

- ightarrow Electrically powered
- ightarrow Radio remotely controlled
- ightarrow Extremely compact
- ightarrow Only 1 person required for operation
- \rightarrow Fully hydraulic and sensor-controlled nosegear platform
- → Loads and unloads the nosegear automatically
- \rightarrow 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 military aircraft towbarless.

Electrify your Ground Handling.







Mototok: Generate more Space. On the Deck and in the Hangar.

	Mototok – Introduction
	Take a look inside
	Turning on the spot with no wingtip movement: The Mototok Principle.
	The top advantages of using a Mototok tug
	A comparison between towing principles
	Mototok for Hangar Operations
5	Mototok Autonomous Driving
and an and a second second	Accessoires
-	German art of engineering
A DESIGNATION OF	Our customers
	Technical data



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.



The top advantages of using a Mototok tug



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

- 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.

- \rightarrow Low personnel costs by means of wireless remote control the operator is essentially a "wing walker" himself
- \rightarrow Increases the number of aircraft in your Hangar
- \rightarrow No driving licence required
- \rightarrow Extremely low maintenance costs, no maintenance plan necessary

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
- \rightarrow Connect the aircraft from the front or the rear approach the aircraft from all sides and from all angles

 $(\mathbf{2})$

 $(\mathbf{3})$



- \rightarrow Hydraulic fixation of the nose wheel
- \rightarrow Fully programmable speeds, braking curves, initial torques and over steering protection *
- \rightarrow Gentle treatment of the landing gear with a built in hydro-pneumatic clamping system
- \rightarrow 100 % circumferential visual control around the aircraft. No knocks. No collisions. Optimum use of limited space!

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.
- \rightarrow Automatic connection to the aircraft's nose wheel with one click.
- \rightarrow No straps, no winch, no tools required.



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

Conventional tow tractor with a tow bar

Other towbarless tugs



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 wingwalker due to the minimized view of the operator.
- High maintenance level due to combustion engine.

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 wingwalker 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

Moving an aircraft the innovative way – with Mototok!



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.

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 maneuver our plane in and out of our hangar because of the industrial remote control wing walker feature is unbeatable. This is a quality machine, 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 towbars or other towbarless sytems means cumbersome handling

Moving an aircraft the innovative way – with Mototok: Circumferential view around the aircraft, easy and convenient handling



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!

Autonomous Driving.

Moving an aircraft between four walls and other obstacles – with a Mototok an easy and safe way. But you can increase the safety once more by using our solutions for autonomous driving.



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Mototok can be controlled in different ways

- → Optically by a line with barcodes for automatically brake down or speed up, stop or change the course in case of junctions
- \rightarrow Inductive using induction loops
- \rightarrow GPS

The advantages of using autonomous driving:

- ightarrow No accidents
- \rightarrow No stress
- \rightarrow No wrong drives
- \rightarrow High reliability
- \rightarrow More precise driving
- \rightarrow Gentle transport for vehicle and load
- \rightarrow Exact route planning
- \rightarrow Optimized routing
- \rightarrow Lower personnel costs.

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 spacerestricted production environments, two synchronized Mototoks may also be used.

Of course, we are at your disposal for advice and assistance in planning the optimal use in your hangar or production facility.

These and other well-known aviation companies use our automatic tracking technology in their production facilities:

AIRBUS



ototok

Accessoires

Trailor coupling adaptor

for multi-functonal extensions







True Ackermann Active 4-wheel-steering for operating on ships

For better maneuvrability on slippery ground like on aircraft carrier Mototok equips the military models with an active 4-wheel-steering system. It calculates simultaneously the steering angles to give true Ackermann steering to the castor wheels. Mototok can also automatically readjust its steering geometry to enable it to rotate on its own axis (turning on the spot).on slippery ground like on aircraft carrier.



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.



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

Gototok

TELA





Our Experience and Expertise.

Our many years of expertise are based, among other things, on our experience with pushbacks. 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:

- \rightarrow B 737 incl. MAX
- \rightarrow A 220
- \rightarrow A 320 family incl. NEO
- \rightarrow 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.

