



R-BUS

The great traveller

APPROACH



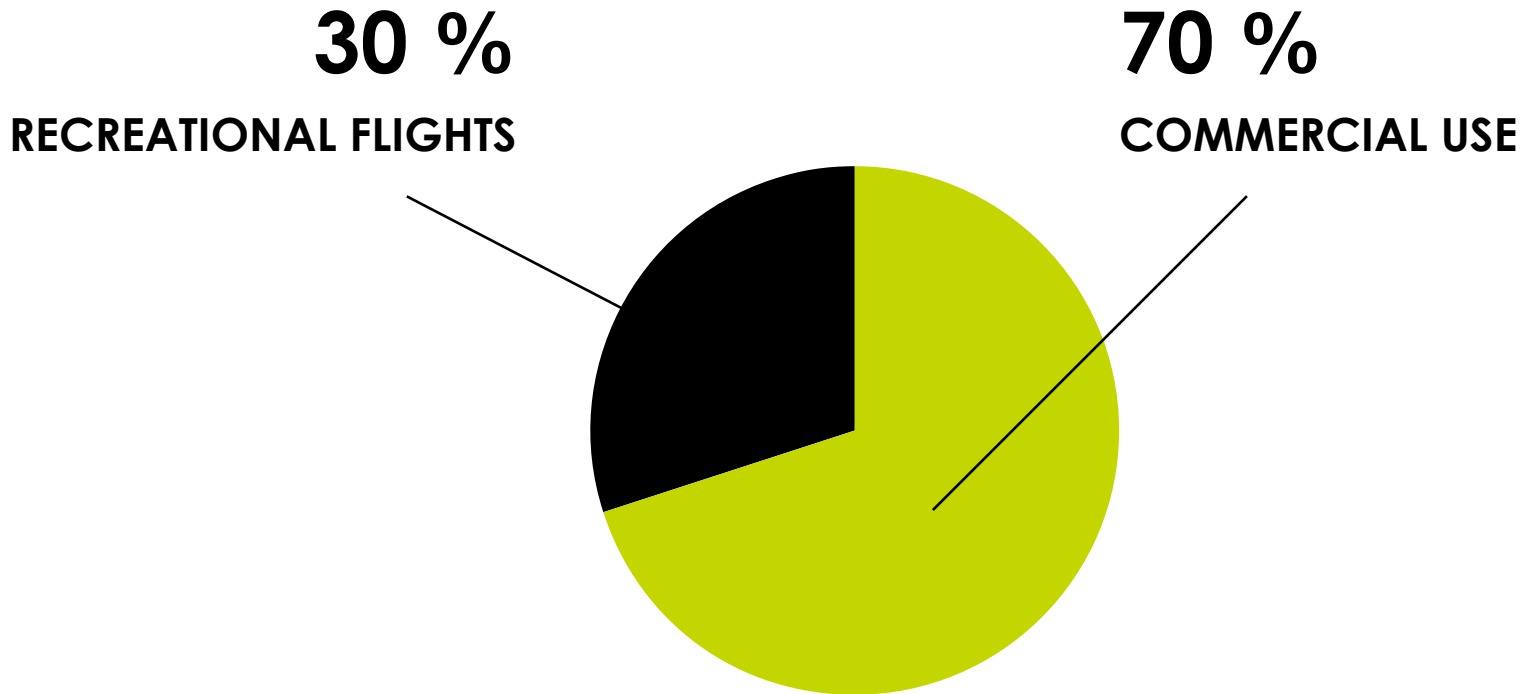
The R-Bus is Niviuk's first PPG tandem wing suitable for **HEAVY TRIKE** use but it can also be used for standard equipment and PPG tandem flights:

- ✓ Robust structure, up to 500 kg.
- ✓ Easy and short take-off without overshooting tendencies.
- ✓ Excellent gliding abilities for less engine effort and fuel consumption.
- ✓ High efficiency profile resulting in a fast wing with very good performance.
- ✓ Precise with efficient turning.
- ✓ Great speed retention for easy and safe landings.
- ✓ Available in size 37 and 40 m².

A glider designed to keep the pilot in full control and let the passenger fully enjoy the flight.

MARKET CONTEXT AND TARGET

The R-Bus can be used when flying a trike or for commercial or recreational PPG tandem flights:

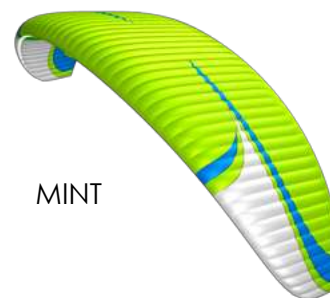


TECHNICAL DATA AND COLOURS

R-BUS			37	40
Flat	Area	m ²	37	40
	Aspect ratio		5.4	5.4
Total weight in flight	Minimum	kg	150	210
	Maximum	kg	500	500
Glider weight		kg	7.6	8.1
Certification	8G Maximum 328kg		EN 926-1	EN 926-1
	5.25gG Maximum 500kg		DGAC	DGAC



ROCKET



MINT



INNOVATION

The Niviuk R&D team uses Computational Fluid Dynamics (CFD) simulation methods to study the **STABILITY** of the wing in each size from minimum to maximum load in order to avoid oscillations.

