- → Electrically powered
- → Radio remotely controlled
- → Extremely compact
- → Only 1 person required for operation
- → Fully hydraulic and sensor-controlled nosegear platform
- → Loads and unloads the nosegear automatically
- → Park your aircraft using the last corner of your hangar and save space

Improve your efficiency significantly.

The safest and most effective way of moving aircraft towbarless.

Electrify your Ground Handling.

FULLY ELECTRIC DRIVE

REMOTELY CONTROLLED

HANDS FREE LOADING WITH A TAP ON THE RC

mototok
easy moving

7120 / 11-2023

Mototok.
The difference to any other tug system: Flexibility, safety, cost savings – at the highest innovative level.

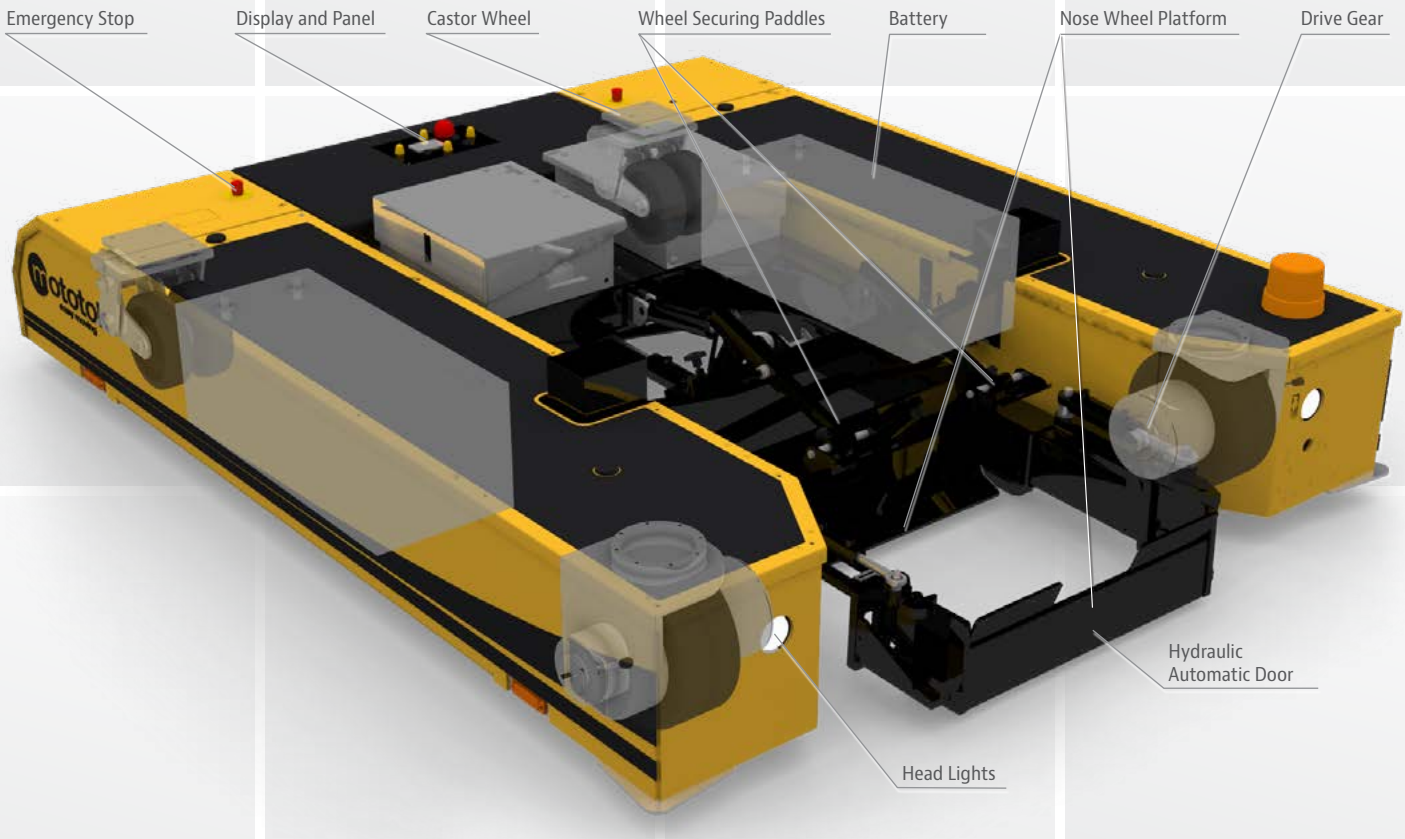
A big idea in a small format. Name: Mototok. Distinguishing features: Fully electric drive. Revolutionary in its simplicity. Extremely compact. Uniquely flexible. And very high performance. With the remote control of the Mototok, the operator is able to walk anywhere around the aircraft to see every vantage point. The operators eyes never leave the aircraft while it is in movement.

A wide range of types are available: Our biggest Mototok model so far – the Spacer 200 – excels with a towing capacity of 200 tonnes / 440900 lbs. Our Model Spacer 8600 has a NTO licence for pushing back Boeing 737, Airbus A320 and families as well as for MHI / Bombardier CRJ.

The TWIN model is suitable for regional and business jets. And our entry model M fits under almost every small aircraft. Furthermore Mototok offers extremely flat specialists for Helicopter: Helimo for helicopter with landing skids and Alligator for helicopter with wheels.

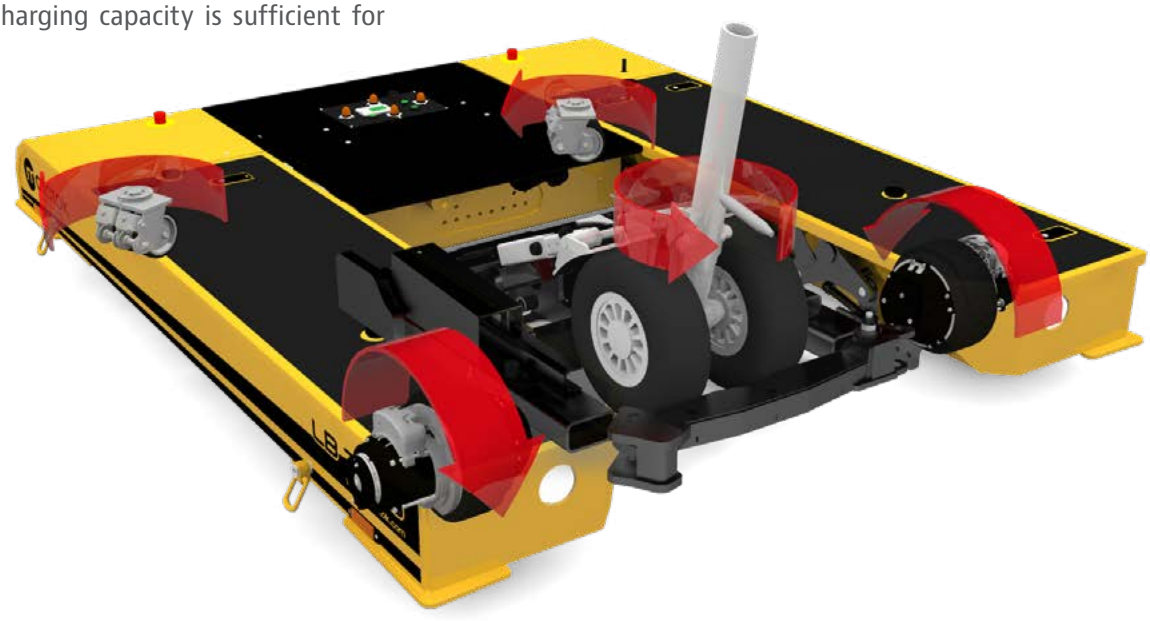
Many Mototok types can also be ordered with additional equipment for military purposes - for this please see the LB series on page 32.

THE PRINCIPLE



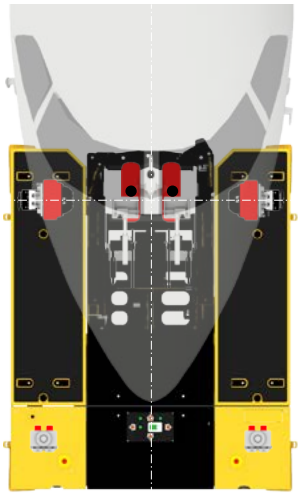
Take a look inside

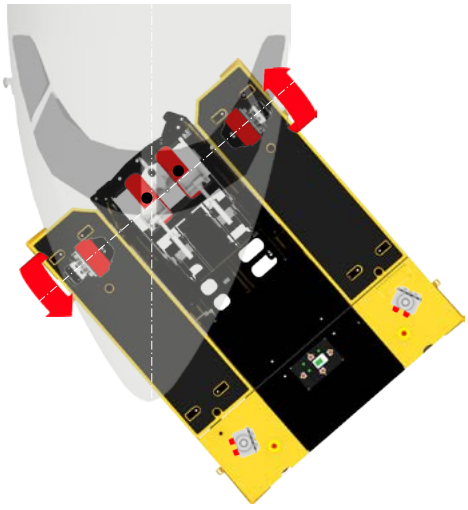
Extremely powerful electric motors driven by high-performance, maintenance-free batteries with high cycling capability provide enormous driving forces. Extremely high initial torque ensures smooth acceleration, particularly at the start. The charging capacity is sufficient for lots of operations.



Turning on the spot with no wingtip movement: The Mototok Principle

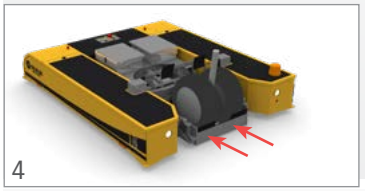
Mototok is intelligent. The steering of a Mototok is performed through different rotating speed of both processor-controlled wheel-hub motors. A perfect turn on the spot is naturally no problem: one motor rotates forwards, the other backwards and carry out a precise turning manoevre. The aircraft remains almost motionless at its location during the turn. Accidents due to collisions are practically eliminated. In addition, no transverse forces are exerted on the nosegear, so that no damage is caused to the bearings and other gear-related components. According to the relative rotation speed of both driving wheels any curve can be performed.

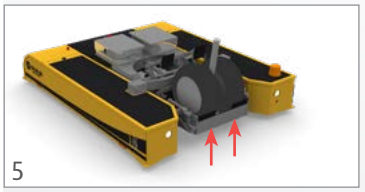


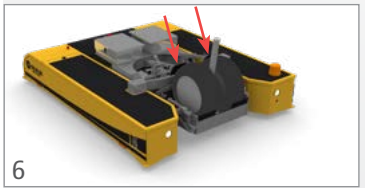


VIDEOLINK

See how Mototok loads an aircraft automatically: bit.ly/twin-loading







HYDRAULIC AND SENSOR CONTROLLED LOADING SYSTEM

1-CLICK-LOADING

Easy-to-use

Every Mototok Model shows: Docking takes a matter of seconds. Simply drive the Mototok up to the nosegear and press a button on the remote control. Thewheels are then hydraulically fixed firmly in position and raised – ready for take off! All this with no awkward strap, no inconvenient winch. No bolts or tools are required.

→ Radio remote controlled operating under an industrial frequency code approved for airports
→ Alternative: Remote control with spiral cable, 15 mtr.
→ Automatic connection to the aircraft's nose wheel with one click
→ No straps, no winch, no tools required

Loading and unloading of the nose wheel is done fully automatically by means of a hydraulic system.

1. First, the tug is driven up to the nosegear with the door open ...
2. ... until the inner wedge touches the nose wheel.
3. The door closes hydraulically and is secured with a hydraulical safety hook.
4. The nosegear is gently clamped with an individually adjustable contact pressure. Nose wheels with different diameters are securely fixed in the best possible position.
5. The platform is then raised hydraulically.
6. For safety reasons the operator must finally lower the safety paddles manually by pressing a button on the remote control. If he forgets to lower them, he will be alerted by an alarm sound.

VIDEOLINK

See how Mototok compensates the rearing up: bit.ly/mototok-paddles

The saftey paddles of the models TWIN and M hydropneumatically balances the heights of the individual nose wheels, fixing them securely in place. No rigid straps are used, which can damage the nosegear.

The model SPACER is equipped with a gimbal mount to compensate for the trail of the nosegear.

STRESS FREE NOSEGEAR FIXING SYSTEM

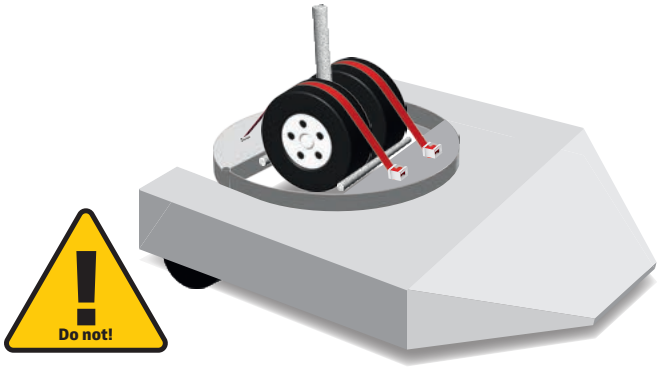
Fixing the Nosegear without Stress

Due to the aircrafts design, the nose landing gear is mounted at an specific angle. Manoeuvring an aircraft with a double nose wheel with the Mototok therefore results in the rearing up of the outer wheel when the steering angle is strong.

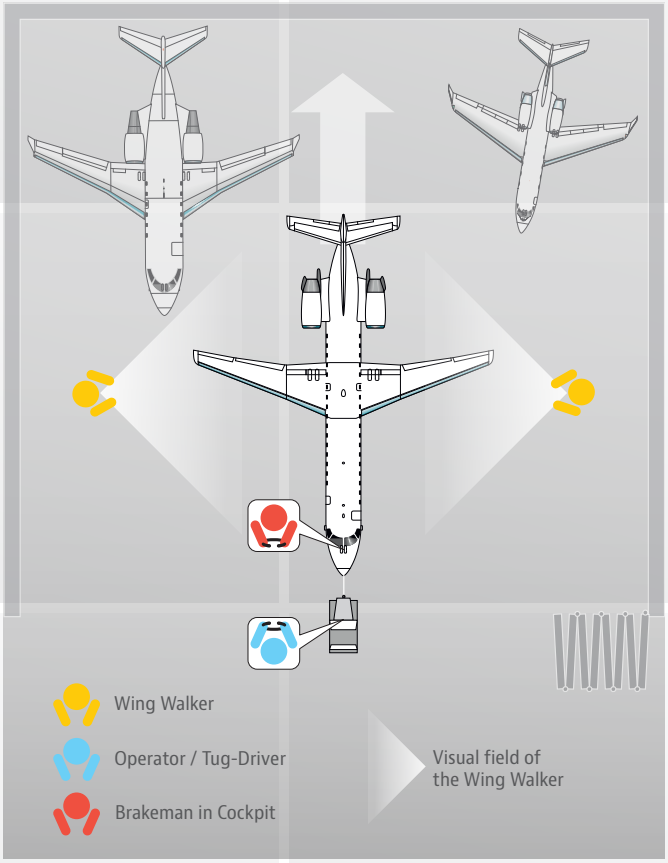
The use of straps for fixation can put a lot of stress on the nosegear and damage it when curving, as straps are too rigid.

