



18M FAI-CLASS GLIDER

HpH 304S

SPECIFICATIONS



HPH 304S 18/15M FAI-CLASS GLIDER

A NEW GLIDER – A NEW FACE!

The new HPH 304S is a single seated, flapped, racing class sailplane. It is offered in a convertible wing configuration with long and short wingtip extensions allowing both 15- and 18-meter wingspans. The glider construction allows assembly of various engine types.

Not simply a face lift of an existing technology, but the very latest in a long study of what was, until now, the “State-of-the-Art”.

TECHNICAL DATA	304S 18m	304S 20m **	304SE 15m **
GEOMETRIE			
Wing Span	18 m 59 ft	20 m 65.6 ft	15 m 49.2 ft
Wing Area	11.8 m ² 127 ft ²	12.6 m ² 135 ft ²	8.7 m ² 94 ft ²
Aspect Ratio	27.43	31.80	26.37
Fuselage Length	6.79 m 22.28 ft	6.79 m 22.28 ft	6.79 m 22.28 ft
Overall Height	1.48 m 4.86 ft	1.48 m 4.86 ft	1.3 m 4.3 ft
Fuselage Height	0.83 m 2.72 ft	0.83 m 2.72 ft	0.83 m 2.72 ft
Fuselage Width	0.62 m 2.03 ft	0.62 m 2.03 ft	0.62 m 2.03 ft
Wing Airfoil	HPH xn2 *	HPH xn2 *	HPH xn2 *
WEIGHT			
Empty Weight	280 kg 617 lb	300 kg 660 lb	230 kg 507 lb
Maximum Weight	600 kg 1323 lb	600 kg 1322 lb	480 kg 1058 lb
Water ballast	240 l 66 US gal	240 l 63 US gal	180 l 47.6 US gal
Min. Wing Loading	29.6 kg/m ² 6.0 lb/ft ²	30 kg/m ² 6.1 lb/ft ²	34 kg/m ² 7.5 lb/ft ²
Max. Wing Loading	50.8 kg/m ² 10.4 lb/ft ²	47.6 kg/m ² 9.6 lb/ft ²	55 kg/m ² 12.1 lb/ft ²
LEISTUNGEN (SEGELFLUG)			
Best Glide Ratio	51	> 53	48
at speed	125 km/h 67.5 kt	124 km/h 67 kt	123 km/h 66.5 kt
Min. Sink Rate (min. weight)	0.45 m/s 83 ft/min	0.43 m/s 81 ft/min	0.51 m/s 100 ft/min
at speed	66 km/h 36 kt	68 km/h 37 kt	72 km/h 39 kt
LIMITATIONS			
Stall Speed at max. weight	88 km/h 47.5 kt	85 km/h 46 kt	87 km/h 47 kt
V _{NE}	280 km/h 151 kt	280 km/h 151 kt	280 km/h 151 kt

* modified HQ10-16-42, thickness reduced to 13.2%, 16.4% at the root

Note: All performance data are based on theoretical computations and have not been verified in the flight tests.

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THE WING

The wing was optimized, calculated from ground up with the help of a research institute and two universities. It incorporates a new thin **13.2%** airfoil that is modified in order to reduce the influence of insect contamination. At the root section the wing goes up to 16.4% thickness and meets the fuselage with a **refined transition shape**. The wing has a special planform with elliptical swept leading edge and special **3D shaped state-of-the-art wingtips**, which were optimized to lower the induced drag of the whole wing. The trailing edge incorporates a **three section flaperon** along its whole length. This configuration brings the pilot friendly behavior and improved flight characteristics.

Stiffness of the wing was optimized using FEM calculation in combination with break tests. The result is a carbon fiber structure providing comfort during cruise, maximum sensitivity for both strong and weak thermal lifts and friendly flutter characteristics.

To achieve the highest possible precision and best surface finish the wing was fully computer designed and the moulds were produced with the very latest **5axis CNC technology**.