An aerodynamic profile efficiency evaluation is also conducted to obtain **HIGH PERFORMANCE** levels while reducing fuel consumption. Finally, testing the **GLIDER BEHAVIOUR** across the entire speed range, looking for easy short takeoffs and great speed retention for smooth landings.

All our gliders are evaluated and stress tested in real life conditions by our test pilots to guarantee the best possible wing before production begins.

COVERING THE TARGET NEEDS

Exactly what are the needs of heavy trike users
and PPG tandem pilots?

COVERING THE TARGET NEEDS

Strong and long lasting structure

REINFORCED INTERNAL STRUCTURE

More diagonal ribs, lines, attachment points and strong seams make a very solid wing able to carry loads of up to 550kg.

TITANIUM TECHNOLOGY (NITINOL)

The addition of Nitinol rods in the profile results in three major advantages:

1. The overall canopy weight is less, which means inertia is reduced, while handling and inflation improve.
2. The leading edge becomes stiffer, making the wing's surface perfectly taut, crease-free and thus reducing parasitic drag and optimising the glide in all flight phases.
3. The integrity of the wing's profile will never be affected as the flexible rods always regain their functionally optimal shape.

LINE PLAN

More lines mean a better load distribution and the wing can carry more weight.

COVERING THE TARGET NEEDS

Easy takeoff

The R-Bus is a solid but agile glider to inflate. The takeoff phase is surprisingly short and easy. The line layout distribution provides for a quick and precise inflation without the tendency to overshoot the pilot.

A ASSIST SYSTEM



The A Assist System allows the pilot to fasten the A-risers to the trike and keep the hand toggles available during the takeoff.

On the other hand, the increased lift generated by the aerofoil enables excellent wing loading, and as a result neither long distances, high speeds or high engine power are required during take off.

COVERING THE TARGET NEEDS

Gliding efficiency

Having a good glide means:

Less engine power is needed = Less fuel consumption

Safety

No abrupt descent in case of engine failure due to its reduced sink rate (-2.5 m/s for a wing-loading of 420 kg).

Great speed retention for soft landings without the engine.

COVERING THE TARGET NEEDS

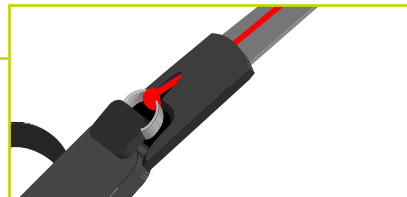
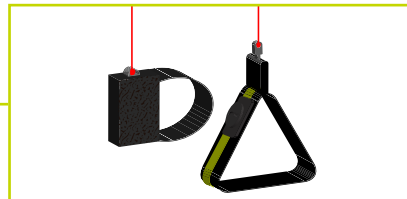
Simple handling

The R-Bus delivers soft and precise turning. The glider has effortless and very efficient manoeuvring turning abilities without sink rate penalisation.

COVERING THE TARGET NEEDS

Simple handling

DOUBLE STEERING SYSTEM WITH HIGH-SPEED TIP



Double steering system

The R-Bus has two steering lines: the main brake (attached to the conventional brake) and the high-speed tip steering (attached to a specific handle on the riser). The high-speed tip steering can be easily activated and allows the pilot to turn without pulling the brake, avoiding profile deformation and, as a result, a decrease of speed and performance.

**In case of a trike designed to have elevated hang points, the R-Bus accessories include extra brake lines and the high speed tip is one meter longer. The pilot should exchange and adjust these as required.*

High-speed tip steering

The high-speed tip steering of the R-Bus is a line with three attachment points, reaching out to the stabilo. It helps the pilot to easily and accurately initiate trajectory corrections without using the main brake handles, hence not affecting the wing performance.

Torque Effect Adjuster

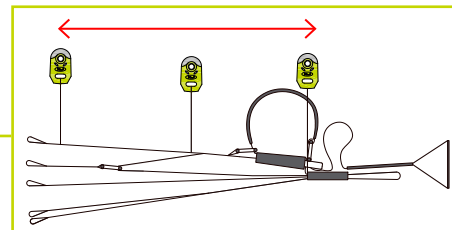
The high-speed tip steering it is a very efficient tool to compensate for the natural equal and opposite effect caused by engine inertia or torque, as this high-speed tip steering line can be adjusted and fixed according to the pilot requirements.