Mototok balances the lifting of a nose wheel by means of the safety paddles. A gas accumulator is used to compensate the pressure on the paddles. At any steering angle, the nose wheels are thus securely and yet flexibly fixed, so that the nosegear is not subjected to any additional stress.

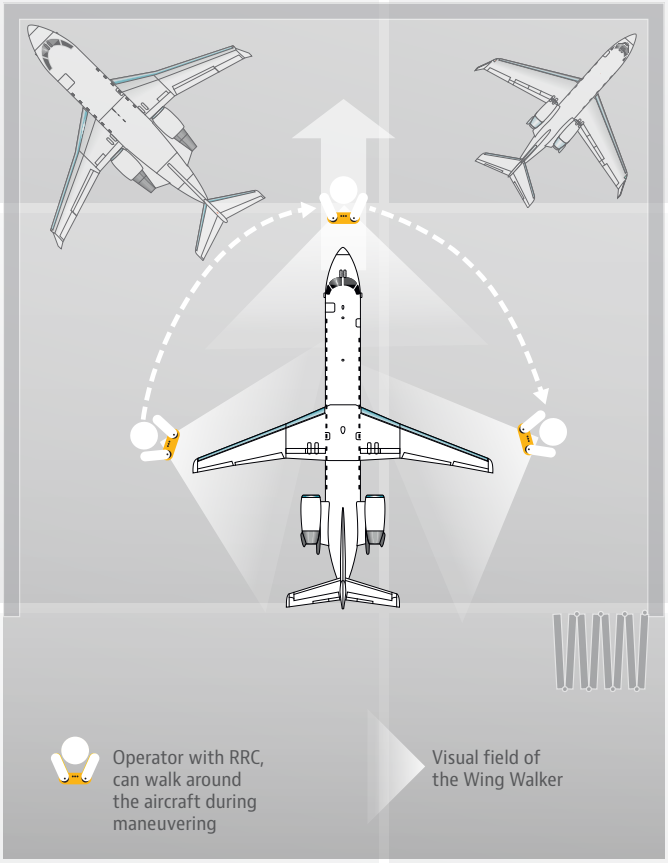
We don't recommend to fix a Gulfstream with straps:



The wheel of the Gulfstream rearing up in a turn must not be held down by any unflexible force, e.g. by a strap. Mototok uses an additional gas accumulator for this purpose, which allows the paddles to move upwards without holding the wheel further down.



Towing with a conventional Tractor:
At least 4 Persons needed



Circumferential view – only one person with a radio remote control (RRC) needed for moving the aircraft

The top advantages of using a Mototok tug

- Industrial radio remote control. The operator is able to walk around the aircraft during maneuvering – he is essentially his own "wing-walker"
- "Hands free" connection to the nosegear. Engaging and disengaging is done automatically in seconds by a tap on the remote.
- No exit or entry path to consider for engaging and disengaging of the nosegear. Park your aircraft where you want – closely against a wall or in the hangar's corner
- Low maintenance costs. No bulky diesel engine – clean electric drive.
- Uniquely designed and microprocessor controlled.

Cost effective.

→ Low personnel costs by means of wireless remote control – the operator is essentially a “wing walker” himself

→ Increases the number of aircraft in your Hangar

→ No driving licence required

→ Extremely low maintenance costs, no maintenance plan necessary

Safe.

→ Hydraulic fixation of the nose wheel

→ Fully programmable speeds, braking curves, initial torques and over steering protection *

→ Gentle treatment of the landing gear with a built in hydro-pneumatic clamping system

→ 100 % circumferential visual control around the aircraft. No knocks. No collisions. Optimum use of limited space!

Flexible.

→ Manoeuvre a wide range of aircraft with the same Mototok-model – ONE MACHINE for all corporate aircraft single or double nose wheel including helicopters

→ Hydraulic nose wheel adjustment – for different nose wheel diameters

→ Connect the aircraft from the front or the rear – approach the aircraft from all sides and from all angles

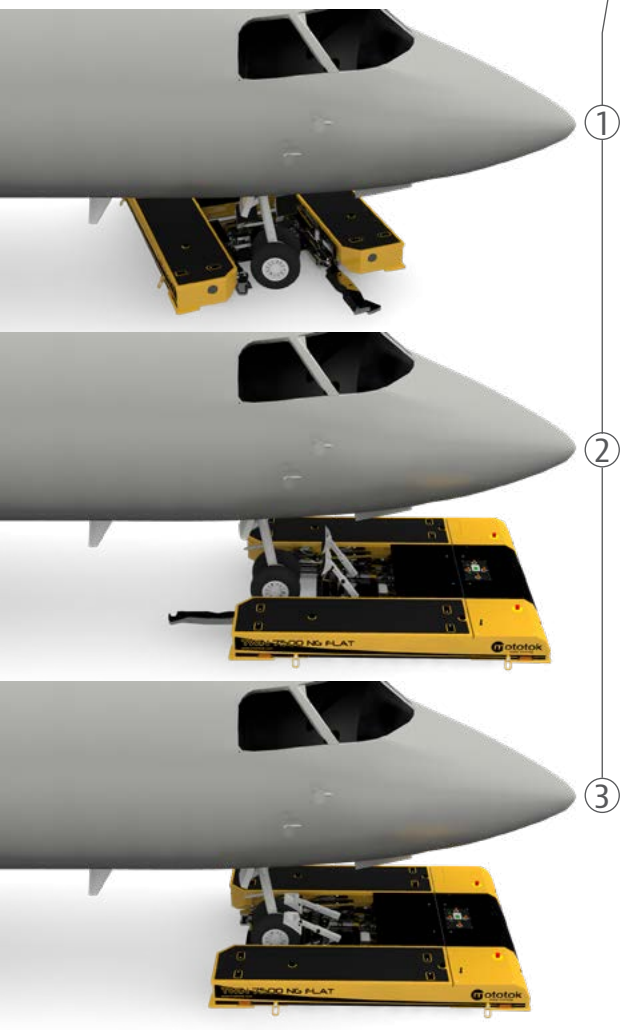
Easy-to-use.

Docking takes a matter of seconds from the rear or front of the nose wheel. Simply drive the Mototok up to the nose wheel. The wheel is then hydraulically fixed firmly in position and raised – ready for take off! All this with no awkward strap, no inconvenient winch. No bolts or tools are required.

→ Radio remote controlled operating under an industrial frequency code approved for airports.

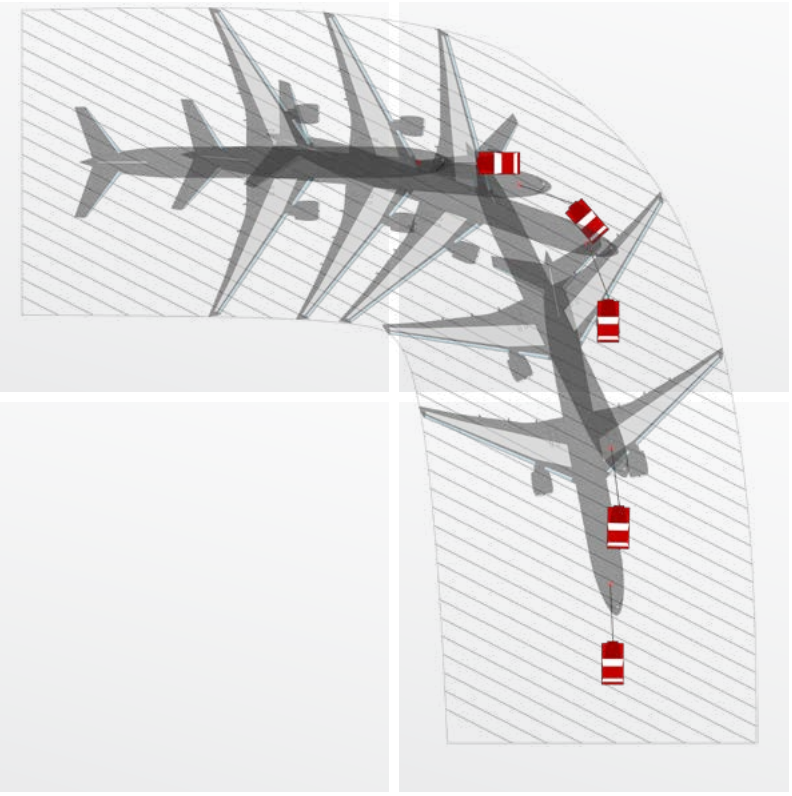
→ Automatic connection to the aircraft‘s nose wheel with one click.

→ No straps, no winch, no tools required.



Why is Mototok the best tug system in the market? A comparison between towing principles

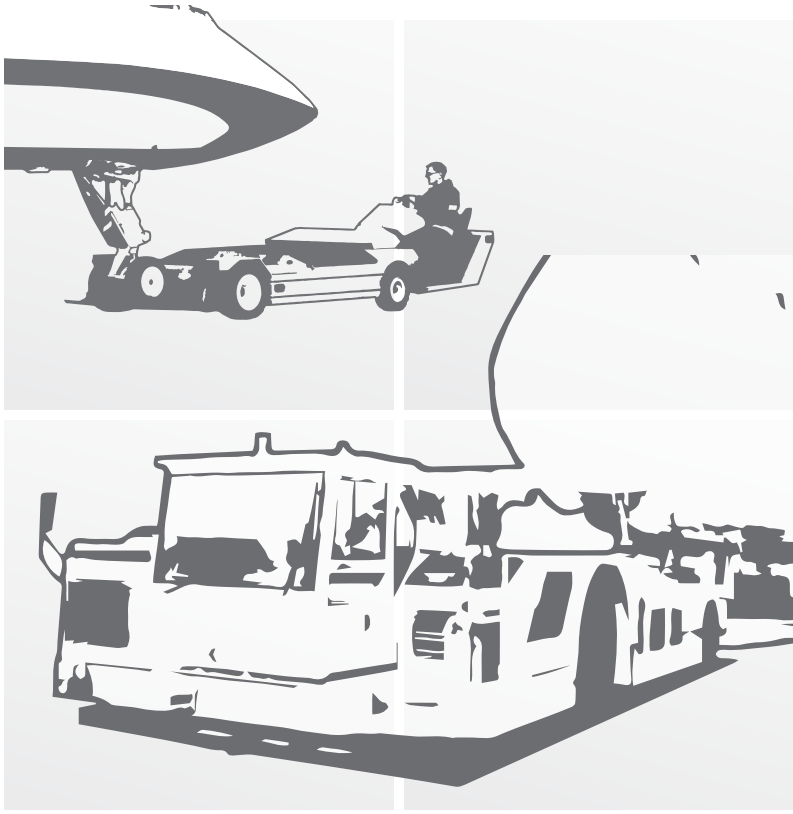
Conventional tow tractor with a tow bar



Maneuvering with a towbar means “steering by moving”. Turning the nosegear and moving the aircraft are two inseparable motions when using a tow bar. Turning the nose wheel is only possible when the aircraft is moved backwards or forwards. The aircraft has to be moved several meters for the nosegear to turn and move the aircraft into another direction. This in turn increases the space required for manoeuvres.

- **Many different tow bars** have to be stored for different types of aircraft.
- **High risk of accidents** and **damage** of the aircraft.
- At least **one second person necessary as a wing-walker** due to the minimized view of the operator.
- **High maintenance level** due to combustion engine.

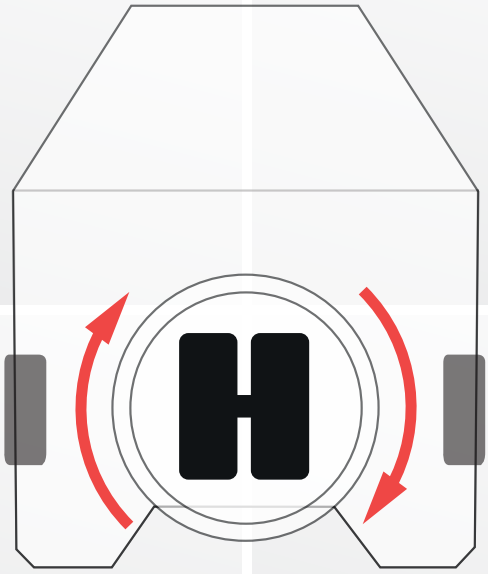
Other towbarless tugs



This principle means also “steering by moving”. The space requirement is approximately the same as with using a tow bar.

- **Winches and straps** for fixation often needed.
- At least **one second person necessary as a wing-walker** due to the minimized view of the operator.
- The vehicles have **large dimensions** and **require a lot of parking space**.

Tugs with a rotary table

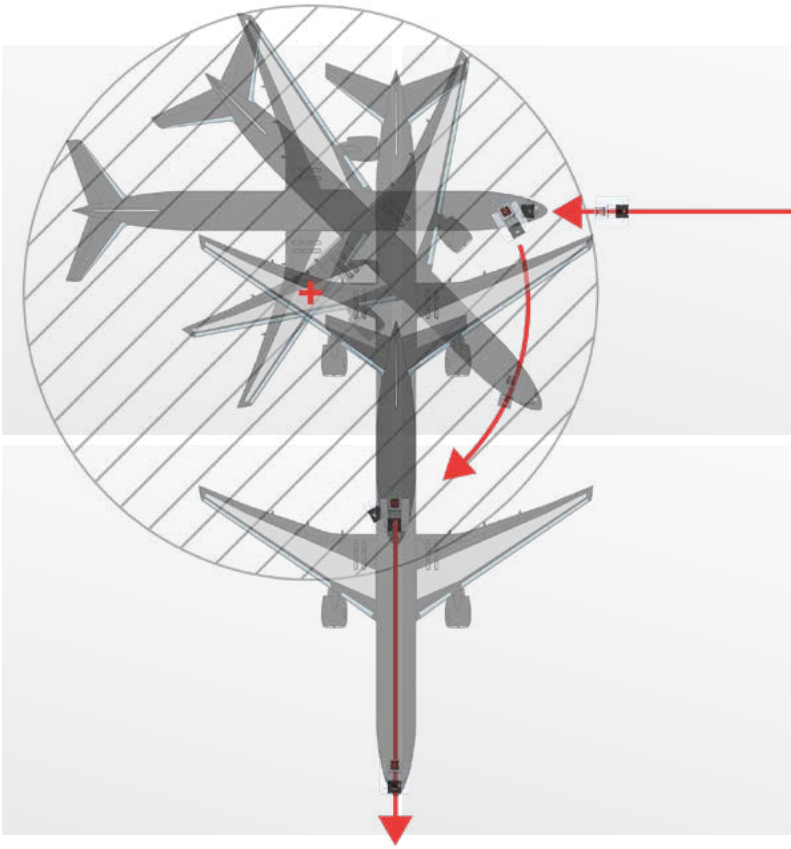


The nose landing gear is clamped on a rotating turntable to prevent damage to the nose wheel if the maximum turning angle of the nose wheel is reached. The aircraft tractor can continue to turn, but the turntable remains stationary.

