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TYPE-CERTIFICATE DATA SHEET

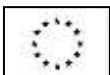
NO. EASA.A.573

For Type
Virus SW 121

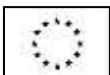
Type Certificate Holder
Pipistrel Vertical Solutions d.o.o.
Vipavska cesta 2,
5270 Ajdovščina
Slovenia, Europe

For models:

- A) Virus SW 121
- B) Virus SW 128 (Commercial Designation: Velis Electro)

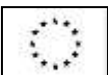


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SECTION A: MODEL A DESIGNATION**A.I. General**

1. Type/ Model/ Variant

1.1 Type: Virus SW 121

1.2 Model: Virus SW 121

2. Airworthiness Category: Normal

3. Manufacturer:

Pipistrel d.o.o. Ajdovščina
Goriška cesta 50a
5270 Ajdovščina
SLOVENIA

4. EASA Type Certification Application Date: 16.07.2010

5. EASA Type Certification Date: 18.04.2016

A.II. EASA Certification Basis

1. Reference Date for determining the applicable requirements: 29.07.2013

2. Airworthiness Requirements: Certification Specifications and Acceptable Means of Compliance for Light Sport Aeroplanes CS-LSA, Amendment 1 from 29 July 2013.

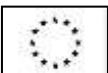
3. Special Conditions: SC-ELA.2015-01 (CRI F-102),
Noise Requirements (CRI N-01)
SC-OLSA-div-01 (CRI O-18) (see note 3)

4. Exemptions: none

5. (Reserved) Deviations: none

6. Equivalent Safety Findings: none

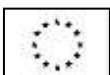
7. Environmental Protection: see TCDSN EASA.A.573.



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A.III. Technical Characteristics and Operational Limitations

1. Type Design Definition: Master document list No. MDL-121-01-00-001 revision A00 or later approved revision
2. Description: Single engine, two-seat, high wing cantilever composite construction aircraft with T-tail empennage configuration and fixed tricycle landing gear.
3. Equipment: Minimum equipment see Pilot Operating Handbook POH-121-00-40-001, Section 6.4
4. Dimensions
- | | | |
|-----------|---------------------|-----------------------|
| Length | 6.45 m | 21.15 ft |
| Span | 10.70 m | 35.6 ft |
| Height | 2.06 m | 6.75 ft |
| Wing Area | 9.51 m ² | 102.4 ft ² |
5. Engine
- 5.1. Model: Rotax 912 S3
- 5.2 Type Certificate: EASA.E.121
- 5.3 Limitations: Maximum Power Rating: 73.5 kW / 5800 RPM max 5 min
Maximum Continuous Power: 69 kW / 5500 RPM
- 5.4. Muffler model Akrapovic iS, drawing number 121-78-00-000
6. Load factors: +4G/-2G
7. Propeller
- 7.1 Model: MTV-33-1-A/170-200
- 7.2 Type Certificate: EASA.P.048
- 7.3 Number of blades: 2
- 7.4 Diameter: 1700 mm
- 7.5 Rotation direction: clockwise
8. Fluids
- 8.1 Fuel
Refer to Pilot Operating Handbook POH-121-00-40-001, Section 2.7
- 8.2 Oil
Refer to Pilot Operating Handbook POH-121-00-40-001, Section 2.8
- 8.3 Coolant
Refer to Pilot Operating Handbook POH-121-00-40-001, Section 2.8



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9. Fluid capacities

9.1 Fuel	Total: 100 liters Usable: 99 liters
9.2 Oil	Maximum oil capacity: 3.5 liters Minimum oil required: marked on dipstick
9.3 Coolant system	2.3 liters (approximately)

10. Air Speeds

V_{NE} : 163 KTAS (see note 1)
 V_{NO} : 120 KIAS (see note 2)
 V_A : 100 KIAS
 V_{FE} : 81 KIAS
 V_{AE} : 100 KIAS

11. Flight Envelope

Maximum operating altitude 18,000 ft MSL

12. Approved Operations
Capability

VFR day operations; Night VFR operations (see note 3)

13. Maximum Masses

Maximum takeoff - 600 kg / 1323 lbs
 Maximum landing - 600 kg / 1323 lbs
 Maximum zero fuel - 555 kg / 1221 lbs