The water ballast is directly in **integral tanks** allowing the wing to house up to 250 liters of water. Other ballast tanks are in the tail and optionally in the fuselage. Maximum take-off weight of the 18m version is 600 kg, maximum wing loading 50.8 kg/m² and the **gliding ratio raises over 51** at 125 km/h.

Aerodynamically shielded **wingtip wheels** make the take-off and landing easier and trouble-free and are highly rated by the pilots.

For a better descend control at landing **three-flange aerodynamic brakes** were introduced.

Assembling the wings with the fuselage is very easy, connection of control surface drives as well as water ballast drive is done **automatically**. Same features shows the wing extension assembly. Securing the extensions is done trough a single bolt, connection of the flaperons is also automatic.



Elliptical 3D shaped wing tip



3-flange aerodynamic brakes

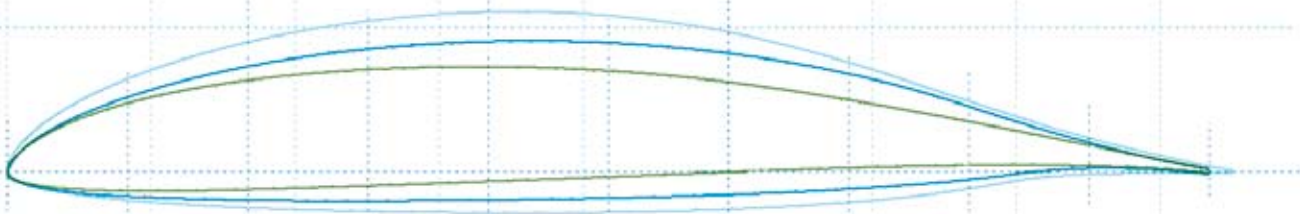


Automatic connections

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Wing tip and wheel



Practical and aerodynamic wing wheel

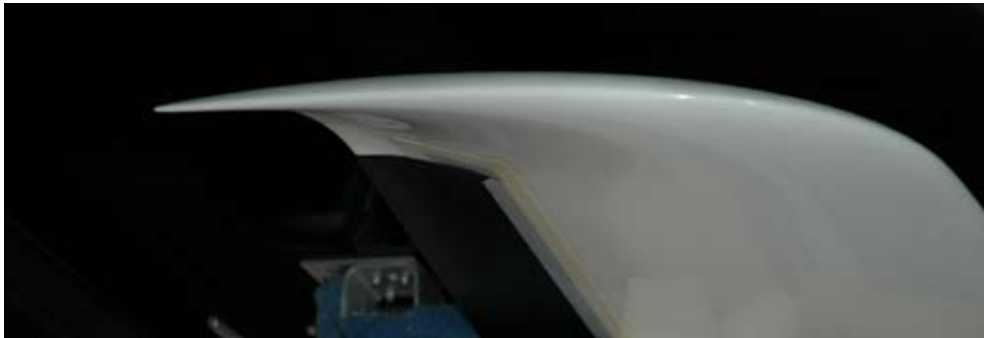


Flaperon drive cover

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THE TAIL

The T-shaped tail combines well-proven design with the best possible technology. Elevator and rudder are made with high precision carbon fiber **prepreg technology** to achieve low weight while keeping high stiffness. Ending **tips of the stabilizer** have a state-of-the-art shape to raise its efficiency while cutting down the induced drag. **Elliptical planform** of the stabilizer is a matter of course. Assemblage of the horizontal surface with the vertical is a question of seconds, elevator **connects automatically** and securing is done by a single pull pin.