- Can load the aircraft **only from the side** of the aircraft.
- The **Oversteering Protection** that is supposed to take place through the use of the turntable only **works reliably** when **pulling** the aircraft. When pushing, the turntable behaves similarly to the caster of a shopping trolley due to the tracking of the nose wheels: the wheel will turn around its vertical axis. This can only be corrected by manually or electrically countersteering the table.
- **No automatic fixation of the nosegear:** there is no technically simple way to bring **hydraulic** or **electric lines** into the **rotating platform** without risking a premature defect.
- **Safety issue:** Due to the large and unfavourably placed drive wheels, there is a **danger of crushing** the operators feet during manoeuvring.

Best Choice!

Moving an aircraft the innovative way – with Mototok!



Manouevering with Mototok is the easiest and safest by far. With Mototok, both turning the nosegear and moving the aircraft are two completely different movements. The fuselage and wingtips remain in position whilst turning the nosegear. The result is a minimum requirement of space. This example shows that turning an aircraft by 90° reduces manoevering space to a circle.

- **Can approach the aircraft from all sides.**
- **Fully hydraulic and sensor monitored nose gear platform.**
- **No winches, no straps:** Convenient and quick automatic nosegear loading.
- **Low maintenance** thanks to full electric drive.
- **Lowest space requirement** when pushing or pulling the aircraft.
- **Best overall sight** thanks to remote controlled maneuverings.
- **Safe** thanks to **oversteering protection** on many models.

"Our Mototok is the second best piece of equipment in the hangar (the airplane is first)!"

"The ease of operation and the ability for one person to safely manoeuvre our plane in and out of our hangar because of the industrial remote control wing walker feature is unbeatable. This is a quality machine and very reliable."

Steve Nelson, Aviation Manager & Chief Pilot,
TLS Aviation LLC

Top: The view outside a standard tug – the operator needs at least two additional wing walkers.

Middle: Working with conventional tugs

Bottom: Using tow bars or other towbarless systems means cumbersome handling

Moving an aircraft the innovative way – with Mototok: Circumferential view around the aircraft, easy and convenient handling. Mototok makes the use and storage of different tow bars unnecessary. And it needs far less space than conventional tractors.

MRO / FBO

VIDEOLINK

See Mototok in daily Hangar-Operation: bit.ly/fbo-mro

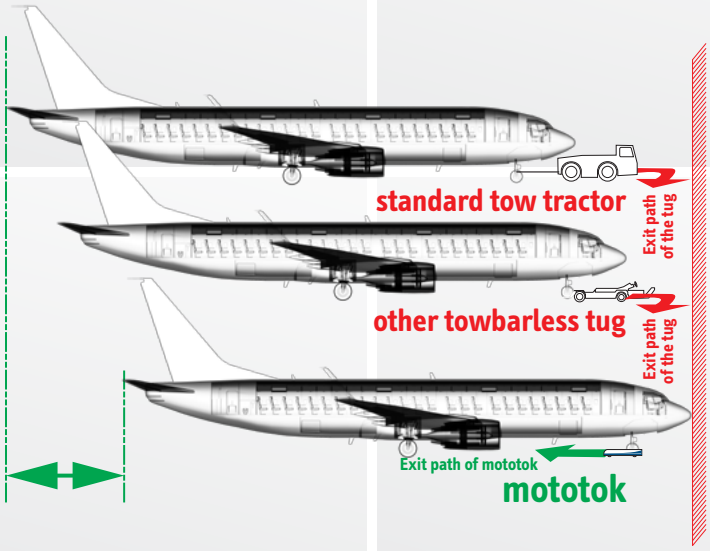
HANGAR OPTIMIZATION

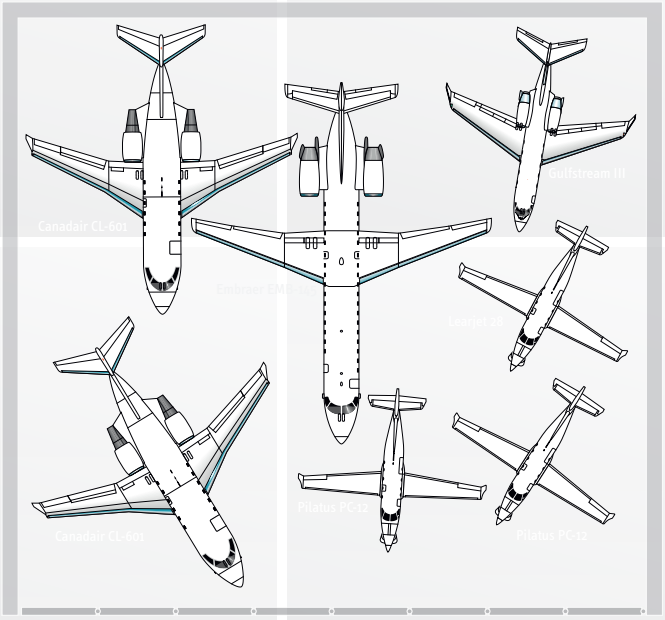
Mototok for Hangar Operations: Only Mototok generates up to 60% more space in your hangar

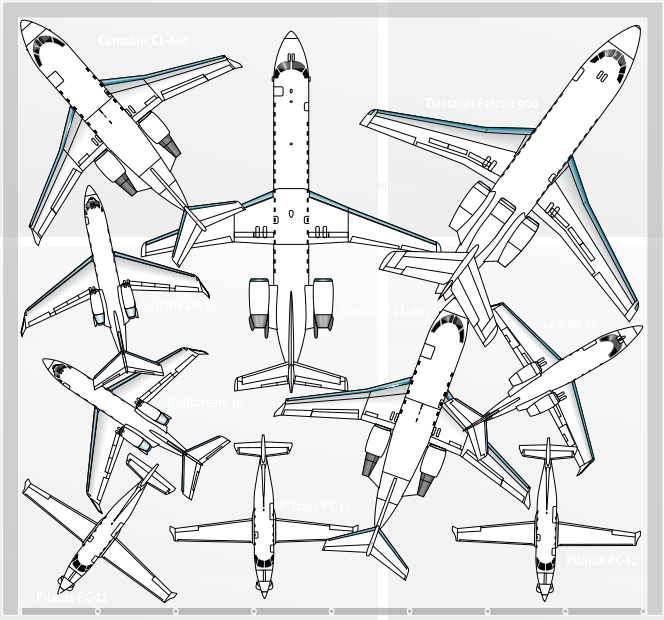
Mototok excels in tight situations: Park your aircraft safely, easily and effectively where you want: In the hangars corner, directly towards the hangars wall or near by other aircraft in the hangar. Save space in the process – depending on your hangar situation up to 40%.

Operating with normal tugs with or without a towbar is intricate. Turning the nose wheel whilst maneuvering without moving the aircraft is impossible. Additionally the operator has to consider the exit path of the tug. Thus, parking the aircraft with old technology is unprofitable. You are not able to use your hangars full capacity.

The low height, the compact design and the radio remote control of mototok tugs gives you the fully control of the hangars space. It saves costs through optimized use of limited space.







Typically situation in a hangar – managed with a conventional tow tractor. The biggest disadvantages are:

- All aircraft faces to the hangars gate because you have to consider the exit path of the tow tractor. Parking directly in a hangars corner is impossible.
- The distance between the aircraft has to be acceptably big.

You are not able to use your hangars full capacity!

Same hangar with electric wireless remote controlled Mototok aircraft tug:

- Park your aircraft directly towards a wall or in the hangars corner. You don't have to consider the exit path of mototok.
- "Stack" aircraft – park your aircraft with extreme minimal distance. Maneuvering in extreme narrow situations is no problem.

Increase the capacity of your hangar up to 60% by optimizing parking space!

PUSHBACK

VIDEOLINK
See Mototok in daily Pushback-Operation: bit.ly/mototok-pb

Improve your Pushback Efficiency significantly

Efficiency and realibility are two important features that Mototok Pushback Tugs have to offer. Our tugs have proven this every day for more than two years in LHR T5, where British Airways has now performed **more than 350,000 pushbacks** with 28 machines.

Mototok SPACER 8600 has the NTO license for
→ B 737 incl. MAX
→ A 220
→ A 320 family incl. NEO
→ MHI / Bombardier CRJ

NTO for Embraer Regional Jets is in progress.

“Mototoks are reducing our Pushback Delays by more than 70 %.“

Raoul Cooper, Senior Design Manager at British Airways

British Airways is showing the way: The high availability of Mototok machines at every gate ensures an enormous reduction in delays. With the capabilities of towing and pushing aircraft up to 105 tonnes Mototok SPACER 8600 is the ideal tug for your pushback operations. In combination with the outstanding pros of all Mototok vehicles like

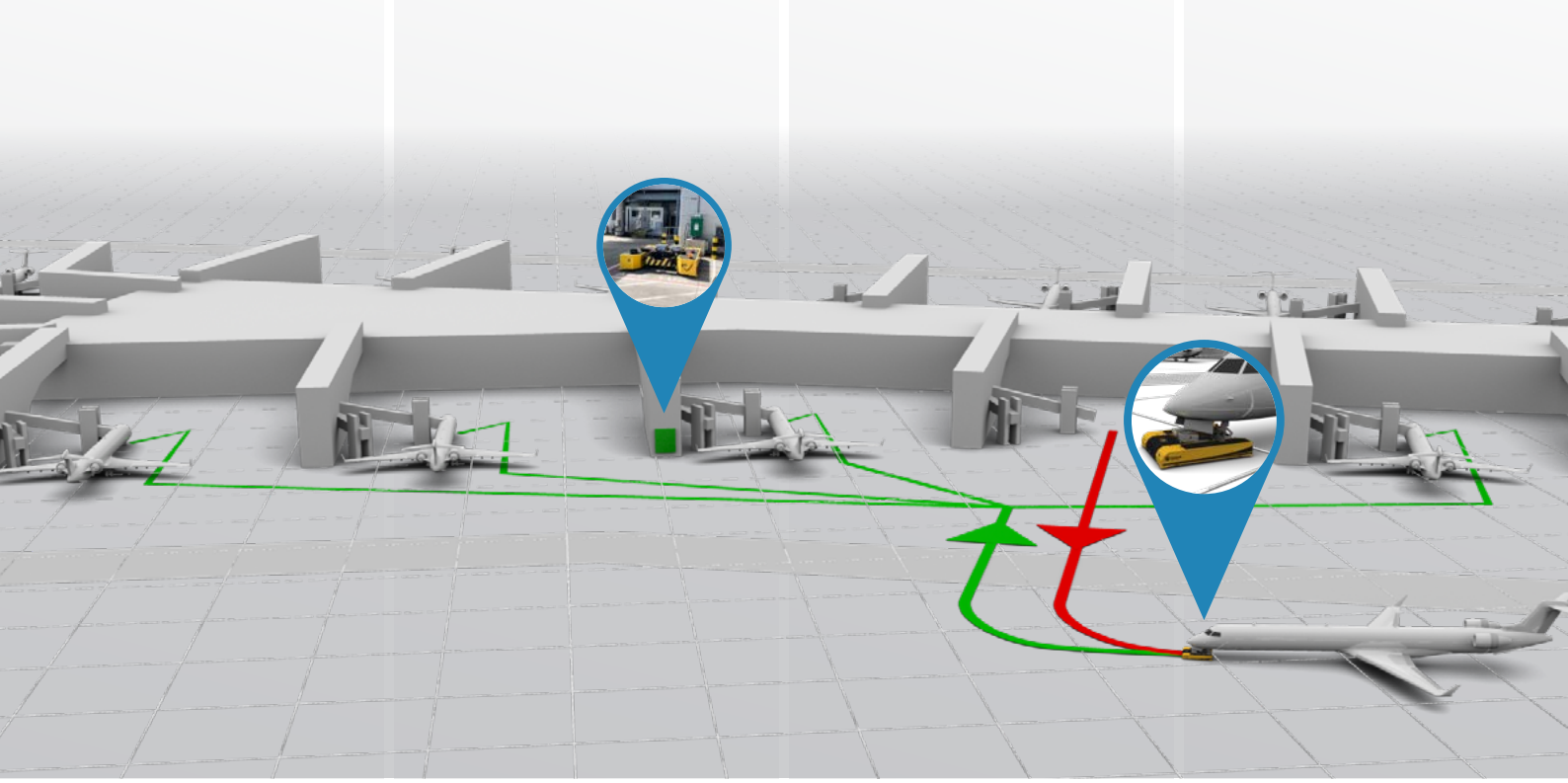
- → The low initial and maintenance costs
- → The eco-friendly electric drive
- → The one-man-operation without the need of any driving license

you gain a powerful and flexible machine for all apron and – in addition – hangar operations.

- Full electric drive
- Wireless remotely controlled
- Only one person needed for operation – the operator is his own wing walker
- One-click-loading system
- No driving license required
- The operational training needs 2-4 hours
- Reduce the waiting time for a pushback operator significantly
- One Mototok pushback tug is able to manage up to 5 boarding bridges
- Recharging time: about 3 hours
- Up to 50 pushback operations with one battery charge
- Very low maintenance costs
- No fuel costs

PUSHBACK

The Mototok SPACER Pushback Concept for Airports



In order to increase the utilisation of a pushback tug, one Mototok SPACER is used for 3-5 boarding bridges each – depending on the departure frequency. After the push-back, the Mototok SPACER is driven to the next place of action. Due to its compact size, the Mototok SPACER is moved outside the road boundaries. Since up to 50 push-backs are possible with one battery charge, the Mototok usually does not need to be connected to the charging station during daily operation. Charging can take place at night after closing time.

Reduce the average time of waiting for pushing back aircraft!

Every minute of waiting for the conventional pushback tug costs money.

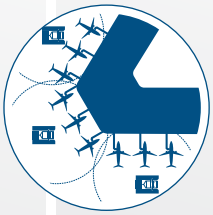
On the contrary the access time to a Mototok pushback tug tends towards immediately. A Mototok is always at the place, where it is needed.

No governmental driving license required. Only 3 hours of training needed!

Only specialized and authorized staff is permitted to push back aircraft with a conventional push-back tug.

In contrast to this everybody of the ground handling staff has the permission to pushback the aircraft with a Mototok tug. A short driving and safety training is sufficient.

