



TYPE-CERTIFICATE DATA SHEET

NO. EASA.A.092

for
E1 Antares

Type Certificate Holder
Lange Aviation GmbH

Brüsseler Straße 30
66482 Zweibrücken
Germany

For models: E1 Antares
Antares 18T



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Section A: E1 Antares

A.I General

1. Type/ Model/ Variant
 - 1.1 Type: E1 Antares
 - 1.2 Model: E1 Antares
2. Airworthiness Category Utility
3. Manufacturer Lange Flugzeugbau GmbH
Brüsseler Straße 30
66482 Zweibrücken
Germany

Lange Aviation GmbH
Brüsseler Straße 30
66482 Zweibrücken
Germany
4. EASA Type Certification Application Date 30 December 1995
5. EASA Type Certification Date 14 July 2006

A.II EASA Certification Basis

1. Reference Date for determining the applicable requirements Defined by LBA letter I 412-894/96, dated 17 January 1996
2. Airworthiness Requirements Joint Airworthiness Requirements for Sailplanes and Powered Sailplanes (JAR 22), Change 6, August 2001
3. Special Conditions Special Condition for the Installation of Electrical Power in Powered Sailplanes, issued 24. April 1998 Special Condition for the substantiation of the electrical system of powered sailplanes, I 334-MS 92, issued 15. September 1992
4. Exemptions None
5. Deviations None
6. Equivalent Safety Findings None
7. Environmental Protection ICAO Annex 16, Chapter 10



A.III Technical Characteristics and Operational Limitations

1. Type Design Definition List of the drawing files E1 Antares, issued 30 June 2006
2. Description Single-seat, shoulder-winged Self launching powered sailplane with electrical engine, CRP/GRP-composite construction, T-shaped horizontal tail plane with fin and elevator, Schempp Hirth type airbrakes on upper wing surface, water ballast tanks in the wing, retractable landing gear equipped with brakes and spring suspension, 20 m span with winglets.
3. Equipment
Min. Equipment:
1 Air speed indicator (up to 300 km/h)
1 Altimeter
1 4-Point harness (symmetrical)
1 Engine Control Unit
1 VHF Transceiver
1 Headset
1 Rear View Mirror
1 Parachute
Additional Equipment refer to Flight and Maintenance Manual
4. Dimensions

Span	20,0 m
Wing area	12,52 m ²
Length	7,4 m
5. Engine [electrical propulsion]
 - 5.1 Model Lange EA 42 consisting of Engine EM 42, Power Electronics LE 42 and Power Cables
 - 5.2 Type Certificate TCDS No. EASA.E.015
 - 5.3 Max. revs. 1700 RPM
 - 5.4 Max. continuous revs 1700 RPM
 - 5.5 Max. over speed revs 1750 RPM
 - 5.6 Max. motor temperature 120°C
 - 5.7 Max. power electronics temp. 85°C
6. Propeller
 - 6.1 Model LF-P42
 - 6.2 Type Certificate TCDS No. EASA.P.015
 - 6.3 Number of blades 2
 - 6.4 Diameter 2 m
 - 6.5 Sense of Rotation clockwise



7. Battery [electrical propulsion]		
7.1 Model	E1-A150 Batteriemodul G5	
7.2 Battery capacity	39 Ah, 41 Ah	
7.3 Non-usable battery capacity	1 Ah	
7.4 Max battery discharge temperature	55°C	
7.5 Min battery discharge temperature	10°C	
7.6 Max battery charge temperature	40°C	
7.7 Min battery charge temperature	19°C	
7.8 Range of permissible cell voltage	3,0 V – 4,1 V	
8. Launching Hooks	Safety hook „Europa G 88“, LBA Datasheet No. 60.230/2	
9. Weak Links	Ultimate Strength: - for winch and auto-tow launching max. 750 daN - for aero-tow max. 750 daN	
10. Load Factors	+5,30 / -2,65 up to V_A +4,0 / -1,5 up to V_{NE}	
11. Air Speeds		
11.1 Manoeuvring speed	V_A	195 km/h
11.2 Never exceed speed	V_{NE}	280 km/h
11.3 Maximum permitted speeds		
- in strong turbulence	V_{RA}	195 km/h
- in aero-tow	V_T	185 km/h
- in winch-launch	V_W	160 km/h
- for gear operation	V_{LO}	195 km/h
- for extracting engine	$V_{PO \max}$	120 km/h
- with wing flaps at pos. +1, +2	V_{FE}	210 km/h
12. Approved Operations Capability	Approved for VFR-flying in daytime. Cloud flying according to the specifications in the Flight Manual with restricted maximum mass and without water ballast. Aerobatic manoeuvres not permitted.	
13. Launch methods	Aero tow Winch launch Self-launch	
14. Maximum Masses		
14.1 Maximum Take-off Mass	660 kg	
14.2 Max. Mass of non-lifting parts	340 kg	
15. Centre of Gravity Range	Forward Limit 290 mm aft of datum point Rearward Limit 398 mm aft of datum point	
16. Datum	The intersection of the projected leading	