Shaped stabilizer tips



Prepeg Elevator and rudder



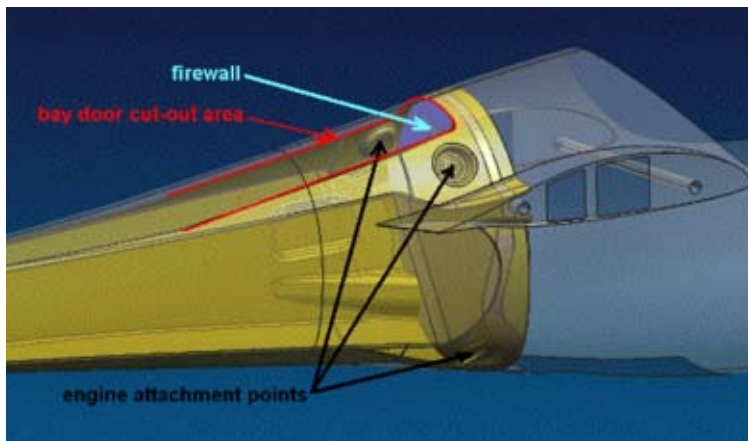
Stabilizer connection system

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THE FUSELAGE

Numerous FEM calculations, break tests and simulations of impact behavior resulted in a design that can save life to its pilot. "Roger hook" as a standard feature for safe jettisoning of the canopy is integrated in the massive frame.

The middle part of the fuselage is primarily adapted for housing an engine. The motorization program counts with three different engine systems: self launcher, "turbo" sustainer and JET engine. The engine bay and place for fuel tanks are universal for all three systems and are part of the primary structure. Installation of engine can be easily done according to customers demand and can also be done additionally.



Fuselage structure is prepared for engine installation



Solo sustainer engine



Integrated Roger hook

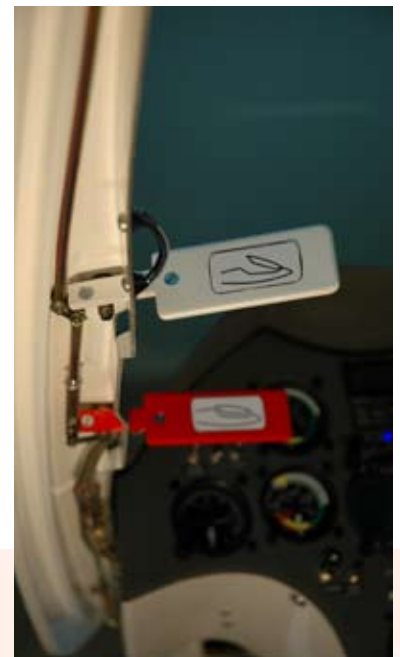


Highly effective TBS 400N jet engine

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THE COCKPIT

Comfort in the cockpit has always been one of the main trademarks of Glasflügel sailplanes. The **safety cockpit** of the 304S has been completely redesigned. Serious design and ergonomic studies have been done to assure perfect seating and view from the cockpit. Every pilot knows how important a feeling of comfort and safety is during the flight. These features were stressed by using **materials of the highest quality**. Enjoy the massive carbon-aramid frame, prestigious and durable leather interior, well-arranged instrument panel and **friendly controls**! Every detail has been **designed with a special care**, check the control-stick handle, canopy lock mechanism or the ventilation outlet! Enough space for elbows and shoulders makes a perfect seating even for taller and heavier pilots. Custom rearrangements are possible of course.