COVERING THE TARGET NEEDS

Simple handling

The R-Bus delivers soft and precise turning. The glider has effortless and very efficient manoeuvring turning abilities without sink rate penalisation.

PULLEY POSITION



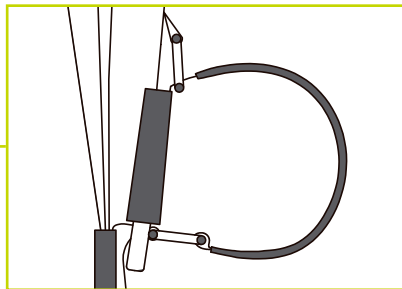
Depending on the position of the pilot during flight, the brake pulleys can be adjusted in different positions to increase flying comfort.

COVERING THE TARGET NEEDS

Speed

It is fitted with a high efficiency NK profile which delivers great top and cruising speeds.

TRIM SYSTEM



A new ergonomic progressive trim arrangement enabling the pilot to precisely control air speed in every situation.

COVERING THE TARGET NEEDS

Easy landing



Great speed retention for progressive and precise landings, even without engine power.

Speed retention

Great roundout ability

COVERING THE TARGET NEEDS

High safety levels

RAM AIR INTAKE



The RAM Air Intake system is characterised by the arrangement of the air inlets, to ensure optimal maintenance of internal pressure. Having greater internal pressure means better absorption of turbulence, greater consistency of the profile across the speed range, excellent handling at low speed is achieved by allowing the pilot to extend the braking limit, there is a lower risk of collapse and consequently, greater control and stability.

REFLEX SYSTEM PROFILE



The R-Bus's Reflex Profile (RSP) was designed to provide enough stability without penalising either glide or speed. The optimised profile shape design of the R-Bus enables the perfect match between control and performance.

COVERING THE TARGET NEEDS

Size options

37 m²

The 37 m² size can be used for light trikes, windy sites as well as during lighter wind speed foot launches.

40 m²

The 40 m² size was designed for heavy trikes and large weight loads.

COVERING THE TARGET NEEDS

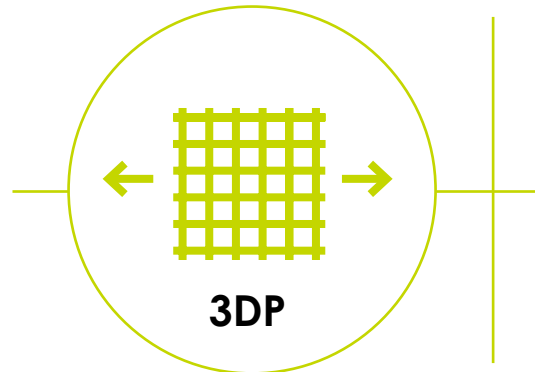
E N J O Y M E N T

The main purpose of this glider is to provide enjoyment for both the pilot and the passenger.

The R-Bus is a glider designed to cover all sorts of pilot needs to fly comfortably.

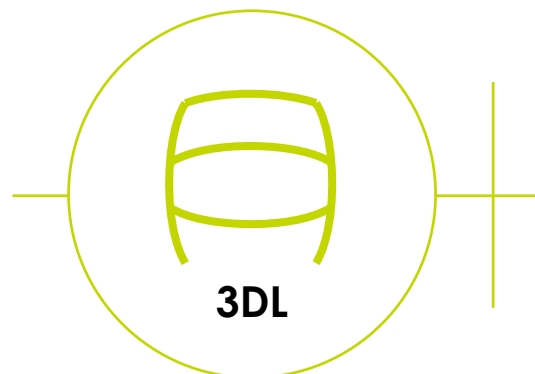
OTHER TECHNOLOGIES PACKED INTO DE R-BUS:

3D PATTERN CUT OPTIMIZATION



The latest glider generation requires a new pattern design and an optimised fabric cutting process. The new leading edge arrangement calls for each cell panel to be manufactured independently from the others according to the final wing layout positioning, resulting in a crease-free surface with better fabric tension. An optimised process is used to cut the fabric in a specific directional angle, depending on each panel's final location. If the cloth pattern is correctly aligned with the load axis, the material is deformed to a minor degree to benefit the aerodynamic properties of the leading edge.

3D LEADING EDGE



Adding an extra seam to the leading edge on the span axis of the glider helps to shape a compact 3D profile and have better connections to the new 3DP front panel's layout. When sewn together, the fabric pattern orientation and panel positioning are taken into account to avoid creases and ultimately obtain a perfect load distribution. As a result the glider profile is cleaner, to the benefit of performance and durability.

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