	edges of the inner wings at the center of the fuselage (see also Maintenance Manual)
17. Levelling Means	Upper side of fuselage boom placed at Slope 1000 : 17,5
18. Control Surface Deflections	Refer to Maintenance Manual
19. Minimum Flight Crew	1
20. Maximum Passenger Seating Capacity	0
21. Baggage/ Cargo Compartments	15 kg
22. Lifetime limitations	Refer to Maintenance Manual

A.IV Operating and Service Instructions

1. Flight Manual	Flughandbuch für den Motorsegler E1 Antares, Issue 1 December 2004, or later EASA approved revisions
2. Maintenance Manual	Wartungshandbuch für den Motorsegler E1 Antares, Issue 22 June 2006, or later EASA approved revisions
3. Structural Repair Manual	Wartungshandbuch für den Motorsegler E1 Antares, Issue 22 June 2006, or later approved revisions
4. Operating Manual and Maintenance Manual for Engine	Betriebshandbuch für den Elektromotor EA-42, Issue 12 August 2005, or later approved revisions
5. Operating Manual and Maintenance Manual for Propeller	Betriebshandbuch für den Propeller LF-P42, Issue 23 August 2005, or later approved revisions
6. Operating Manual for the Launching Hook	Betriebshandbuch für die TOST Schleppkupplung , latest revision

A.V Notes

1. Manufacturing is confined to industrial production.
2. All parts exposed to sun radiation - except the areas for markings and registration – must have a white colour surface



Section B: Antares 18T

B.I General

1. Type/ Model/ Variant
 - 1.1 Type: E1 Antares
 - 1.2 Model: Antares 18T
2. Airworthiness Category Utility
3. Manufacturer Lange Flugzeugbau GmbH
Brüsseler Straße 30
66484 Zweibrücken
Germany

Lange Aviation GmbH
Brüsseler Straße 30
66484 Zweibrücken
Germany
4. EASA Type Certification Application Date 15 March 2006
5. EASA Type Certification Date 07 June 2023

B.II EASA Certification Basis

1. Reference Date for determining the applicable requirements 15 March 2006
2. Airworthiness Requirements Joint Airworthiness Requirements for Sailplanes and Powered Sailplanes (JAR 22), Change 6, August 2001
3. Special Conditions None
4. Exemptions None
5. Deviations None
6. Equivalent Safety Findings JAR 22.335: The determination of V_D was done according to the report "Concerning the deduction of design maximum speed V_D in the airworthiness requirements LFS, LFSM, OSTIVAS and JAR 22" of LBA Braunschweig, 11.09.2001
7. Environmental Protection The aircraft is in accordance with the provisions of Article 6.1 of Regulation 216/2008 without the need to comply with the Standard of ICAO Annex 16, Volume I, Chapter 10, by virtue of being a self-sustaining powered sailplane.



B.III Technical Characteristics and Operational Limitations

1. Type Design Definition List of the drawing files Antares 18T, issued 27 April 2023

2. Description Single-seat, shoulder winged self-sustain powered sailplane with an air-cooled two-cylinder two-stroke engine (see also B.V.3), CRP/GRP-composite construction, T-shaped horizontal tail plane with fin and elevator, Schempp-Hirth type airbrakes on upper wing surface, water ballast tanks in the wing, retractable landing gear equipped with brakes and spring suspension, 18 m span with winglets.