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THE UNDERCARRIAGE

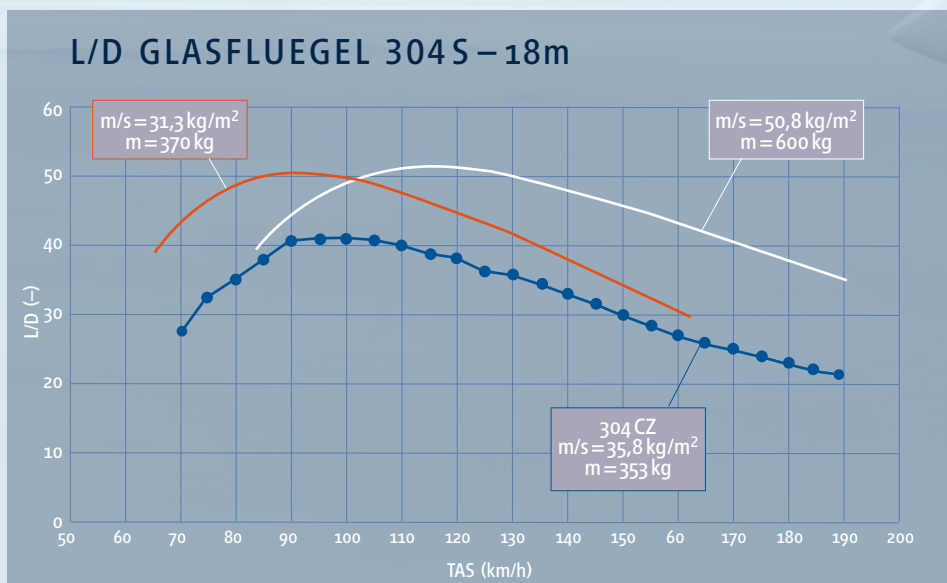
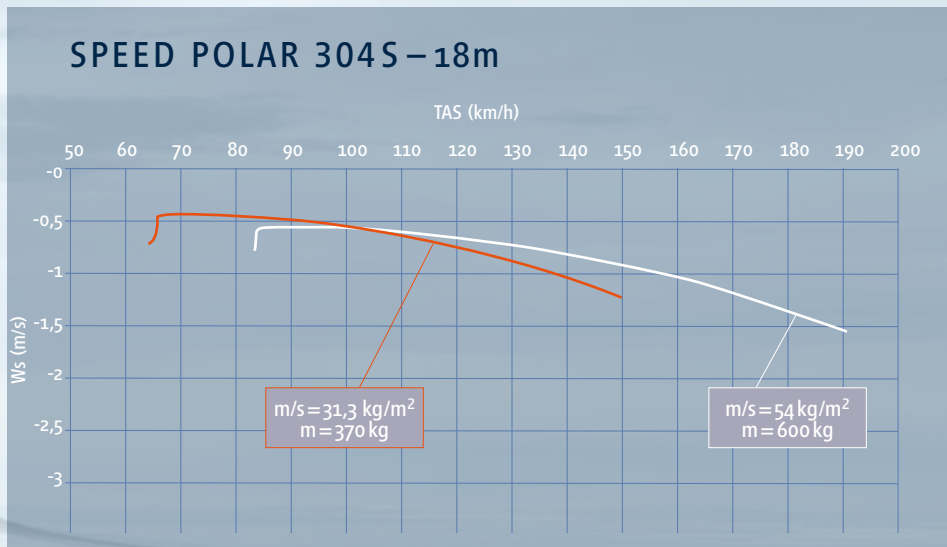
The 304S is equipped with a spring-loaded and damped landing gear. **Double action telescopic frame** with rubber shock absorbers in combination with large 5" wheel allows cushion-like landing even on a rough field. A **hydraulic brake** guarantees rapid brake action.



The long travel of the shock absorbing strut provides comfortable landings.