Low space requirement and small dimensions



Our concept is to provide up to five boarding bridges with one electrical Mototok tug.

Mototok can be parked directly in the immediate vicinity of the gate without becoming an obstuction.

NOSEGEAR PROTECTION

Safety first: Oversteer Protection with i-NPS Intelligent Nosegear Protection System

Achieve more safety in your daily operation: Intelligent Nosegear Protection System (i-NPS) with Auto Counter-steering Function is our newest contribution to prevent damages on the nosegear whilst shunting and pushback operations. Equipped with several sensors which measures the forces and torques on the nosegear, Mototoks counter steer algorithm commences, when the torque reaches a set limit. Damages of the sensitive nosegear is hereby impossible.

The difference to conventional oversteering protection systems

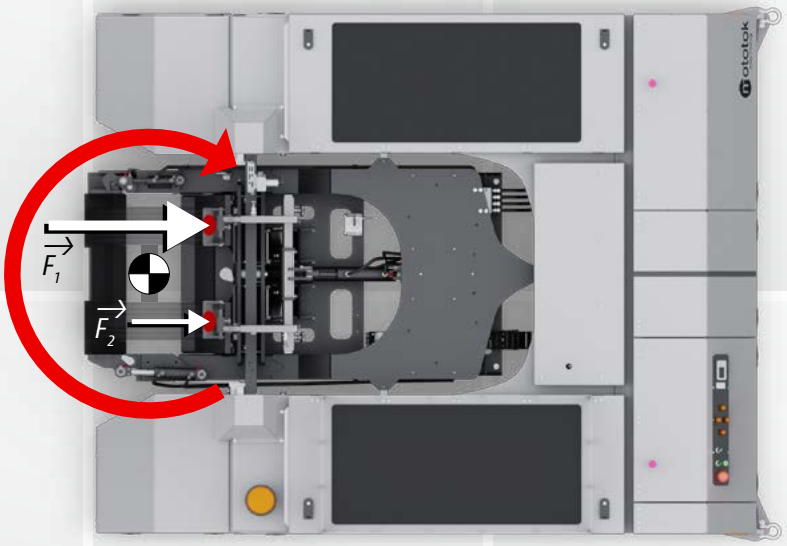
i-NPS takes action actively and not only with a simple alarm – when it is too late.

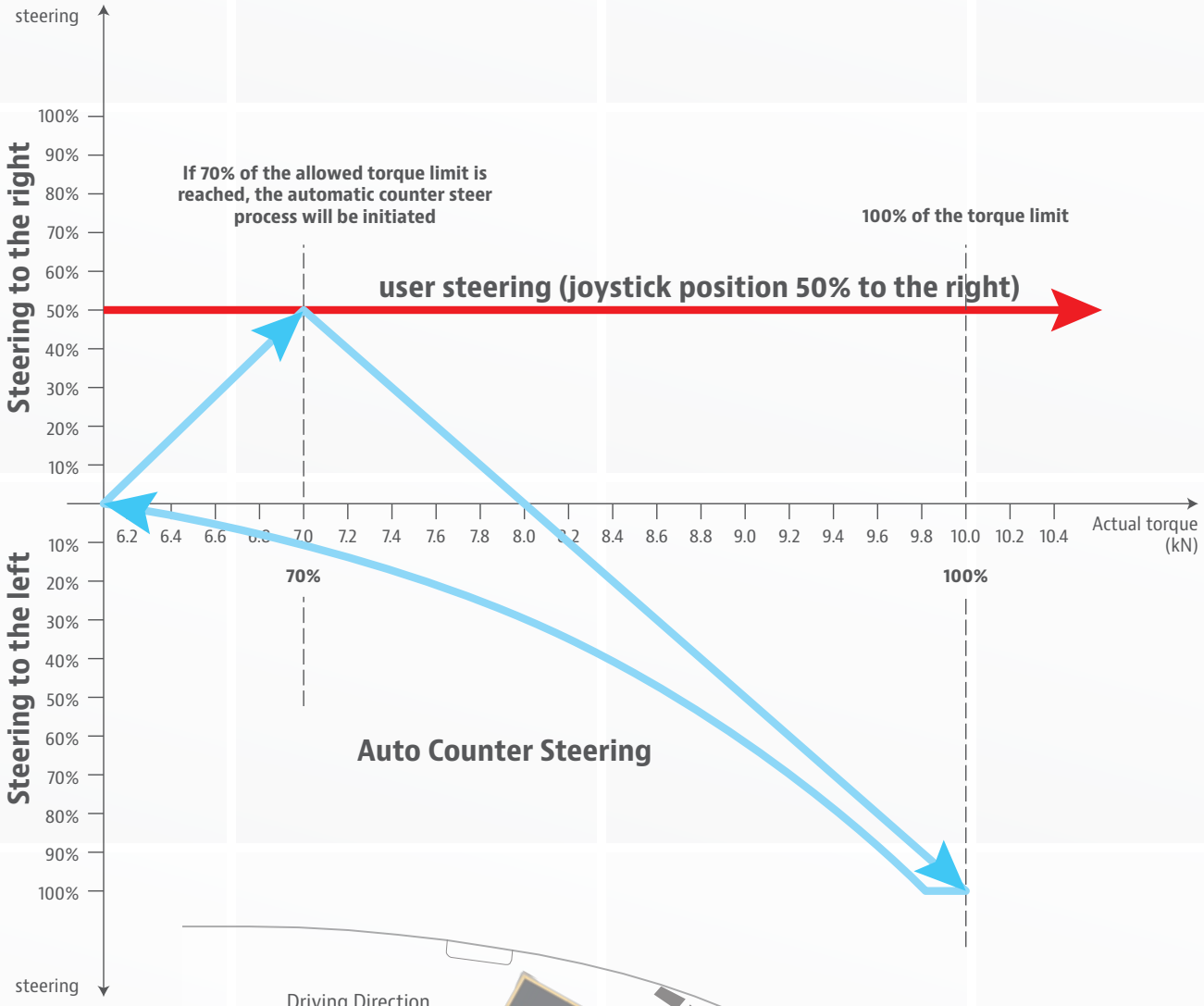
How this works

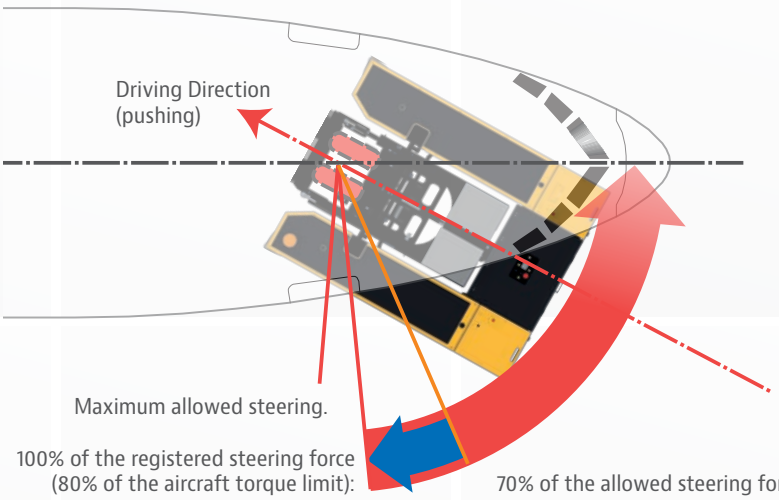
The intelligent oversteering control of the Mototok prohibits an oversteering incident by intelligent torque measurement and auto counter steer. When the measured torque is reaching a critical threshold of the set torque limit, a counter steer operation will be performed immediately.

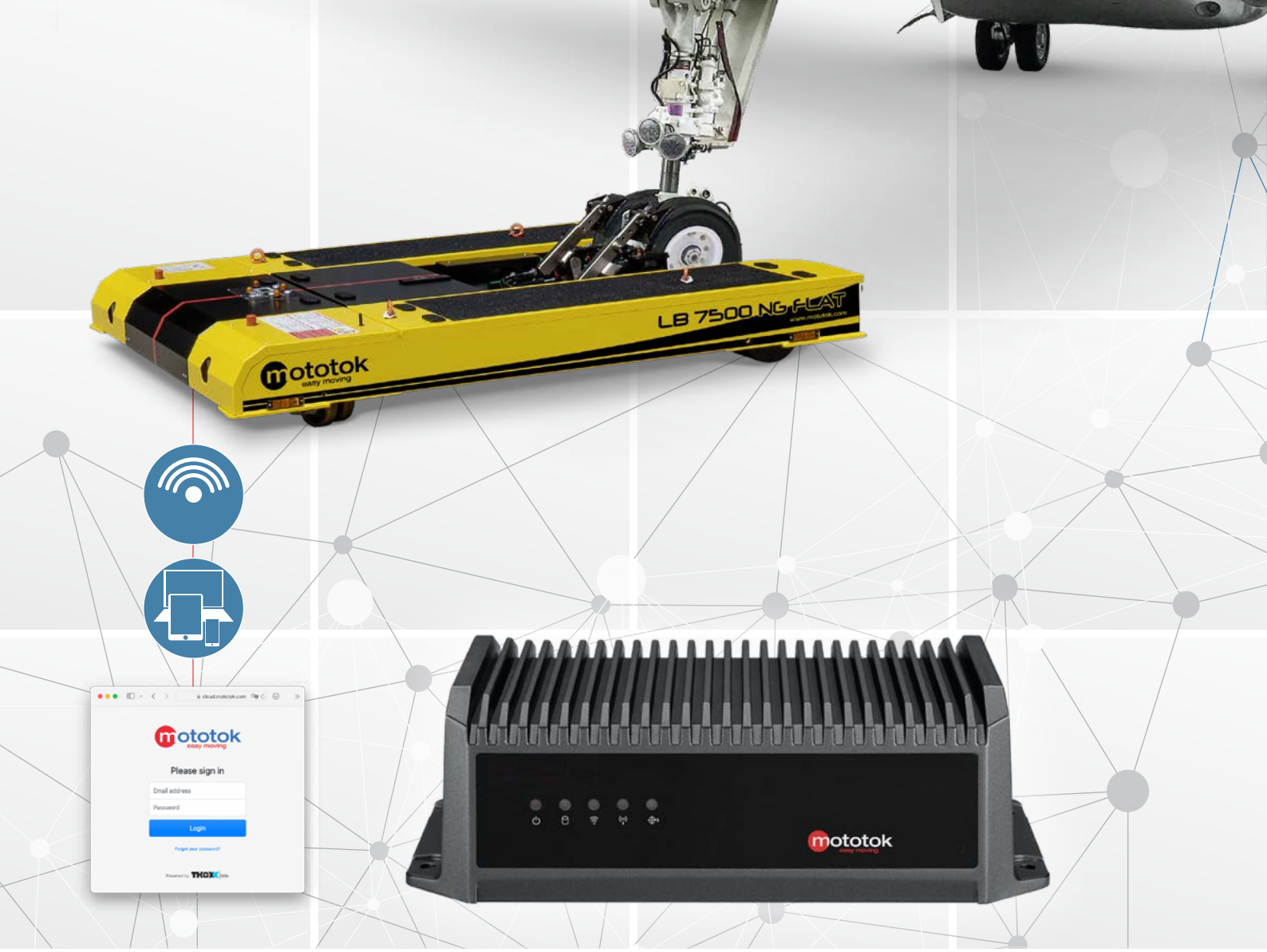
- → Intuitive and easy handling
- → Information for operators over the display of the Mototok and over electronic speech synthesis with the wireless headset
- → Information for technicians over Mototok app with Laptop or tablet

The forces and torques acting on the nosegear are measured by weighing cells. i-NPS calculates the difference between the values of the two weighing cells, outputs an oversteer occurrence and initiates countersteering if necessary.









Ground Handling goes digital.

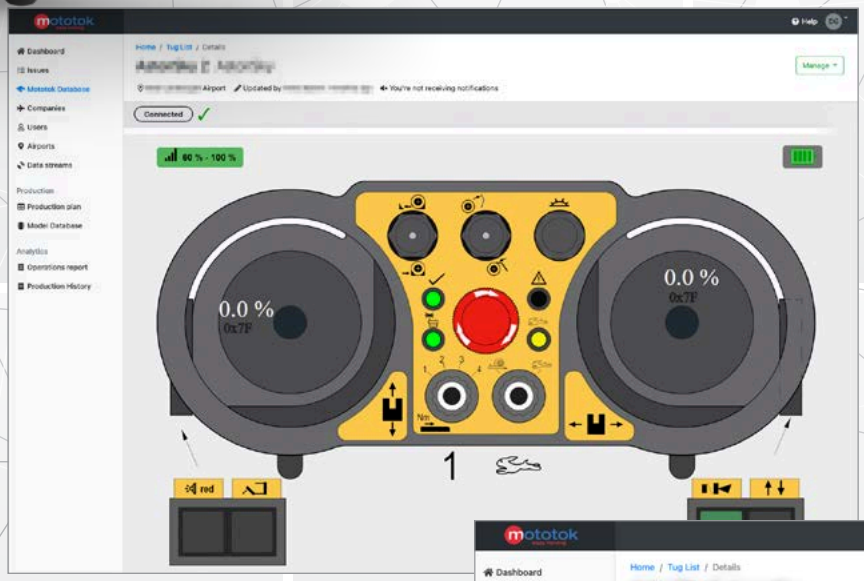
Mototok comes with a central processing unit (CPU) for features and adjustments relating to

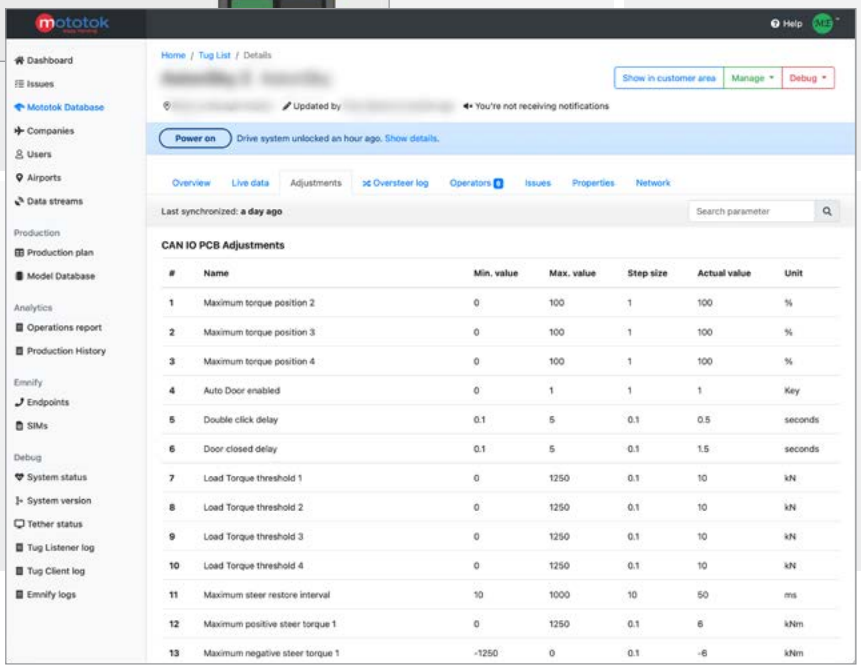
→ Towing and braking forces
→ Oversteering protection
→ Voice announcements
→ Unit diagnostics
→ Log files
→ User access

The CPU can be linked with any mobile device (smartphone, tablet or laptop) via bluetooth, WLAN or USB and a standard internet browser (like Microsoft Edge, Apple Safari, Google Chrome or Mozilla Firefox). Once you are linked to the system, you are able to manage many kinds of adjustments of the Mototok.