3. Equipment Min. Equipment:
1 Air speed indicator (up to 300 km/h)
1 Altimeter
1 Compass
1 4-Point harness (symmetrical)
1 Engine Control Unit Ilec MCU Antares
1 VHF Transceiver
1 Headset
1 Rear View Mirror
Additional Equipment refer to Flight and Maintenance Manual

4. Dimensions

Span	18,0 m
Wing area	11,9 m ²
Length	7,4 m

5. Engine

5.1 Model	Solo 2350C
5.2 Type Certificate	TCDS No. EASA E.219
5.3 Limitations	
Max. revs	6500 RPM
Max. continuous revs	6100 RPM
5.4 Maximum Continuous Power	20 kW at 6100 RPM

6. Propeller

6.1 Model	MT 136 L 67 -1AN
6.2 Type Certificate	TCDS No. EASA P.006 Issue: 04
6.3 Number of blades	2
6.4 Diameter	1.36 m
6.5 Sense of Rotation	counter clockwise



7.	Fuel capacities		
7.1	Tank in the fuselage	16,5 l	
7.2	Non-usable fuel	0,2 l	
8.	Launching Hooks	Safety hook „Europa G 88“, LBA Datasheet No. 60.230/2	
9.	Weak Links	Ultimate Strength: - for winch and car launch 750 daN - for aero-tow max. 750 daN	
10.	Load Factors	+5,30 / -2,65 up to V_A +4,0 / -1,5 up to V_{NE}	
11.	Air Speeds		
11.1	Manoeuvring speed	V_A	195 km/h
11.2	Never exceed speed	V_{NE}	280 km/h
11.3	Maximum permitted speeds		
	- in strong turbulence	V_{RA}	195 km/h
	- in aero-tow	V_T	185 km/h
	- in winch-launch	V_W	160 km/h
	- for gear operation	V_{LO}	195 km/h
	- for extracting engine	$V_{PO \max}$	110 km/h
	- with wing flaps at pos. +1, +2	V_{FE}	210 km/h
12.	Approved Operations Capability	Approved for VFR-flying in daytime cloud flying according to the specifications in the Flight Manual with restricted maximum mass and without water ballast Aerobatic manoeuvres are not permitted.	
13.	Launch methods	Aero tow Winch launch Car launch	
14.	Maximum Masses		
14.1	Maximum Take-off Mass	600 kg	
14.2	Max. Mass of non-lifting parts	340 kg	
15.	Centre of Gravity Range	Forward Limit 290 mm aft of datum point Rearward Limit 408 mm aft of datum point	
16.	Datum	The intersection of the projected leading edges of the inner wings at the center of the fuselage	
17.	Levelling Means	Upper side of fuselage boom placed at Slope 1000 : 17,5	
18.	Control Surface Deflections	Refer to Maintenance Manual	
19.	Minimum Flight Crew	1	
20.	Maximum Passenger Seating Capacity	0	



- 21. Baggage/ Cargo Compartments 15 kg
- 22. Lifetime limitations Refer to Maintenance Manual

B.IV Operating and Service Instructions

- 1. Flight Manual Flughandbuch für den Motorsegler Antares 18T, Issue 01 June 2023, or later EASA approved revisions
- 2. Maintenance Manual Wartungshandbuch für den Motorsegler 18T, Issue 01 June 2023, or later EASA approved revisions
- 3. Structural Repair Manual Wartungshandbuch für den Motorsegler Antares 18T Chapter 9, Issue 01 June 2023, or later EASA approved revisions
- 4. Operating Manual and Maintenance Manual for Engine Handbuch für den Motor Solo Typ 2350C, latest approved version
- 5. Operating Manual and Maintenance Manual for Propeller Operation and Installation Manual, Issue 20 or later EASA approved revisions
- 6. Operating Manual for the Launching Hook Betriebshandbuch für die TOST Schleppkupplung Europa G 88, latest revision

B.V Notes

- 1. Manufacturing is confined to industrial production.
- 2. All parts exposed to sun radiation - except the areas for markings and registration – must have a white colour surface.
- 3. Operation with the engine removed is permitted.



Section C: Administrative Section

C.I Acronyms & Abbreviations

CFRP	Carbon Fibre Reinforced Plastic
JAR	Joint Aviation Requirements
EASA	European Union Aviation Safety Agency
GFRP	Glass Fibre Reinforced Plastic
LBA	Luftfahrt-Bundesamt
MCU	Motor Control Unit
VFR	Visual Flight Rules

C.II Type Certificate Holder Record

Lange Flugzeugbau GmbH
Brüsseler Straße 30
66482 Zweibrücken
Germany

Lange Aviation GmbH
Brüsseler Straße 30
66482 Zweibrücken
Germany

C.III Change Record

Issue	Date	Changes	TC Issue No. & Date
01	14 July 2006	Initial Issue	Initial Issue, 14 July 2006
02	25 January 2016	TC-Holder renamed to Lange Aviation GmbH	
03	09 June 2023	Introduction of new model Antares 18T; Correction of A.III. 16	07 June 2023
04	19 July 2023	Correction of B.III.3, addition of B.V.3., editorial correction	

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