Machinery Directive (MD)
Low Voltage Directive (LVD)
Electromagnetic Compatibility Directive (EMC)
Radio Equipment Directive (RED)
Aircraft ground support equipment –
General requirements –
Part 1: Basic safety requirements
Aircraft ground support equipment –
General requirements – Part 2: Stability
and strength requirements, calculation
and test methods
Aircraft ground support equipment –
Part 7: Aircraft movement equipment
Safety of machinery –
General principles for design –
Riskassessment and risk reduction
Safety of industrial trucks –
Electrical requirements – Part 1: General
requirements for battery powered trucks
Hydraulic fluid power –
General rules and safety requirements
for systems and their components
Safety of machinery –
Safety-related parts of control systems –
Part 1: General principles for design
Safety of machinery –
Electrical equipment of machines –
Part 1: General requirements











The German Art of Engineering.

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" Interna- tional 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 Heliconter

FBO / MRO

Germany	Global & others
USA	Several Aircraft
Germany	FBO
Switzerland	G5, Global Express, Boeing 737
Angola	MRO / Military Aircraft
Switzerland	Several Aircraft
USA	
USA	
USA	
France	Several Aircraft and Helicopter
	Germany USA Germany Switzerland Angola Switzerland USA USA USA France

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



Technical Data

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

Optional Equipment

Hydraulic nosewheel securing 2)	✓	1	1	1	1	1
Hydraulic full hands free wheel opening doors	✓	1	1	1	1	✓
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)	\checkmark	J	J	1	1	\checkmark
Yellow flashlight	\checkmark	1	1	1	1	✓
Safety beeper	\checkmark	1	1	1	1	✓
Oversteering protection	Shear pin	Electronic torque control, available	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	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	available
True Ackermann active 4-wheel-steering	-	available	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

Version / production range/ Mistakes and technical alterations reserved / Date 08.202 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. 4) Smaller wheel diameters may be suitable under optimal conditions (e.g. sufficient tyre pressure).

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		ALLIGATOR
LB WIDE 14	LB 9500	4000
double nose wheel	double nose wheel	single & double nosewheel, wheeled helicopter
'n	H	i ii
Military	Military	MRO / FBO
85 t	86 t	50 t
187393 lbs	187393 lbs	110231 lbs
7 t	11.8 t	3.5 t
15432 lbs	26000 lbs	7720 lbs
2956 mm	2577 mm	2762 mm
116.38 inch	101.46 inch	108.74 inch
2596 mm	2029 mm	2274 mm
102.20 inch	78.88 inch	89.53 inch
350 mm	639 mm	320 mm
13.78 inch	25.16 inch	12.60 inch
	468 mm	149 mm
	18.43 inch	5.87 inch
85 mm	78 mm	75 mm
3.35 inch	3.07 inch	2.95 inch
1425 mm	1100 mm	820 mm
56.1 inch	43.31 inch	32.28 inch
300 mm 4)	600 mm	330 mm
11.81 inch	23.62 inch	12.99 inch
600 mm	1000 mm	480 mm
23.62 inch	39.37 inch	18.90 inch
2400 kg		2300 kg
5291 lbs		5070 lbs
15 sec	eq	15 sec
4 km/h	nin.	3./8 km/h
1.11 m/s	terr	1.05 m/s
2.49 mpn	de de	2.35 mpn
4 X 220 AN	o be	4 X 220 AN
48 V	H 1	48 V
\checkmark		<i>√</i>
3-4 days		3-4 days
Concrete, stone	Concrete, stone	Concrete, stone
132 mm	181 mm	132 mm
5.20 inch	7.13 inch	5.20 inch
308 mm	454 mm	308 mm
12.13 inch	17.87 inch	12.13 inch
Puncture-proof tyres	Puncture-proof tyres	Puncture-proof tyres
-	-	_
ſ	1	
¥	*	ľ í
\checkmark		✓
\checkmark		✓
available		available







AVI ION

Merignac, France / Little Rock, Arkansas, US

LOCKHEED MARTIN

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

Gulfstream at 5 sites in the US



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