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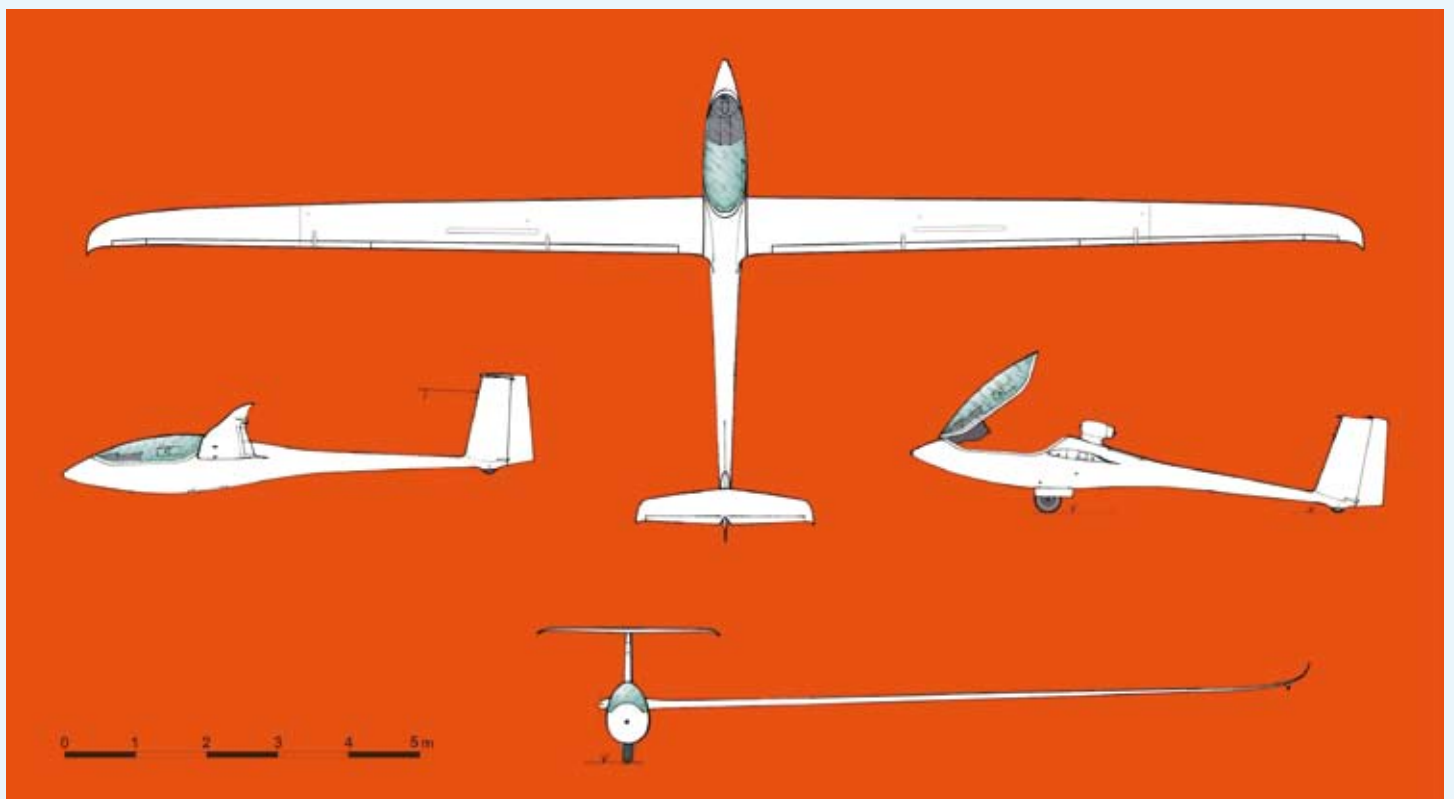
PERFORMANCE CHARTS





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THREE-VIEW DRAWING





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THE HPH 304S PROTOTYPE

The new HPH 304S prototype has been flown in November 23rd! Test pilot Ludek Kluger was surprised with the excellent characteristic of the new glider. He reported excellent flying quality from the first moment. Testing will be continued intensively.



NOW IT'S UP TO YOU!

Become a satisfied 304S owner, because

- 304S will have a reputation of racing limousine
- 304S is most comfortable and ergonomic
- 304S will not lose its value and quality in time
- HPH quality and craftsmanship are worldwide reknown and second to none
- many handicraft man-hours on every detail makes every 304S a masterpiece

We focus with our product on pleasure pilots who want comfort, design and prestige in addition to performance.

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