Log in to operate

The quickest log in can be done via a RFCI-card and an appropriate card reader on the machine. According to the authorization level, the user is able to move the Mototok, check or adjust the settings or read out the log files.



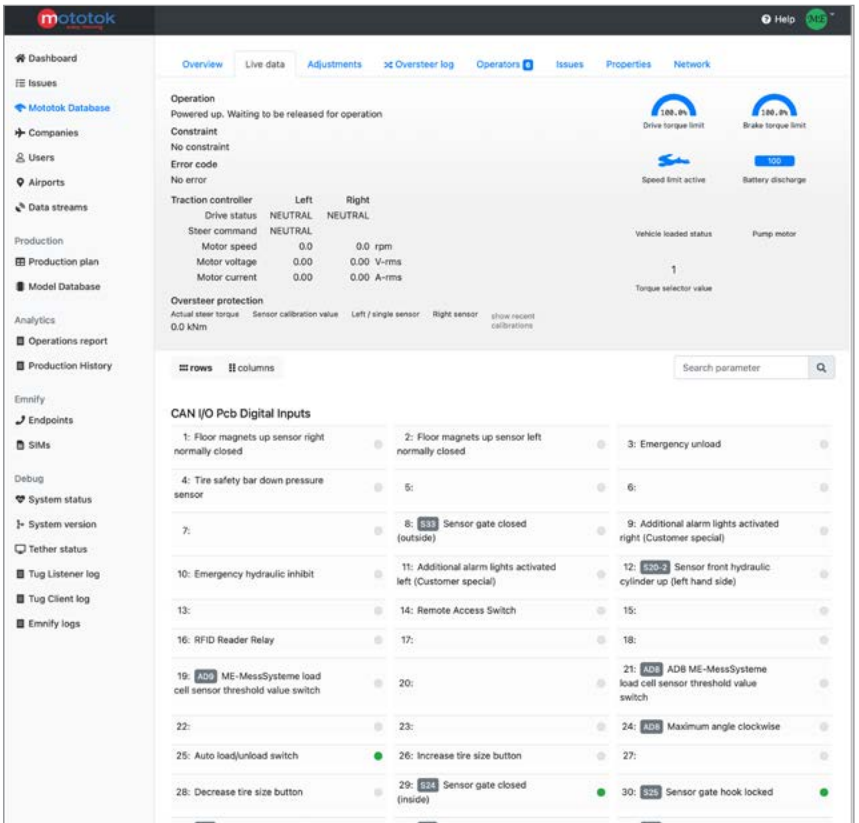


Manage vehicle adjustments

Service Management.

Work in collaboration online with our technicians if the need arises

With the help of Mototok cloud our technicians can access all parameters of your tug in real time – all movements, switch positions and sensor values. We literally see what's happening to your tug right now.



See state of the unit and sensors

WIDEBODY NARROWBODY

HANGAR OPTIMIZATION

MRO / FBO

Mototok SPACER 200

→ Towing capacity 200 t / 440924 lbs
→ Gimbal-mounted nosegear platform for compensating the tilt of the nosegear whilst turning
→ Oversteering Protection and Electronic Torque Control for safely and gently turning the nosegear
→ Fully automatic nosegear engaging function
→ For aircraft with a wheel diameter of 650 – 1200 mm
→ Improved Lighting: Front, rear, break and direction lights switch depending on the driven direction

Applicable for	
Max. towing capacity	200 t / 440924 lbs
Oversteering Protection	Electronic Torque Control, optional
Technical support out of the cloud	available
Use for	· Wide Body (e.g. A 330, A 340, A350, B 757, B 767, B 777-X, B 787) · Narrow Body (e.g. A 320 Family, Embraer)

VIDEOLINK

See Mototok in daily Pushback-Operation: bit.ly/mototok-pb

NARROWBODY REGIONAL AIRCRAFT

PUSHBACK

Mototok SPACER 8600 NG Pushback

Introducing the Spacer 8600 Pushback Tug: Your Ultimate Solution for Ground Handling Excellence!

Engineered for efficiency and performance, the **Spacer 8600 NG** is the pinnacle of pushback tugs, designed to streamline ground operations at airports with its cutting-edge features and unmatched capabilities.

→ Gimbal-mounted nosegear platform for compensating the tilt of the nosegear whilst turning
→ Electronic torque control for safely and gently turning the nosegear
→ i-NPS – Intelligent Nosegear Protection System with counter steering
→ Fully automatic nosegear engaging function
→ For aircraft with a wheel diameter of 450 – 850 mm
→ NTO license for
B 737 incl. MAX
A 220
A 320 family incl. NEO
MHI / Bombardier CRJ
NTO for **Embraer Regional Jets** is in progress.

→ More power due to 96V Batteries
→ Higher range and time of use due to TSD Batteries up to 400 Ah (optionally)
→ Faster loading automation through increased hydraulic volume flow
→ Better traction with new Continental tires
→ Lower service costs: Separate rim, tire, gear and motor for service and exchange, Maintenance-free battery
→ Improved service time: Check and change tires easily without a lifting platform
→ Towbar for transporting the Mototok on board
→ Improved Lighting: Front, Rear, Break and direction lights switch depending on driven direction.
→ Anywhere Charging: With onboard charger and automatic cable drum via universal CEE plug or Socket for external charger

On board charger with CEE Plug – Charge anywhere anytime (Model NG only)

→ Charger and cable stored inside the vehicle
→ No fixed charging points
→ Self retracting cable optimal for everyday usage
→ Automatic cable drum left or right attachable
→ Socket for external charger

Professional Safety Remote-Control

→ TFT LCD Display
→ Safety performance up to PL e, SIL 3
→ Protection level IP65 and seawaterproof design
→ Dead man switch
→ Fall safe 1,5 m
→ Safe connection start up function
→ Frequency scanning and hopping
→ Secure key for safe access
→ Lithium battery with BMS and 9h battery life

Integrated towbar for towing the Mototok

→ with integrated storage compartment

	SPACER 8600 PB NG
applicable for	
Max. towing capacity	105 t 231500 lbs
Oversteering Protection	Electronic Torque Control with Counter Steering
Technical support out of the cloud	available
Use for	· Narrow Body (e.g. A 320-Family, Boeing 737-Family, incl. Airbus A321 NEO LR / XLR) · Regional Jets

VIDEOLINK

See Mototok Spacer 200 and Spacer 8600 in Hangar use: bit.ly/spacer-hangar

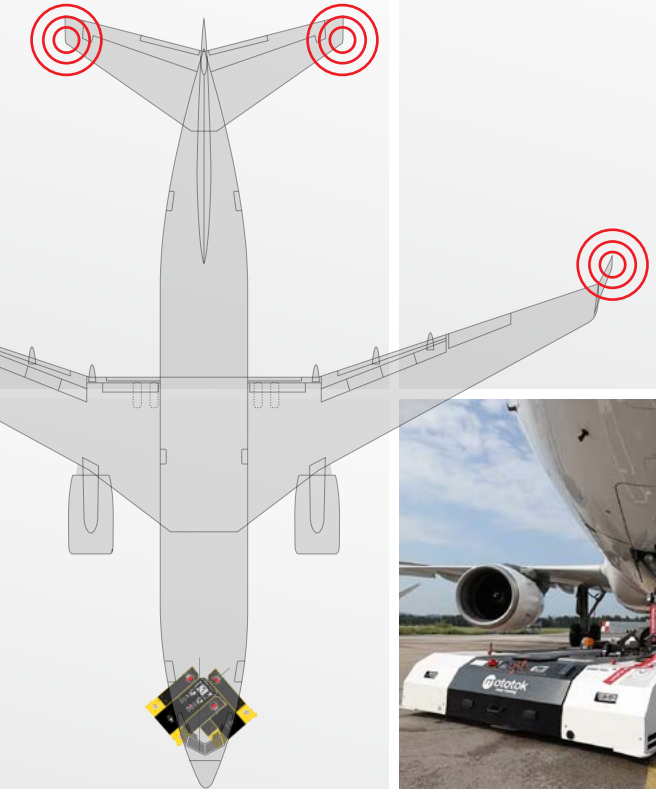
NARROWBODY REGIONAL AIRCRAFT

HANGAR OPTIMIZATION

MRO / FBO

Mototok SPACER 8600 MA for MRO/FBO

→ Towing capacity 85 t / 187300 lbs
→ Gimbal-mounted nosegear platform for compensating the tilt of the nosegear whilst turning
→ Electronic torque control for safely and gently turning the nosegear
→ i-NPS – Intelligent Nosegear Protection System with counter steering available
→ Fully automatic nosegear engaging function
→ For aircraft with a wheel diameter of 450 – 850 mm

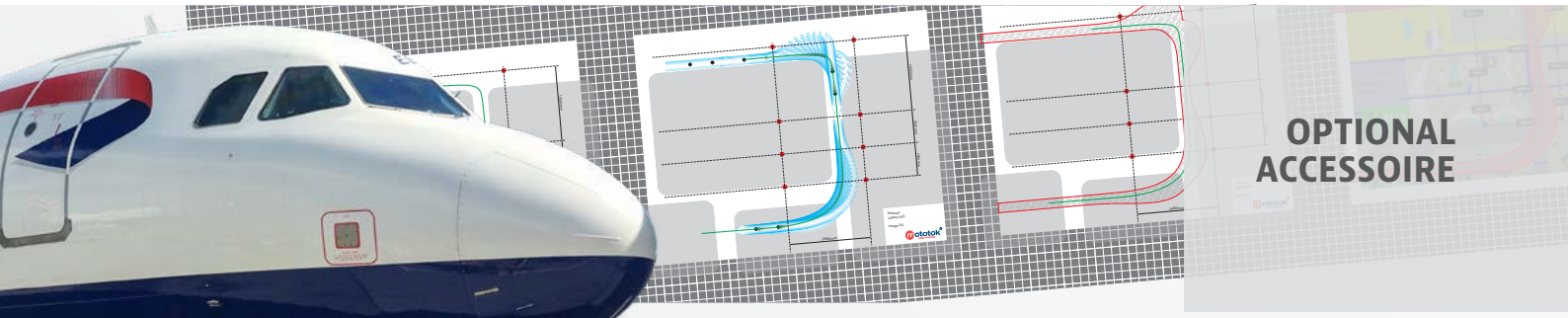


Turning on the Spot

Maximum manoeuvrability and safe placement of the aircraft even in very tight places: Mototok turns the raised nose wheel under the fuselage. The wingtips and the fuselage remain almost stationary.

VIDEOLINK

See Mototok's precision in manoeuvring
bit.ly/turning-spot



OPTIONAL ACCESSOIRE

Autonomous Driving

Increase the level of automation by using our solutions for autonomous driving. Mototok can be controlled visually by a line on the ground. Barcodes trigger certain commands in the driving computer: braking, accelerating, changing direction, etc. Mototok can also be controlled by induction loops laid in the floor. Control by means of GPS coordinates is also possible. On production lines during aircraft manufacture, Mototok is a versatile tool that can be used with great flexibility. During assembly, Mototok automatically moves the aircraft fuselage to the individual assembly points. In very space-restricted production environments, two synchronized Mototoks may also be used.

AGV

AIRBUS

BOEING

EMBRAER

	SPACER 8600 MA
applicable for	
Max. towing capacity	85 t 187300 lbs
Oversteering Protection	Electronic Torque Control with counter steering, optional
Technical support out of the cloud	available
Use for	· Narrow Body (e.g. A 320-Family, Boeing 737-Family) · Regional Jets

„The high and precise maneuverability was the key factor when ordering second and third device following year. Thanks to it one of our facilities has increased their capacity from 7 to 10 parallel lines."

Andrzej Borowczyk,
Logistic and Purchasing Deputy Manager,
Linetech S.A., Poland

REGIONAL AIRCRAFT
BUSINESS JETS

HELICOPTER

HANGAR
OPTIMIZATION

MRO / FBO

Mototok TWIN Series

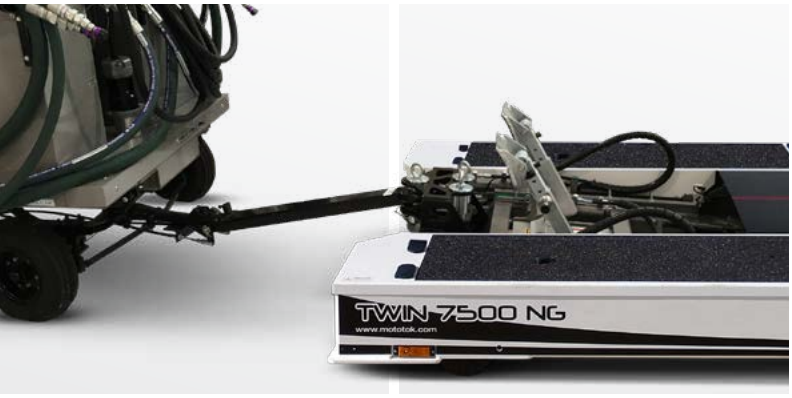
The world's most compact electric tug with fully hydraulic and sensor monitored nosewheel platform for all aircraft up to 75 t.

→ Fully automatic nosegear engaging function
→ Applicable for single or double nose wheel
→ Our Flat models are also ideal for helicopters
→ Hydraulic adjustment of the mouth opening depth for wheels with small diameter
→ GPU included
→ Different models available with different towing capacity
→ T 7000 with pushback capabilities and optional over-steering protection
→ Oversteering protection can be applied per special requests for other types of aircraft

OPTIONAL ACCESSOIRES

Additional Weights

A low nose wheel load on the aircraft can lead to traction problems. And the sloshing of the remaining aviation fuel in the aircraft's tanks in particular can cause sudden weight shifts. If the ground is also slippery (shiny floor) and slightly inclined, the Mototok may no longer have fully traction. With the help of the additional weights and our well-proven quartz sand tyres of the drive wheels with a higher contact area, traction can be increased considerably.



Trailor Coupling Adaptor

With the Mototok TWIN and our suitable towing adaptor, you can tow all heavy equipment such as GPU and other – safely and easily.