14. Centre of Gravity Range

Forward CG limit – 25% MAC / 267 mm
 Aft CG limit – 35% MAC / 357 mm

15. Reference datum

The wing's leading edge at the root of the wing

16. Control surface deflections

Refer to AMM

17. Levelling Means

Refer to section 6.2 of the POH

18. Minimum Flight Crew

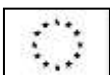
One (1) pilot

19. Maximum Passenger
Seating Capacity

One (1) passenger

20. Baggage/ Cargo
Compartments

Location – port side, aft of the door
 Maximum load – 25 kg / 55 lbs



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21. Wheels and Tyres Main wheel – 4.00” x 6”, Tyre PN: 5050010
Nose wheel – 4.00” x 4”, Tyre PN: 5050007

22. Lifetime limitations Refer to AMM

A.IV. Operating and Service Instructions

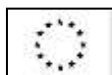
1. Aircraft Flight Manual POH-121-00-40-001_A02 or later approved issue
2. Aircraft Maintenance Manual AMM-121-01-00-001_A00 or later approved issue
3. Structural Repair Manual Refer to AMM
4. Weight and Balance Manual Refer to POH
5. Illustrated Parts Catalogue IPC-121-00-50-001_A00 or later approved issue

A.V. Notes

Note 1: VNE is reduced from 163 KIAS at sea level by 2.2 KIAS for every 1000 ft.

Note 2: VNO decreases by 0.5 KIAS for every 1000 ft above FL100.

Note 3: When Night VFR kit PN 1159663 or 1159679 or 1159680 is installed.



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SECTION B: MODEL B DESIGNATION**B.I. General**

1. Type/ Model/ Variant

1.1 Type: Virus SW 121

1.2 Model: Virus SW 128 (Commercial Designation: Velis Electro)

2. Airworthiness Category: Normal

3. Manufacturer:

Pipistrel d.o.o. Ajdovščina
 Goriška cesta 50a
 5270 Ajdovščina
 SLOVENIA

4. EASA Type Certification Application Date: 24.10.2017

5. EASA Type Certification Date: 10.06.2020

B.II. EASA Certification Basis1. Reference Date for determining the applicable requirements: 24th October 2017

2. Airworthiness Requirements (note 1)

Certification Specifications and
 Acceptable Means of Compliance for
 Light Sport Aeroplanes CS-LSA,
 Amendment 1 from 29 July 2013;
 Certification Specifications and
 Acceptable Means of Compliance for
 Airborne Communications, Navigation
 and Surveillance CS ACNS issue 2 dated
 26th April 2019 (subparts A, B, D)

3. Special Conditions:

SC-LSA-F2480-01 - LSA Propulsion
 Lithium Batteries;
 SC-LSA-15-01 - Electric Powerplant
 Installation for CS LSA aeroplanes;
 SC-ELA.2015-01 - Lithium battery
 installations;

4. Exemptions:

none

5. (Reserved) Deviations:

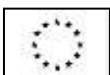
none

6. Equivalent Safety Findings:

none

7. Environmental Protection:

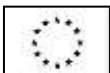
see TCDSN EASA.A.573.



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B.III. Technical Characteristics and Operational Limitations

1. Type Design Definition: Master Drawing List No. DWG-128-02-40-001 latest approved revision
2. Description: Electric engine, two-seat, high wing cantilever composite construction aircraft with T-tail empennage configuration, fixed tricycle landing gear and three-bladed composite fixed pitch propeller.
3. Equipment: For equipment list refer to POH-128-00-40-001 Pilot's Operating Handbook, Section 2
4. Dimensions
- | | | |
|-----------|---------------------|-----------------------|
| Length | 6.47 m | 21.22 ft |
| Span | 10.71 m | 35.13 ft |
| Height | 2.08 m | 6.82 ft |
| Wing Area | 9.51 m ² | 102.4 ft ² |
5. Load factors: +4G/-2G
6. Engine
- 6.1. Type/Model: Pipistrel electric engine E-811 / 268MVLC
- 6.2 Type Certificate: EASA.E.234
- 6.3 Limitations: Maximum Take-off Power MTOP: 57.6 kW / 2500 RPM max 90 s
Maximum Continuous Power: 49.2 kW / 2350 RPM
7. Propeller (note 2)
- 7.1 Type/Model: Pipistrel P-812 / 164-F3A
- 7.2 Number of blades: 3
- 7.4 Diameter: 1640 mm
- 7.5 Rotation direction: clockwise
- 7.6 Pitch: 18° @615mm from axis
- 7.7 Weight: 4,88 kg
- 7.8 Control system: N/A (fixed pitch)
- 7.9 Max speed: 2500 RPM
- 7.10 Max driving power: 57.6 kW
- 7.11 Max driving torque: 220 Nm
- 7.13 Designation system: **Type: P-812; Diameter in cm: 164; Pitch: F: fixed, G: ground adjustable, V: variable, C: Constant speed; Number of blades: 3; Blade type: A.**



