

Civil Aviation Authority United Kingdom



TYPE-CERTIFICATE DATA SHEET

UK.TC.E.00097

for

Solo 8000 Series Engines

Type Certificate Holder
SOLO Kleinmotoren GmbH

Industriestrasse 9
71069 Sindelfingen
Germany

Model(s): SOLO 8000/400
Issue: 1
Date of issue: 10 January 2024

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Section 1 SOLO 8000/400**I. General****1. Type / Variant / Model**

- a) Type: SOLO 8000
- b) Variant or Model: SOLO 8000/400

2. Type Certificate Holder

SOLO Kleinmotoren GmbH

Industriestrasse 9

71069 Sindelfingen

Germany

3. Manufacturer

SOLO Vertriebs- und Entwicklungs-GmbH

Stuttgarter Strasse 41

71069 Sindelfingen

Germany

4. State of Design Type Certification Application Date

25/02/2019

5. State of Design Type Certification Date

12/06/2019

6. UK CAA Type Validation Date

10/01/2024

II. Certification Basis**1. Reference Date for determining the applicable airworthiness requirements**

25.02.2019

2. Airworthiness Requirements

CS-22 Amdt. 3, Subpart H

3. Special Conditions

SC-22.2014-01 Issue 2 - Installation of Electric Propulsion Units in Powered Sailplanes

4. Exemptions

None

5. Deviations

None

6. Equivalent Safety Findings

None

7. Requirements Elected to Comply

None

8. Environmental Standards

Not applicable

III. Technical Characteristic and Operating Limitations**1. Type Design Definition**

Master document list SOLO 80400, issue 27 January 2023

2. Description

Electric propulsion system for powered sailplanes consisting of air-cooled axial-flux synchronous permanent magnet electric motor EMRAX 208 HV, controller SOLO econrol and BM384 Li-Ion battery system.

3. Equipment

- 1 Motor EMRAX 208 HV
- 1 DCU Display and Control Unit
- 1 RFU Retraction and Fuses Unit
- 1 Controller SOLO econrol 1 or 2 Battery BM384
- 1 PRS Power Rail Supply DC/DC Converter
- 1 IMD Isolation monitoring device

4. Dimensions

Motor:	Diameter 208 mm, Width 85 mm
DCU:	63 mm x 63 mm x 43 mm (Panel Cut-out 59 mm x 59 mm)
RFU:	130 mm x 80 mm x 31 mm
Controller:	280 mm x 200 mm x 90 mm
Battery:	725 mm x 347 mm x 82 mm
PRS:	120 mm x 83 mm x 55 mm
IMD:	140 mm x 112 mm x 43 mm

Overall dimensions depend on individual airframe installation.

5. Dry Weight

Motor:	9.1 kg
DCU:	145 g
RFU:	260 g
Controller:	3.4 kg
Battery:	25kg

PRS: 400 g

IMD: 220 g

Overall weight:

With one battery: 38.5 kg

With two batteries: 63.5 kg

6. Ratings

With one battery:

Max. Takeoff power MTOP: 20 kW at 4300 rpm

Max. Continuous Power MCP: 14 kW at 3000 rpm

With two batteries:

Max. Takeoff Power MTOP: 35 kW at 4000 rpm

Max. Continuous Power MCP: 23 kW at 3500 rpm

7. Control System

Motor controlled by single power lever via SOLO econtrol controller, DCU display control unit.

8. Fluids (Fuel, Oil, Coolant, Additives)

None.

9. Aircraft Accessory Drives

None.

10. Temperature Limits

Maximum motor temperature: 120°C

Maximum controller temperature: 85°C

Maximum battery temperature: 70°C

11. Speed Limits

Maximum motor speed: 4350 rpm

Maximum continuous motor speed: 3600 rpm

12. Current Limits

Maximum battery current: 80 A

Maximum continuous battery current: 60 A

13. Voltage Limits

Minimum battery voltage: 240 V

Maximum battery voltage: 403 V

14. Battery Limits

Battery capacity: 11.2 Ah

Non-useable battery capacity: 1.0 Ah (~10%)

Max. battery discharge temperature: 70°C

Min. battery discharge temperature: -20°C

Max. battery charge temperature: 50°C

Min. battery charge temperature: 0°C

Range of permissible cell voltage: 2.5 – 4.2 V

IV. Operating and Service Instructions**1. Operating Manual and Maintenance Manual for Engine**

Manual for the electric propulsion system SOLO Type 80400, Revision 1, Dated 18th May 2022, or later approved revision.

V. Operational Suitability Data

None

VI. Notes

None

Section 2 Administration**I. Acronyms and Abbreviations**

Acronym / Abbreviation	Definition
A	Ampere
Ah	Ampere-hour
CAA	Civil Aviation Authority
DCU	Display and Control Unit
EASA	European Union Aviation Safety Agency
g	Gram
IMD	Isolation Monitoring Device
kg	Kilogram
kW	Kilowatt
PRS	Power Rail Supply
RFU	Retraction and Fuses Unit
Rpm	Revolutions per minute
TC	Type Certificate
TCDS	Type Certificate Data Sheet
TCH	Type Certificate Holder
V	Volt

II. Type Certificate Holder Record

TCH Record	Period
SOLO Kleinmotoren GmbH Industriestrasse 9 71069 Sindelfingen Germany	Present. No changes.

III. Amendment Record

TCDS Issue No.	TCDS Issue Date	Changes	TC Issue and Date
1	10 Jan 2024	Initial TC Issue – validation of EASA.E.237 – Type certification of SOLO 8000/400.	Issue 1 10 Jan 2024

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