	TWIN 7500 NG TWIN 7500 NG Flat	TWIN 6600 NG	TWIN 6500 NG Flat	TWIN 3900 NG	T 7000 Pushback
Applicable for					
Oversteering Protection	Electronic Torque Control, optional	Electronic Torque Control, optional	Electronic Torque Control, optional	Electronic Torque Control, optional	Electronic Torque Control, optional
Technical support out of the cloud	available	available	available	available	available
Max. towing capacity	75 t / 110230 lbs	55 t / 121200 lbs	50 t / 110230 lbs	39 t / 85980 lbs	75 t / 110230 lbs
Use for	· Aircraft like Boeing 737 · Gulfstream 650 · Global Express · Dassault Falcon · ATR · Pilatus · Hawker · Nearly all wheeled Helicopter like Sikorsky · Boeing · Eurocopter · Bell · AgustaWestland	· Aircraft like Gulfstream 650 · Dassault Falcon · Global Express · ATR · Pilatus · Hawker · Nearly all wheeled Helicopter like Sikorsky · Boeing · Eurocopter · Bell · AgustaWestland	· Aircraft like Gulfstream 550 · Dassault Falcon · Global Express · ATR · Pilatus · Hawker · Nearly all wheeled Helicopter like Sikorsky · Boeing · Eurocopter · Bell · AgustaWestland	· Aircraft like Bombardier Challenger · Embraer Legacy · Lear Jet · Cessna · Beechcraft · Dassault Falcon · Hawker · Pilatus · Nearly all wheeled Helicopter like Sikorsky · Boeing · Eurocopter · Bell · AgustaWestland	· Regional aircraft like ATR · Dash · Embraer · CRJ · Fokker · NTO for MHI CRJ available, for Embraer Regional Jets in progress

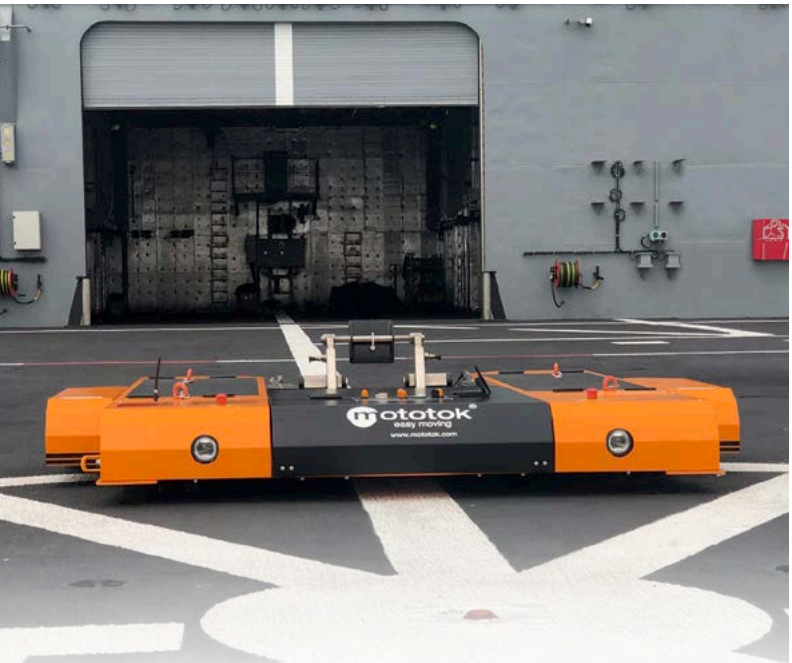
MILITARY AIRCRAFT

HELICOPTER

SALTWATER RESISTANT

Mototok LB-Series. Easy, convenient and safe Military aircraft maneuvering.


3-JM


mototok
easy moving


TWIN LB 7500 NH90
mototok
easy moving

MILITARY AIRCRAFT

HELICOPTER

SALTWATER RESISTANT

Mototok LB Series

The military version of the TWIN Series

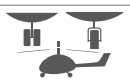
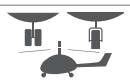
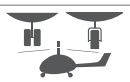
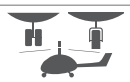
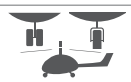
→ Water proofed and salt water resistant
→ Applicable on aircraft carrier
→ Magnetic safety system available
→ Active steering for a better seastate maneuvering for navy use available
→ Wireless or cable connected remote control
→ Red operation lights for night operations
→ No problems with mounted cameras, radar or head-lamps underneath the aircraft
→ GPU included

LB 9500 – specially designed model for the C130

LB 7500 V22 – specially designed model for the V22

LB 7500 NH90 – specially designed model for the NH90

Special adaptions for NH 90, V-22, Casa and similar.

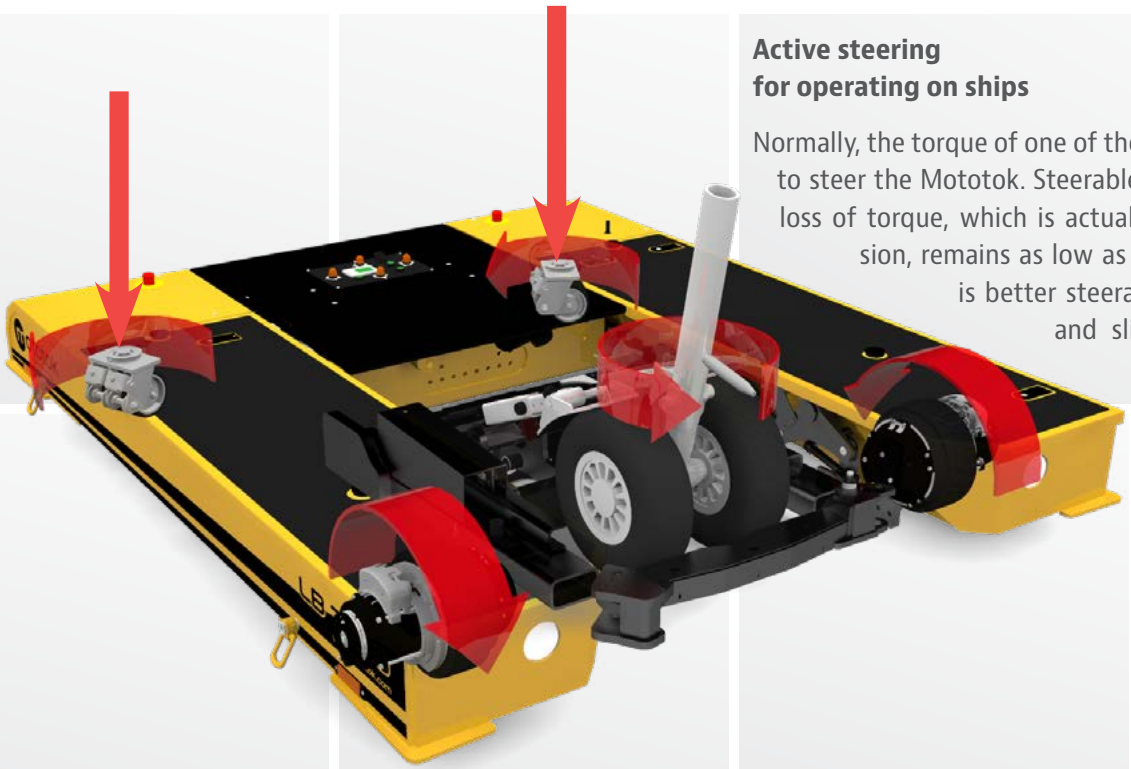
	LB 7500 NG LB 7500 NG Flat	LB 6600 NG	LB 6500 NG Flat	LB 3900 NG	LB 528	LB 9500	LB WIDE 14
Applicable for							
Oversteering Protection	Electronic Torque Control, optional	Electronic Torque Control, optional	Electronic Torque Control, optional	Electronic Torque Control, optional	Shear Pins, optional	Electronic Torque Control, optional	Electronic Torque Control, optional
Technical support out of the cloud	available	available	available	available	available	available	available
Max. towing capacity	75 t / 165300 lbs	55 t / 121200 lbs	50 t / 110230 lbs	39 t / 85980 lbs	28 t / 61730 lbs	86 t / 190000 lbs	75 t / 165300 lbs
Use for	· Military Machines like Eurofighter · Tornado · F16, F18, F35 · Saab Gripen · Dassault Rafale · Grumman E2C Hawkeye · Helicopter like VC22 · NH90 · CH47 · CH53 · SuperPuma · Airbus H225 · ETZ					· Special tug for Lockheed C-130 Hercules, fits on HCU-6/E pallet for transportation with the C130 (expected to be available from Q2 / 2024)	· Military Transport aircraft like Lockheed C-130 Hercules · Embraer KC-390 · Airbus A400M and other

Trailor coupling adaptor

for multi-functonal extensions

OPTIONAL ACCESSOIRES

Optional accessories for the LB-Series.



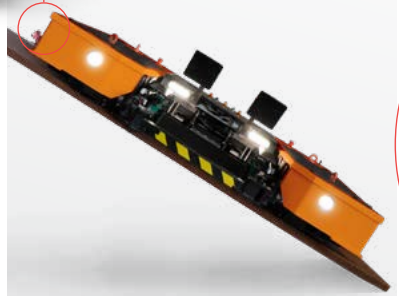
Active steering for operating on ships

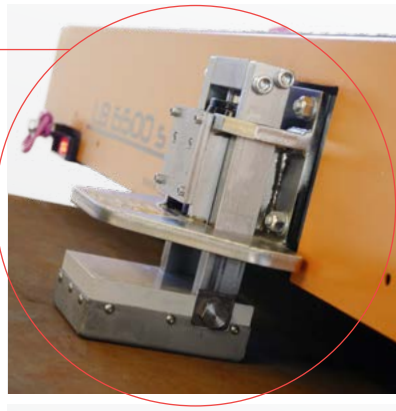
Normally, the torque of one of the drive motors is reduced to steer the Mototok. Steerable castors ensure that the loss of torque, which is actually necessary for propulsion, remains as low as possible. The advantage is better steerability on inclined planes and slippery surfaces such as aircraft carriers.

OPTIONAL ACCESSOIRES

Magnetic Emergency System

The magnetic emergency system prevents the mototok from slipping on the surface of an aircraft carrier during heavy weather and sea conditions at an extreme incline. It can be activated by the operator manually on the remote when there is a risk of sliding.

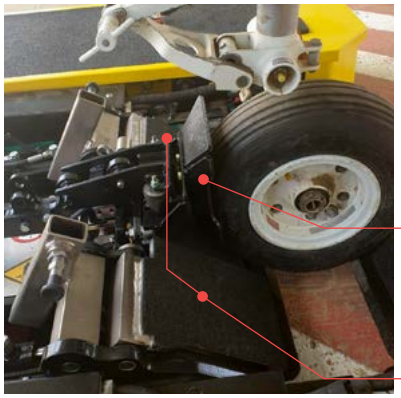




Oversteering Protection System

With the help of the optional Oversteering Protection System, excessive stress on the nosegear due to oversteering or other destructive forces is eliminated. When a defined torque is reached, the Mototok warns the operator and shuts down if the warning is not heeded.

This works for both single and double nose wheel.



Cage with integrated torque measuring equipment (single wheel)

Pressure plates with integrated torque measuring equipment (double wheel)

Spiral cable for Remote Control

Insert the optional coiled cable connection to switch off the radio function automatically.

BUSINESS JETS
LIGHT AIRCRAFT

HELICOPTER

HANGAR
OPTIMIZATION

MRO / FBO

Mototok M Series

Designed for aircraft with single or double nose wheel, sporting airplanes and wheeled helicopters

→ Fully hydraulical nosegear platform
→ Applicable for single or double nose wheel
→ Hydraulic adjustment of the mouth opening depth for wheels with small diameter
→ GPU included

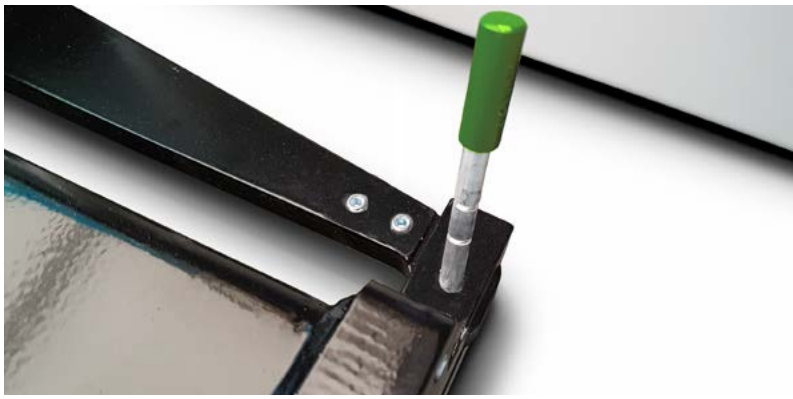
Ground power included

The M is equipped with Ground power sockets for supplying the aircraft with power for electrical equipment on board (cockpit, galley, air conditioning, etc.)

Oversteering Protection (optional)

Mototok made the entry-level models of the M-Series safer: The 515 and 528 are equipped with a system to prevent oversteering and damage to the nosegear. The system interrupts the torque at predefined points with the help of shear pins. The transfer of the torque onto the nosegear will stop immediately. Beyond that, both model sounds an alarm and comes to an automatic stop.

This is unique in this device class.



	M 528	M 515
Applicable for		
Operation of the hydraulic platform and the door	automatically with radio remote control	manually with levers on the vehicle
Oversteering Protection	Shear Pin, optional	Shear Pin, optional
Max. towing capacity	28 t / 61700 lbs	15 t / 33000 lbs
Use for	· Aircraft with single or double nose wheel, sporting airplanes and wheeled helicopters	

VIDEOLINK
See Alligator in action: bit.ly/m-alligator

HELICOPTER

JETS

EXTREMELY FLAT

NEW AUTOMATIC NOSEGEAR CLAMPING SYSTEM

PATENTED

Mototok ALLIGATOR 4000 Extreme low height

Our specialist for helicopters: the ultra flat aircraft tug. For aircraft and wheeled helicopters with extremely low ground clearance.

