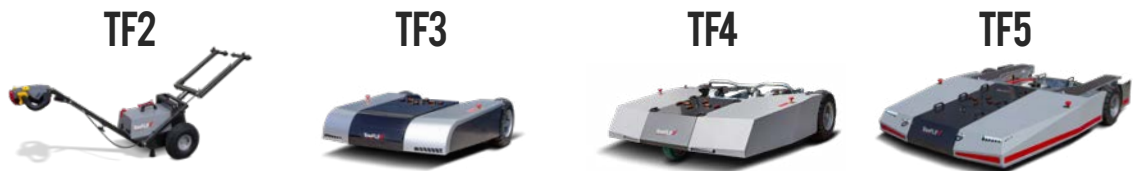
Vehicle Drive System	Twin electrical 2x powerful high-torque Rotary Drive Gear Motor, 48V, total 10.000W AC effective power, IP44
Motor Drive Control System	Motor Speed Control Inverter with integrated Diagnostics & variable Speed Control, 700-900A
Transmission	Advanced and robust Multi-Speed Parallel 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 electro-magnetic Brake is automatically activated (Inherent Resistance)
Drive Tires	Optimum Tread Depth Multi-Terrain Heavy Duty full Rubber Tires for best traction, 18 x 7.8 (6 tons bearing load each)
Front Wheel	2 x Heavy Duty Puncture Proof Caster Wheel, Height 305 mm, (12") solid center 80 mm (3.15")
Batteries	Set of 4 x 200Ah maintenance-free Deep Cycle Lead-Gel Battery Pack
Battery Charger	Advanced Timer Circuit Battery Charger for uninterrupted Service incl. auto Shutdown Function, 120-230V, 900W 25A
GPU (optional)	24-28V Power Socket to supply Power to optional Accessories; Not suitable to start the Aircrafts Engines
Nose Gear Ramp & Lift Cradle	Unique patented Wheel Coupling & Lifting Feature with Gate incl. 360° Rotating Assembly. Adjustable Brackets for Wheel Size Adjustment (Tire Diameter) for single and twin wheels. Incl. Wheel Safety Holder (Spacer)
Mounting	Transverse & Lateral Force Countervailing Technology to control the 360° Rotating Assembly Movements and to manually adjust the 360° platform position
Nose Gear Lift Capacity	5,000 kg / 11,000 lbs (Max. 13,200 lbs.)
Max Towing Capacity / Aircraft MTOW	60.000kg / 132,000 lbs. MTOW Tractive Power
Width of Wheel	620 mm (24.41") (Opening at Nose Gear Cradle)
Depth of Wheel	600 mm (23.62") (Opening at Nose Gear Cradle)
Time to load & fix Aircraft in	roughly 20 Seconds
Remote Control Technology	Lightweight Waterproof Remote Control to „pilot“ the ROTV's movement and actions, easy to use, incl. failsafe frequency spread spectrum technology (standard 902 - 928 Mz) 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 (optional)	Energy saving LED amber Strobe Light





Drive / Movement Signal / Beeper	Impulse activated and via remote control shiftable - Included
Electric Safety Features	Triple E-Stop Safety Feature with direct Battery Connector Switch
Drive Direction Indicator	All Direction Indicator LED Lights
Overall Length	2630 mm (103.54")
Overall Width	1925 mm (75.79")
Overall Height	450 mm (17.72")
Wheel Base	940 mm (37") Support Wheels, 1600 mm (62.99") Drive Wheels
Ground Clearance	132 mm (5.20")
Turning Radius	2.050 mm (80.70")
Nose Gear Cradle / Bracket Lifting Height	100 mm (3.94")
Shipping Weight including Batteries	1.900 kg (4.189 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. 8 km (5 Miles) in step (depends on load)
Battery Capacity / Service Time in Days and Hours	3 - 4 days in step depending on workload and average usage
Operating Temperature (Range from - to +)	-28°C (-18 °F) to +50°C (122°F)
Operating Humidity (up to max Relative Humidity in %)	Max 90% Relative Humidity
Construction	Galvanized 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 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 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 (Batteries not included)

COMPLIANCE

Compliant with all applicable Norms & Regulations. Product meets and exceeds all Standards in its respective Classification. Radio Control conforms to EU CE and US FCC Regulations





	TF2	TF3	TF4	TF5
				
Load	up to 4 tons 8.800lbs	up to 9 tons 20.000lbs	up to 14 tons 30.000lbs	up to 60 tons 132.000lbs
Aircraft Type	Airplanes & Robinson Helicopters	Airplanes & Helicopters with Nosewheel	Airplanes & Helicopters with Nosewheel / twin tires	Airplanes & Helicopters with Nosewheel / twin tires
Power	500W	2.200W	2.200W	10.000W
Handling	manually	Remote Control	Remote Control	Remote Control
360° Axis	-	yes	yes	yes
Wheeladjustment	manually	universal	universal	mechanical
Tiller Control	yes	not required	not required	not required
Battery life	around 3km / 1.9mi	around 5km / 3.1mi	around 8km / 5mi	around 8km / 5mi
12V Socket	optional	optional	optional	optional
Front-/Backlight	front	front & back	front & back	front & back
Time to load Aircraft	5 - 10 Seconds	10 Seconds	12 Seconds	20 Seconds
Ground Power Supply	24V	24V	24V	optional
Weight	70kg / 154lbs	350kg / 770lbs	600kg / 1.323lbs	1.900kg / 4.189lbs
Dimensions (WxLxH)	520 x 1700 x 700mm 20,47" x 66,93" x 27,56"	1200 x 1750 x 450mm 47,24" x 62,99" x 17,71"	1500 x 1800 x 510mm 59,06" x 70,87" x 20,08"	1900 x 2600 x 500mm 74,80" x 102,36" x 19,69"

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 IMPRESSIONS



MADE IN ONE OF THE MOST MODERN FACTORIES



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.



GERMAN HEADQUARTERS

TowFLEXX GmbH
Woestendoellen 95-96
D-49429 Visbek

+49-4445-988-144

**AMERICAN - GERMAN ENGINEERING
TECHNOLOGY YOU CAN TRUST**

INFO@TOWFLEXX.DE

AMERICAN SALES OFFICE

TowFLEXX Inc.
80 Pine Street - Floor 24
NY-10005 New York

+1-904-770-6183

WWW.TOWFLEXX.DE 



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