



TYPE-CERTIFICATE DATA SHEET

NO. EASA.A.296

for
Carat

Type Certificate Holder
TECHNOFLUG Leichtflugzeugbau GmbH & Co. KG

Bahnhofstraße 20/1
78669 Wellendingen
Germany

For models: Carat



Intentionally left blank



Contents

Section A: Carat	4
A.I General	4
A.II EASA Certification Basis	4
A.III Technical Characteristics and Operational Limitations	5
A.IV Operating and Service Instructions	7
A.V Notes	7
Section B: Administrative Section	8
B.I Acronyms & Abbreviations	8
B.II Type Certificate Holder Record	8
B.III Change Record	8



Section A: **Carat**

A.I General

1. Type/ Model/ Variant
 - 1.1 Type: Carat
 - 1.2 Model: Carat
2. Airworthiness Category utility
3. Manufacturer Technoflug Leichtflugzeugbau GmbH
Dr. Kurt-Steim-Str. 6
78713 Schramberg
4. Type Certification Date 20 April 2001
5. This EASA TCDS replaces the German TCDS No 880

A.II EASA Certification Basis

1. Reference Date for determining the applicable requirements
Defined by LBA letter I411-880/92, dated 21.02.1992 and LBA letter I413-880/97, dated 03 June 1997
2. Airworthiness Requirements JAR 22, Change 5, issued 28 October 1995
3. Additional Requirements
Guidance for stress analysis for parts constructed from GFRP and CFRP of gliders and powered gliders, version July 1991.
Standards for the Substantiation of the Electrical System of powered Sailplanes, issued 15 September 1992.
4. Special Conditions none
5. Exemptions none
6. (Reserved) Deviations none
7. Equivalent Safety Findings none
8. Environmental Protection LSL, Kapitel X, issued 01 January 1991



A.III Technical Characteristics and Operational Limitations

1. Type Design Definition Drawing list CARAT, issue 03.11.1999
2. Description Single seat powered sailplane
constructed two-part low mounted wing with T-tail, two-panel Schempp-Hirth airbrakes on wing upper surface, two-legged retractable main landing gear, steerable tail wheel, fixed motor at fuselage front end with forward-folding retractable propeller, tank in the fuselage, optionally mounted winglets
3. Equipment
Min. Equipment:
1 Air speed indicator (up to 300 km/h)
1 Altimeter
1 Magnetic compass
1 RPM indicator
1 Fuel quantity indicator
1 Engine hour meter
1 Oil-level indicator
1 Oil pressure indicator
1 Oil temperature indicator
1 4-Point harness (symmetrical)
Additional Equipment:
refer to Flight & Maintenance Manual
4. Dimensions
Span: 15 m
Wing area: 10,58 m²
Length: 6,21 m
5. Engine
 - 5.1 Model Sauer SE1800 E1S
 - 5.2 Type Certificate LBA-Datasheet No.: 4590
 - 5.3 Maximum RPM 3200 min⁻¹
 - 5.4 Maximum Continuous RPM 3000 min⁻¹
6. Propeller
 - 6.1 Model Technoflug KS-F3-1A/140-1
 - 6.2 Type Certificate EASA-Datasheet No.: TCDS P.117
 - 6.3 Number of blades 2
 - 6.4 Diameter 1400 mm (+/- 10 mm)
7. Fuel capacities
 - 7.1 Tank in the fuselage: 45 l
 - 7.2 Non-usable fuel 1 l
8. Launching Hooks none
9. Load Factors
+5,3/-2,65 (up to V_A)
+4,0/ -1,5 (up to V_{NE})



10. Air Speeds

10.1 Manoeuvring speed	V_A	185 km/h
10.2 Never exceed speed	V_{NE}	250 km/h
10.3 Maximum permitted speeds		
- in strong turbulence	V_{RA}	185 km/h
- for gear operation	V_{LO}	130 km/h

11. Approved Operations Capability

VFR Day only
Cloud flying not permitted
Aerobatic manoeuvres not permitted

12. Launch methods

Self-launch

13. Maximum Masses

13.1 Maximum Take-off Mass	470 kg
13.2 Max. Mass of non-lifting parts	360 kg

14. Centre of Gravity Range

260 mm – 400 mm aft of datum

15. Datum

leading edge at wing root rib

16. Levelling Means

Canopy frame horizontal

17. Control Surface Deflections

Refer to Maintenance Manual

18. Minimum Flight Crew

1

19. Maximum Passenger Seating Capacity

0

20. Baggage/ Cargo Compartments

max. 15 kg

21. Lifetime limitations

Refer to Maintenance Manual



A.IV Operating and Service Instructions

1. Flight Manual
Flight Manual for the Motorglider Carat,
issue November 1999 or later EASA
approved revision
2. Maintenance Manual
Maintenance Manual for the Motorglider
Carat, issue November 1999 or later EASA
approved revision
3. Operating Manual and Maintenance Manual for Engine
Manual 501/BHB for Sauer engine SE 1800
E1S, latest approved version
4. Operating Manual and Maintenance Manual for Propeller
Operation and Maintenance Manual P5 for
two-bladed retractable propeller Type KS-
F3-1, latest approved version

A.V Notes

1. Manufacturing only allowed in an industrial facility .
2. All parts that are extended to sunlight have to be painted white, with exceptions of registration and anti-collision markings.
3. The use of winglets is allowed according to the data of TM 863-4, LBA approved, produced by Schempp-Hirth Flugzeugbau GmbH.



Section B: Administrative Section

B.I Acronyms & Abbreviations

CFRP	Carbon Fibre Reinforced Plastic
EASA	European Union Aviation Safety Agency
GFRP	Glass Fibre Reinforced Plastic
JAR	Joint Aviation Requirements
LBA	Luftfahrt-Bundesamt
LSL	Lärmschutzforderungen für Luftfahrzeuge
VFR	Visual Flight Rules

B.II Type Certificate Holder Record

Technoflug Leichtflugzeugbau GmbH
Dr.-Kurt-Steim-Str. 6
78713 Schramberg
Germany

Technoflug Leichtflugzeugbau GmbH & Co. KG
Bahnhofstraße 20/1
78669 Wellendingen
Germany

B.III Change Record

Issue	Date	Changes	TC Issue No. & Date
01	28 April 2023	Initial Issue Transfer from LBA TCDS No 880 to this TCDS EASA.296 Change of TC-Holder and TC-Holder address	Initial Issue, 28 April 2023

-END-