With a height of only 149 mm / 5.87 inch in the area of the nose wheel platform, the Mototok Alligator is certainly one of the lowest industrial trucks in the world. With its innovative safety brackets for the nose wheel, it is also one of the safest ways to manoeuvre an aircraft or helicopter. No problems with mounted cameras, radar or headlamps underneath the aircraft.

unlifted

lifted, free rotation possible
under the mounted equipment

Applicable for	
Towing capacity	50 t
Technical support out of the cloud	available

Technical Data

		M-SERIES		TWIN / LB -			
		M 515	M 528 / LB 528	3900 NG	6500 NG Flat	6600 NG	7500 NG
Use for		**single & double nosewheel, wheeled helicopter** 	**single & double nosewheel, wheeled helicopter** 	**single & double nosewheel, wheeled helicopter** 	**single & double nosewheel, wheeled helicopter** 	**single & double nosewheel, wheeled helicopter** 	**single & double nosewheel, wheeled helicopter** 
Field of application		MRO / FBO	MRO / FBO	MRO / FBO	MRO / FBO	MRO / FBO	MRO / FBO
Maximum towing capacity [1]		15 t 33069 lbs	28 t 61729 lbs	39 t 85980 lbs	50 t 110231 lbs	55 t 121200 lbs	75 t 165347 lbs
Maximum nosewheel weight capacity		1,5 t 3307 lbs	2 t 4409 lbs	4,5 t 9920 lbs	6 t 13228 lbs	6 t 13228 lbs	7.5 t [4] 16535 lbs
Dimensions (without antenna, grips on the surface)	width	1810 mm 71.26 inch	1810 mm 71.26 inch	2136 mm 84.09 inch	2136 mm 84.09 inch	2136 mm 84.09 inch	2136 mm 84.09 inch
	lenght	1810 mm 71.26 inch	1810 mm 71.26 inch	2596 mm 102.20 inch	2596 mm 102.20 inch	2596 mm 102.20 inch	2596 mm 102.20 inch
	height	330 mm 12.99 inch	330 mm 12.99 inch	350 mm 13.78 inch	324 mm 12.76 inch	363 mm 14.29 inch	350 mm 13.78 inch
Platform height							
Ground clearance		80 mm 3.15 inch	80 mm 3.15 inch	110 mm 4.33 inch	85 mm 3.35 inch	110 mm 4.33 inch	110 mm 4.33 inch
Max width of the nosewheel		500 mm 19.69 inch	500 mm 19.69 inch	665 mm 26.2 inch	665 mm 26.2 inch	665 mm 26.2 inch	665 mm 26.2 inch
Nosewheel diameter	min.	150 mm 5.91 inch	150 mm 5.91 inch	300 mm [5] [6] 11.81 inch	300 mm [5] [6] 11.81 inch	300 mm [5] [6] 11.81 inch	300 mm [5] [6] 11.81 inch
	max.	500 mm 19.69 inch	500 mm 19.69 inch	670 mm 26.38 inch	670 mm 26.38 inch	670 mm 26.38 inch	670 mm 26.38 inch
Unladen weight		900 kg 1980 lbs	1000 kg 2200 lbs	1900 kg 4189 lbs	1900 kg 4189 lbs	1900 kg 4189 lbs	2100 kg 4630 lbs
Time to load/fix aircraft (approx.)		15 sec	15 sec	15 sec	15 sec	15 sec	15 sec
Speed (approx.)		5.22 km/h 1.45 m/s 3.24 mph	5.22 km/h 1.45 m/s 3.24 mph	4.5 km/h 1.25 m/s 2.80 mph	4.5 km/h 1.25 m/s 2.80 mph	5.3 km/h 1.47 m/s 3.29 mph	4.4 km/h 1.22 m/s 2.73 mph
Batteries (maintenance-free, deep cycle gel)		4 x 115 Ah	4 x 115 Ah	4 x 220 Ah	4 x 220 Ah	4 x 220 Ah	4 x 220 Ah
Voltage		48 V	48 V	48 V	48 V	48 V	48 V
AC Microprocessor controlled electric motors		✓	✓	✓	✓	✓	✓
Range (depending on the workload)		2 days	2 days	3-4 days	3-4 days	3-4 days	3-4 days
Possible terrain		Concrete, stone	Concrete, stone	Concrete, stone	Concrete, stone	Concrete, stone	Concrete, stone
Drive wheel width		100 mm 3.94 inch	100 mm 3.94 inch	100 mm 3.94 inch	100 mm 3.94 inch	132 mm 5.20 inch	132 mm 5.20 inch
Drive wheel diameter		300 mm 11.81 inch	300 mm 11.81 inch	300 mm 11.81 inch	300 mm 11.81 inch	350 mm 13.78 inch	308 mm 12.13 inch
Tyres		Puncture-proof tyres	Puncture-proof tyres	Puncture-proof tyres	Puncture-proof tyres	Puncture-proof tyres	Puncture-proof tyres Quarz sand particles
Standard radio remote control		✓	–	–	–	–	–
Advanced radio remote control (with safety features, waterproof, certification of conformity), worldwide safety approval including airports, TÜV certified		–	✓	✓	✓	✓	✓

Optional Equipment

Hydraulic nosewheel securing [2]		✓	✓	✓	✓	✓	✓
Hydraulic full hands free wheel opening doors		available	✓	✓	✓	✓	✓
Ground power cable for gound power connection 13,4V / 25,6 V (short time up to 1300 A) [3]		available	available	available	available	available	available
Driving light (LED, 10,000 hour operating life, very high beam range)		available	✓	✓	✓	✓	✓
Yellow flashlight		available	✓	✓	✓	✓	✓
Safety beeper		available	✓	✓	✓	✓	✓
Oversteering protection		Shear pin	Shear pin	Electronic torque control, available	Electronic torque control, available	Electronic torque control, available	Electronic torque control, available
Technical support out of the cloud		–	–	available	available	available	available
Trailer coupling adaptor for multi-functional extensions		available	available	available	available	available	available
Military spiral cable connection (15 m) between aggregate and control unit		–	available	available	available	available	available
Active steering		–	–	available	available	available	available
Automatic controls by ground markings (AGV)		available	available	available	available	available	available
Adaptations for special demands (i.e. military version / production range)		available	available	available	available	available	available

Mistakes and technical alterations reserved / Date 07.2023

1) The stated towing capacity is valid for towing on normal ground conditions with no incline.

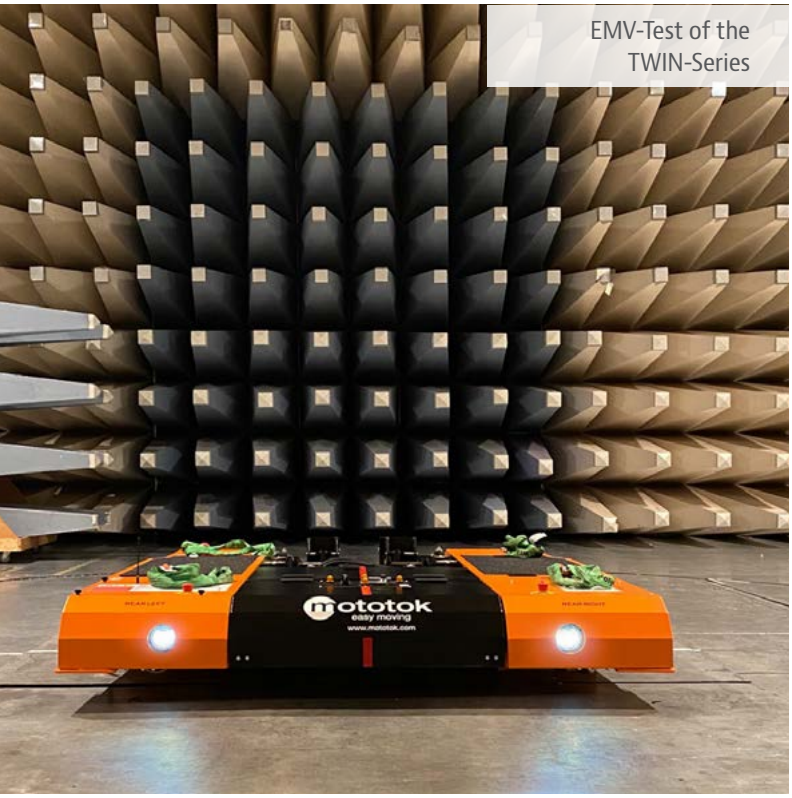
2) This prevents the nosewheel from rising and slipping out of position. The securing device is hydraulically lowered onto the nosewheel and securely locked at the push of a button.

3) In most aircraft, the generator voltage is 28.4 V. The 25.6 V on-board batteries are charged with this voltage. With the Mototok ground power supply, the on-board voltage can be maintained and used to start the turbines. Functionality depends on the electronic of the aircraft.

SERIES					SPACER		
7500 NG Flat	**T 7000**	**LB WIDE 14**	**LB 9500**	**Alligator 4000**	**8600 MA**	**8600 PB**	**200**
single & double nosewheel, wheeled helicopter	**double nose wheel**	**double nose wheel**	**double nose wheel**	**single & double nosewheel, wheeled helicopter**	**double nosewheel**	**double nosewheel**	**double nosewheel**
MRO / FBO	Pushback	Military	Military	MRO / FBO	MRO / FBO	Pushback	MRO / FBO
75 t 165347 lbs	75 t 165347 lbs	75 t 165347 lbs	86 t 187393 lbs	50 t 110231 lbs	80 t 176400 lbs	95 t 209439 lbs	200 t 440925 lbs
7.5 t [4] 16535 lbs	7.5 t 16535 lbs	7 t 15432 lbs	11.8 t 26000 lbs	3.5 t 7720 lbs	8 t 17600 lbs	10 t 22046 lbs	22 t 48502 lbs
2136 mm 84.09 inch	2136 mm 84.09 inch	2956 mm 116.38 inch	2577 mm 101.46 inch	2762 mm 108.74 inch	2610 mm 102.76 inch	2610 mm 102.76 inch	3998 mm 157.40 inch
2596 mm 102.20 inch	2596 mm 102.20 inch	2596 mm 102.20 inch	2029 mm 78.88 inch	2274 mm 89.53 inch	3305 mm 130.12 inch	3305 mm 130.12 inch	3999 mm 157.44 inch
324 mm 12.76 inch	350 mm 13.78 inch	350 mm 13.78 inch	639 mm 25.16 inch	320 mm 12.60 inch	553 mm 21.77 inch	553 mm 21.77 inch	879 mm 34.61 inch
			468 mm 18.43 inch	149 mm 5.87 inch			
85 mm 3.35 inch	110 mm 4.33 inch	85 mm 3.35 inch	78 mm 3.07 inch	75 mm 2.95 inch	81 mm 3.19 inch	81 mm 3.19 inch	73 mm 2.87 inch
665 mm 26.2 inch	665 mm 26.2 inch	1425 mm 56.1 inch	1100 mm 43.31 inch	820 mm 32.28 inch	851 mm 33.50 inch	851 mm 33.50 inch	1400 mm 55.12 inch
300 mm [5] [6] 11.81 inch	300 mm [5] 11.81 inch	300 mm [5] 11.81 inch	600 mm 23.62 inch	330 mm 12.99 inch	450 mm 17.72 inch	450 mm 17.72 inch	650 mm 25.59 inch
670 mm 26.38 inch	670 mm 26.38 inch	600 mm 23.62 inch	1000 mm 39.37 inch	480 mm 18.90 inch	850 mm 33.46 inch	850 mm 33.46 inch	1200 mm 47.24 inch
2100 kg 4630 lbs	2100 kg 4630 lbs	2400 kg 5291 lbs	To be determined	2300 kg 5070 lbs	5400 kg 11905 lbs	5400 kg 11905 lbs	13000 kg 28660 lbs
15 sec	15 sec	15 sec		15 sec	15 sec	15 sec	15 sec
4.4 km/h 1.22 m/s 2.73 mph	3.78 km/h 1.05 m/s 2.35 mph	4 km/h 1.11 m/s 2.49 mph		3.78 km/h 1.05 m/s 2.35 mph	5.4 km/h 1.5 m/s 3.36 mph	5.4 km/h 1.5 m/s 3.36 mph	4 km/h 1.11 m/s 2.49 mph
4 x 220 Ah	4 x 220 Ah	4 x 220 Ah		4 x 220 Ah	Armour Plate 300 Ah with electrolyte recirculation	Armour Plate 300 Ah with electrolyte recirculation	330 Ah Maintenance-free
48 V	48 V	48 V		48 V	80 V	80 V	96 V
✓	✓	✓		✓	✓	✓	✓
3-4 days	3-4 days	3-4 days		3-4 days	3-4 days	3-4 days	1 day
Concrete, stone	Concrete, stone	Concrete, stone	Concrete, stone	Concrete, stone	Concrete, stone	Concrete, stone	Concrete, stone
132 mm 5.20 inch	132 mm 5.20 inch	132 mm 5.20 inch	181 mm 7.13 inch	132 mm 5.20 inch	170 mm 6.69 inch	170 mm 6.69 inch	215 mm 8.46 inch
308 mm 12.13 inch	308 mm 12.13 inch	308 mm 12.13 inch	454 mm 17.87 inch	308 mm 12.13 inch	406 mm 15.98 inch	406 mm 15.98 inch	415 mm 16.34 inch
Puncture-proof tyres Quarz sand particles	Puncture-proof tyres Quarz sand particles	Puncture-proof tyres Quarz sand particles	Puncture-proof tyres Quarz sand particles	Puncture-proof tyres	Puncture-proof tyres Quarz sand particles	Puncture-proof tyres Quarz sand particles	Puncture-proof tyres
–	–	–	–	–	–	–	–
✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	To be determined	✓	✓	✓	✓
✓	✓	✓		✓	✓	✓	✓
available	available	available		available	–	–	–
✓	✓	✓		✓	✓	✓	✓
✓	✓	✓		✓	✓	✓	✓
✓	✓	✓		✓	✓	✓	✓
Electronic torque control, available	Electronic torque control, available	Electronic torque control, available		-	Electronic torque control with counter steering, available	Electronic torque control with counter steering, available	Electronic torque control, available
available	available	available		available	available	available	available
available	available	available		-	–	–	–
available	available	available		available	available	available	available
available	available	available		available	available	available	✓
available	available	available		available	available	available	available
available	available	available		available	available	available	available

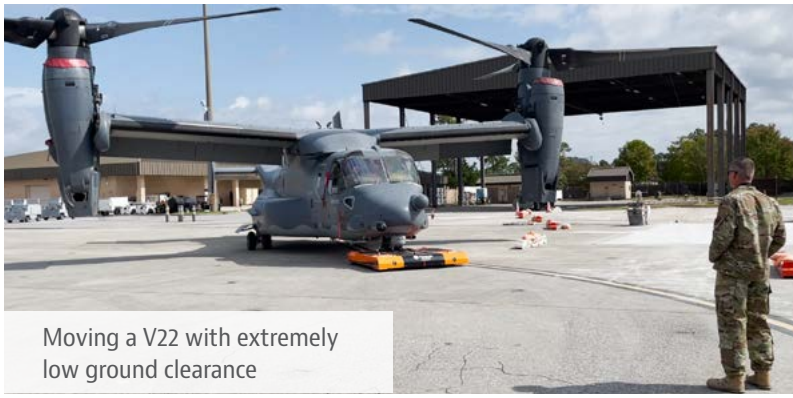
4) LB-Series for Military purposes: Maximum nosewheel weight capacity 6.5 t / 14330 lbs
5) Smaller wheel diameters may be suitable under optimal conditions (e.g. sufficient tyre pressure).
6) Equipment dependent and customizable. The use of vertical securing paddles for the NH 90, for example, places the possible wheel diameters in other ranges. The values listed here apply to the standard models of the LB- and TWIN-Series.

