

DG300 Elan

Contributed by Webmaster
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DEVELOPMENT and DESCRIPTION

The DG-300 was the successor to the successful DG-100 (standard class) and DG-200 (racing class) gliders designed by Wilhelm Dirks. His first design; the Akaflieg Darmstadt D-38 displayed better performance and handling qualities than expected so Dirks decided to develop a production version (the DG-100). He found the backing for this venture in Gerhard Glaser, founding the Glaser-Dirks Flugzeugbau GmbH in 1973.

The DG-300 is a single place high performance sailplane, with 15 meter wingspan designed for for the FAI Standard Class. Developed for competition purposes it does not replace the highly successful DG100, a successful club aircraft which was still to be produced.

The main different features of the new aircraft are as follows:

- A new thinner high performance wing profile section, developed at the DFVLR Braunschweig by Messrs Horstmann and Quarst (HQ), is used. Boundary layer control by blowing ensures an optimal boundary layer for minimum drag. The wing has reduced sensitivity to bugs and rain. This feature results from numerous wind tunnel tests done by Prof. Wortmann and Dr. Althaus at Stuttgart.
- The wing planform is a triple trapezoid which is very near the optimum elliptical planform. Together with the new wing tip design, this helps reduce induced drag.
- The wing/fuselage junction is faired in accordance with the latest developments to reduce interference drag and increase low speed performance.
- The fuselage has been shortened 20 cm.

- The rudder chord has been reduced to 44% of the fin chord to reduce rudder forces. A new profile has also been used on the fin to reduce drag.
- The air brakes are larger than the DG100, to give even better short field landing ability.
- All controls connect automatically.
- The maximum all up weight is 80 kg higher than the DG100 with 180 kg water ballast.
- The cockpit is 2 cm wider for added comfort.
- The canopy frame has been stiffened and canopy sealing further improved.

CONSTRUCTION

Wings:

GFRP-foam-sandwich-skin. GFRP-Rovings.

Elevator:
GFRP-skin

Ailerons, Tailplane and Rudder:

GFRP-foam-sandwich-skin.

Fuselage:

GFRP-skin.

Undercarriage:

Retractable, assisted by a gas strut, spring mounted, internal drum brake, fully sealed landing gear box.

Tyre:

5.00 - 5 (Ø 362 mm) (14.25 in) 4 PR or 6 PR.

Tailwheel:

Tyre 200 x 50 2 PR.

Tow release:

Safety release "Europa G 73" for winch launch and aerotow near the C.G. Additional as option "nose release E 75" installed under the instrument panel only for aerotow.

Cockpit:

In flight adjustable rudder pedals and adjustable seat back for either automatic or manual parachutes, adjustable head rest. Large single piece clear plexiglas canopy, hinged at the nose, supported by a gas strut. Instruments and instrument panel covered by a housing which is held on by 6 screws - easily removable for unhindered access to instruments.

Controls for undercarriage and dive brakes are on the left hand side of the cockpit. Parallelogram control column stick for the elevator. This eliminates PIO's in rough air. Release lever for elevator trim on control stick.

Dive Brakes:

Schempp-Hirth dive brakes on the upper wing surface.

Tailplane:

T-Tail with conventional stabiliser-elevator and spring trim.

Water ballast system:

95 litre (25 US gal.) or 65 litre (17 US gal.) water ballast bags in each wing panel. A fin water ballast tank may be provided as an option. (5.5 litre or 1.45 US gal.)

PERFORMANCE DATA

Span
15.0m

Length
6.8m

Height
0.81m

Wing Area
10.27m²

Aspect Ratio

21.9

Empty Glider Mass

245kg

All-Up Mass

525kg

Water Ballast

190kg

Load Factors

+5.3 -2.65

Maximum L/D

41 at 54kt

Stalling Speed

35kt

Minimum Sinking Speed

0.59m/s

Max. Rough Air Speed

108kt

Never Exceed Speed

146kt

Three Axis View Glaser Dirks DG 300 Elan

FLIGHT MANUAL download (PDF 1.52MB)

GGC's – VH-GDH

Current instrumentation includes a Zander glide computer. It remains a top performer in the Standard Class to this day, and in high demand.