Civil Aviation Authority
United Kingdom

TYPE-CERTIFICATE DATA SHEET

UK.TC.A.00085

for

E1 Antares

Type Certificate Holder

Lange Aviation GmbH

Brüsseler Straße 30

66482 Zweibrücken

Germany

Model(s):	E1 Antares Antares 18T
Issue:	2
Date of issue:	15 January 2024

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Section 1 E1 Antares

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

II. 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

III. Technical Characteristic and Operating 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 160 kts / 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 m² 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	105 kts / 195 km/h
11.2 Never exceed speed	V_{NE}	151 kts/ 280 km/h
11.3 Maximum permitted speeds		
- in strong turbulence	V_{RA}	105 kts / 195 km/h
- in aero-tow	V_T	100 kts / 185 km/h
- in winch-launch	V_W	86 kts / 160 km/h
- for gear operation	V_{LO}	105 kts / 195 km/h
- for extracting engine	$V_{PO\ max}$	65 kts / 120 km/h
- with wing flaps at pos. +1, +2	V_{FE}	113 kts / 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	8 lbs / 15 kg
22.	Lifetime limitations	Refer to Maintenance Manual

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

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 2 Antares 18T

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

II. 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 9.2 of Regulation 2018/1139 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.

III. Technical Characteristic and Operating 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 Note 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 160 kts / 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 m²
	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	105 kts / 195 km/h
	11.2 Never exceed speed	V_{NE}	151 kts / 280 km/h
	11.3 Maximum permitted speeds		
	- in strong turbulence	V_{RA}	105 kts / 195 km/h
	- in aero-tow	V_T	100 kts / 185 km/h
	- in winch-launch	V_W	86 kts / 160 km/h
	- for gear operation	V_{LO}	105 kts / 195 km/h
	- for extracting engine	$V_{PO\ max}$	59 kts / 110 km/h
	- with wing flaps at pos. +1, +2	V_{FE}	113 kts / 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		8 lbs / 15 kg
22.	Lifetime limitations		Refer to Maintenance Manual

IV. Operating and Service Instructions

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

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 3 Administration

I. Acronyms and Abbreviations

Acronym / Abbreviation	Definition
Ah	Amp-hour
CAA	Civil Aviation Authority
CAA CZ	Civil Aviation Authority Czech Republic
DaN	Decanewton
EASA	European Union Aviation Safety Agency
Kg	Kilogram
Km/h	Kilometers per hour
kts	Knots
L	Litres
lbs	Pounds
m	Meters
RPM	Revolutions per minute
TC	Type Certificate
TCDS	Type Certificate Data Sheet
TCH	Type Certificate Holder
VFR	Visual Flight Rules

II. Type Certificate Holder Record

TCH Record	Period
Lange Aviation GmbH Brüsseler Straße 30 66484 Zweibrücken Germany	Present. No changes.

III. Amendment Record

TCDS Issue No.	TCDS Issue Date	Changes	TC Issue and Date
1	17 Jul 2023	This datasheet supersedes EASA.A.092 in the UK. All technical data as per EASA.A.092 issue 3. Introduction of new model Antares 18T; correction of Section 1 III. 16.	Issue 1 17 Jul 2023
2	15 Jan 2024	Correction of Section 2, III.2 and 3. Correction of Section 2, V. by addition of Note 3. Equivalent to EASA.A.092 Issue 4.	-

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