Pushback in
London Heathrow T5A



EMV-Test of the
TWIN-Series

MRO / FBO – Mototok
tows a widebody aircraft



Moving a V22 with extremely
low ground clearance

Our Experience and Expertise.

Our many years of expertise are based, among other things, on our experience with push-backs. In order to push aircraft with passengers into position at airports, very complex processes and quality controls are necessary. They culminate in the so-called NTO – a certificate of conformity from the respective aircraft manufacturer.

Mototok currently holds the following NTO declarations of conformity:

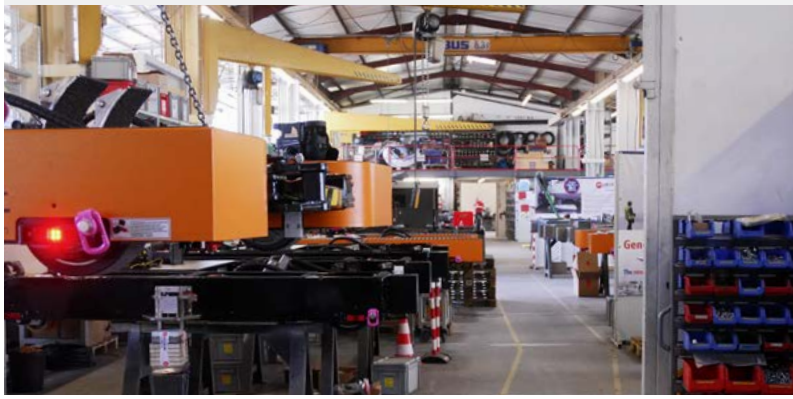
→ B 737 incl. MAX
→ A 220
→ A 320 family incl. NEO
→ MHI / Bombardier CRJ

NTO for Embraer Regional Jets is in progress.

Our innovative built to last aircraft tractors are best equipped for daily heavy use as they consist of high-grade material, hand-picked components according to the finest engineering designs. Our products are capable of withstanding the toughest conditions when exposed to wind and salt water. Thanks to a selection of the finest materials, only limited maintenance is necessary.

Our production process corresponds and applies to all necessary demands and conditions required in the engineering industry.

2006/42/EC	Machinery Directive (MD)
2014/35/EU	Low Voltage Directive (LVD)
2014/30/EU	Electromagnetic Compatibility Directive (EMC)
2014/53/EU	Radio Equipment Directive (RED)
EN 1915-1	Aircraft ground support equipment – General requirements – Part 1: Basic safety requirements
EN 1915-2	Aircraft ground support equipment – General requirements – Part 2: Stability and strength requirements, calculation and test methods
EN 12312-7	Aircraft ground support equipment – Part 7: Aircraft movement equipment
EN ISO 12100	Safety of machinery – General principles for design – Riskassessment and risk reduction
EN 1175-1	Safety of industrial trucks – Electrical requirements – Part 1: General requirements for battery powered trucks
EN ISO 4413	Hydraulic fluid power – General rules and safety requirements for systems and their components
EN ISO 13849-1	Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design
EN 60204-1	Safety of machinery – Electrical equipment of machines – Part 1: General requirements



The German Art of Engineering.

Engineered and Made in Germany with Passion.

Satisfaction guaranteed – our customers

(extract)

Airports

Bern	Switzerland	Airport	Several Aircraft
Birmingham	USA	Shuttlesworth Intern. Airport	Several Aircraft
Burbank	USA	Bob Hope Airport	Several Aircraft
Cannes	France	Mandelieu Airport	Several Aircraft and Helicopter
Chicago	USA	Chicago Executive Airport	Several Aircraft
Dallas	USA	Dallas Love Field	Several Aircraft
Denison	USA	North Texas Regional Airport	Several Aircraft
Dresden	Germany	Airport	General Aviation
Dublin	Ireland	International Airport	Several Aircraft
Glasgow	UK	International Airport	Several Aircraft
Indianapolis	USA	International Airport	Several Aircraft
Kuala Lumpur	Malaysia	Sultan Abdul Aziz Shah International Airport	Several Aircraft
London	UK	Luton Airport	Several Aircraft
Lugano	Switzerland	Airport	Several Aircraft Helicopter Agusta and others
Lyon	France	Saint Exupery Airport	Several Aircraft and Helicopter
Malaga	Spain	Airport Costa del Sol	Several Aircraft and Helicopter
McKinney	USA	National Airport	Several Aircraft
Minneapolis	USA	Saint Paul International Airport	Several Aircraft
Moskow	Russia	Domodedovo Airport	Several Aircraft and Helicopter
Orlando	USA	Sanford International Airport	Several Aircraft
Panama	Panama	Albrook „Marcos A. Gelabert" International Airport	Several Aircraft
Philadelpia	USA	International Airport	Several Aircraft
Provo	USA	Municipal Airport	Several Aircraft
Santiago de Chile	Chile	Arturo Merino Benítez International Airport	Several Aircraft
Seattle	USA	Tacoma International Airport	Several Aircraft
Seattle	USA	King County International Airport	Several Aircraft
Sion	Switzerland	International Airport	Several Aircraft
Truckee	USA	Tahoe Airport	Several Aircraft
Tulsa	USA	International Airport	Several Aircraft
Waukegan	USA	Regional Airport	Several Aircraft
Zürich	Switzerland	International Airport	Several Aircraft and Helicopter

FBO / MRO

ACC Columbia, Hannover & Cologne	Germany	Global & others
ACI Jet Center	USA	Several Aircraft
AERO Dienst, Nuremberg	Germany	FBO
Air Service Basel	Switzerland	G5, Global Express, Boeing 737
AirMec	Angola	MRO / Military Aircraft
Alpark SA	Switzerland	Several Aircraft
Atlantic Aviation	USA	
Business Jet Center	USA	
Alaska Airlines	USA	
Cannes	France	Several Aircraft and Helicopter
Centeravia		Several Aircraft
Chantilly Air	USA	
Constant Aviation	USA	
Duncan Aviation	USA	Several Aircraft
Dupage Aerospace	USA	
Firehawk Helicopters	USA	
First Wing Jet Center	USA	
Flying Group, Antwerpen	Belgium	Several Aircraft
Grand Air	USA	
Great Falls Jet Center	USA	
Hawker Pacific Asia Pte Ltd	Singapore	Several Aircraft
Jet Alliance Vienna	Austria	Several Aircraft
JetAviation, Dallas	USA	
JetAviation, Geneva	Switzerland	Several Aircraft
Legacy Jet Center, Tulsa	USA	Several Aircraft
MillionAir	USA	
Panaviatic Ltd	Estonia	Several Aircraft
Perth	Australia	FBO
Sapura Aero	Malaysia	Several Aircraft
Silk Way Airlines, Baku	Azerbaijan	Several Aircraft
Standard Aero	USA	
Starport Aviation	USA	Several Aircraft
Sundance Airport	USA	
Synergy Flight Center	USA	Several Aircraft
TACAir	USA	
Tarkim Air	Turkey	General Aviation
XJEt	UK	Several Aircraft
FAI Nürnberg	Germany	Several Aircraft
Executiv Jet Service	Switzerland	Several Aircraft
Alpin Sky Jets	Switzerland	Several Aircraft
Aeroground Berlind GmbH	Germany	Several Aircraft
DC Aviation GmbH	Germany	Several Aircraft
Dedeman	Rumänien	Several Aircraft
Execujet New Zealand	Neuseeland	Several Aircraft
Falcon Aviation Services	UAE	Several Aircraft
JetEx	UAE	Several Aircraft
Flying Service	Belgien	Several Aircraft
GCH Aviation	New Zealand	Several Aircraft
Hawker Pacific Asia Pte Ltd	Australia	Several Aircraft
Jet Flight Air Services	New Zealand	Several Aircraft
Japat AG	Switzerland	Several Aircraft
Luxembourg Air Rescue	Luxembourg	Several Aircraft
Volkswagen AG	Germany	Several Aircraft
ADAC Luftrettung	Germany	Skidded Helicopter

Aircraft Manufacturers

Airbus S.A.S., Hamburg	Germany	Spacer
Boeing	USA	Ridley Park (PA), Earth City (MO)
Bombardier, Montreal	Canada	Global Express Delivery Center
Dassault Aviation	France	Twin
EMBRAER S.A.S. José dos Campos	Brazil	Embraer 195, 190, 175, 170, KC 390
Gulfstream Aerospace	USA	Appleton (WI), Savannah (GA), West Palm Beach (FL), Dallas (TX), Mesa (AZ)

Korea Aerospace Industries Inc (KAI)	South Korea	
Lockheed	USA	Dallas (TX), Stratford (CT)
Nasa	USA	X-59 Supersonic
Pilatus Aircraft Ltd	Switzerland	PC 12 Maintenance & Delivery
Rosvertol PLC	Russia	Helicopter Production MI-series
Sikorsky	USA	
Suchoi	Russia	
Turkish Aerospace Industries, Inc. (TAI)	Turkey	F 16 Fighter Maintenance Facility, Tiger Maintenance Facility
Xi'an Aircraft Company	China	Y 20

Corporate Flight Dept

Abbvie	USA	
ABP Food Group	Ireland	
Access Aviation	UK	
ACM	Chile	
ACSI Corporation	USA	
Aflac	USA	
Alpine Sky Jets	Switzerland	
American Colors International	USA	
Anglo American	South Africa	Agusta AW139, G5
C & P Aviation	USA	
Cargill	USA	
Caribbean Investor Group	USA	
CNH Industrial	The Netherlands	
Coca Cola	USA	
Columbia Pacific Management	USA	
Comcast	USA	Several Aircraft
Cook Canyon Ranch	USA	
Disney	USA	
Exelon Corp	USA	
Exxon Mobil	USA	
First National Bank	USA	
Gazprom Avia, Moscow	Russia	Falcon Jets
Harbert Aviation	USA	
Home Depot	USA	Several Aircraft
Indianapolis Colts	USA	
L-3	USA	Several Aircraft
McDonalds	USA	
Michelin	France	
Novartis AG (JAPAT AG), Basel	Switzerland	Global Express, EC 135
Occidental Petroleum	USA	
QuikTrip	USA	
Regions Financial Group	USA	
Statefarm	USA	Several Aircraft
Taxxas	USA	
The Boler Company	USA	
The CocaCola Company	USA	Several Aircraft
The Duchossois Group	USA	
TLS Aviation	USA	

Special Forces

Federal Police	Germany	Helicopter Super Puma, EC 155
Guardia di Finanza Rome	Italy	ATR

Government

Army Corp of Engineers	USA	Vicksburg (LA)
CalFire	USA	Sacramento (CA)
Dept of Energy	USA	Pasco (WA)
L3-Areomet	USA	Tulsa (OK)
Sultanat of Oman	Oman	Eurocopter Super Puma Fleet

Military

Brazil Navy	Brazil	Onboard Helicopter
California National Guard	USA	
CASSIDIAN Manching (EADS)	Germany	Tornado & Eurofighter
China Military	China	All kind of Aircraft, Helicopters
Columbian Air Force	Columbia	
Danish Army	Denmark	Challenger, Agusta EH 101, F 16
French Navy / Air Force	France	Rafale, Mirage 2000, Casa 235, NH 90,
German Navy	Germany	NH90
Israel Airforce	Israel	Alenia Aermacchi M-346 Master, F16
Korea Navy	South Korea	Onboard Helicopter
Pakistan Military	Pakistan	HELIMO for Helicopters with skids
Peru Navy	Peru	Helicopter on the BAP Pisco
South Korea Costguard	South Korea	Onboard Helicopter
Thailand Army	Thailand	
US Airfroce (in England)	UK	F 15
US Army National Guard	USA	
Wisconsin National Guard	USA	
Venezuela Military	Venezuela	Helicopters with skids & with wheels

Airlines

Aegean Airlines	Greece	
Aiana Airlines	South Korea	
Air Nostrum, Líneas Aéreas del Mediterráneo S.A	Spain	
Alaska Airways, Seattle	USA	BOEING 737 Family
British Airways	UK	AIRBUS 320 Series
HOP!	France	
Iberia, Líneas Aéreas de España S.A.	Spain	Spacer for BOEING and Airbus
Thomson/TUI, Luton	UK	BOEING 737 Family

Pushback

Allegiant Air	USA	
ANA – All Nippon Airways	Japan	
British Airways	UK	28 Machines at Heathrow T5
Changsha Huanga Airport	China	
DNATA	USA	JFK Airport, NY
Figari-Sud Corse Airport	France	
FRAport	Germany	Demo
Iberia	Spain	15 Machines at Madrid Barajas 15 Machines at Barcelona El Prat
JetBlue	USA	Demo
Rovaniemi Airport	Finnland	Demo
TCR	UK	
WTS	USA	McCarren Airport, NV

Mototok was founded in 2003 by Kersten Eckert, avid aviator and creator of the Mototok, and his friend and partner Thilo Wiers-Keiser.

FUELLED BY PASSION

The invention of our aircraft tugs is a deeply personal story that began with Kersten Eckert's first solo flight at 18. His growing aggravation about a process efficient-minded Eckert considered far from ideal: Maneuvering the aircraft while on the ground. You know the rigmarole: Waiting for the machine being laboriously transported out of the hangar, depending on having two or even three people available to watch his wings and fuselage, needing a pilot to sit inside the aircraft ready to brake if needed ...Eckert became determined on finding not only a better, but the perfect way in terms of space, speed, and effort.

CREATING THE PERFECT PRODUCT

Mototok has achieved market leadership in the segment of compact, towbarless, remote-controlled and battery-powered tugs through excellent quality, ease of use and high safety standards.

In the meantime, more than 1,000 units of all sizes are in use worldwide. Since 2017, Mototoks have already completed over 350,000 pushbacks wit 28 Units at Heathrow Airport, Terminal 5A alone – a huge advantage for the local operator British Airways, which says it has been able to significantly reduce delays by up to 70%.

Due to this high level of experience, more and more aircraft manufacturers are turning to Mototok tugs.

Hydraulic control and monitoring via a multitude of sensors, combined with connectivity to the Mototok Cloud and associated remote maintenance, make Mototok Tugs truly unique in the market.

Learn more about Mototok at www.mototok.com.

AIRBUS
Hamburg / Toulouse

DASSAULT AVIATION
Merignac, France /
Little Rock, Arkansas, US

Gulfstream
at 5 sites in the US

BOMBARDIER
the evolution of mobility
Montreal, Singapore, Berlin

LOCKHEED MARTIN
for F35, CH-53K, Blackhawk UH-60
and Seahawk SH-60

PILATUS
Switzerland

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