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8. Energy Storage System (ESS)

Two (2) propulsion Lithium batteries connected in parallel.

Type: Pipistrel PB345V124E-L

Rated capacity at 23°C: 11.0 kWh (each)

Nominal voltage: 345 VDC

Cooling system: Liquid

Battery management system (BMS): Integral

9. Fluids

9.1 Coolant: Refer to POH-128-00-40-001 Pilot's Operating Handbook, Section 2

10. Fluid capacities10.1 Coolant system - for engine cooling system: 0.9 liters (approximately)
- for battery cooling system: 5.4 liters (approximately)**11. Air Speeds**V_{NE}: 108 KIASV_{NO}: 98 KIASV_A: 100 KIASV_{FE}: 81 KIAS**12. Flight Envelope**

Maximum operating altitude 12.000 ft MSL

**13. Approved Operations
Capability**

VFR day operations

14. Maximum Masses

Maximum takeoff - 600 kg / 1323 lbs

Maximum landing - 600 kg / 1323 lbs

15. Centre of Gravity Range

Forward CG limit – 25.2% MAC / 269 mm

Aft CG limit – 32.6% MAC / 336 mm

16. Reference datum

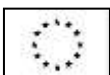
The wing's leading edge at the root of the wing

17. Control surface deflectionsRefer to AMM-128-00-60-001 Aircraft Maintenance Manual
latest approved issue**18. Levelling Means**

Refer to section 6.2 of the Pilot's Operating Handbook

19. Minimum Flight Crew

One (1) pilot



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20. Maximum Passenger Seating Capacity One (1) passenger

21. Wheels and Tyres Main wheel – 4.00" x 6", Tyre PN: 5050010
 Nose wheel – 4.00" x 4", Tyre PN: 5050035

For further options and details refer to EL-128-00-30-002 Equipment List latest approved issue

22. Lifetime limitations for the airframe: Refer to section 4 of the AMM-128-00-60-001 Aircraft Maintenance Manual;
 for the propeller: Refer to section 4 of the PIM-812-61-00-001 Propeller Instruction Manual;

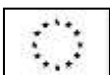
B.IV. Operating and Service Instructions

- | | |
|----------------------------------|--|
| 1. Aircraft Flight Manual | POH-128-00-40-001 Pilot's Operating Handbook
latest approved issue |
| 2. Aircraft Maintenance Manual | AMM-128-00-60-001 Aircraft Maintenance Manual
latest approved issue |
| 3. Structural Repair Manual | Refer to AMM-128-00-60-001 Aircraft Maintenance Manual |
| 4. Weight and Balance Manual | Refer to POH-128-00-40-001 Pilot's Operating Handbook |
| 5. Propeller Instructions Manual | Refer to PIM-812-61-00-001 Propeller Instruction Manual |
| 5. Illustrated Parts Catalogue | IPC-128-00-50-001 Illustrated Part Catalogue latest approved issue |

B.V. Notes

Note 1: Requirements 4, 5, 6.1, 6.2, 6.4, 6.7, 6.10, 6.11, 7.1, 7.3, 7.4 of ASTM F2840-11, as far as the engine and its parts are concerned, are covered through the corresponding certification basis in the engine TCDS EASA.E.234.

Note 2: The propeller is certified as part of the aircraft and therefore is only certified for installation on SW128. For propeller Operating and Service Instructions see: PIM-812-61-00-001 Propeller Instruction Manual



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SECTION ADMINISTRATIVE**I. Acronyms & Abbreviations**

AMM	Aircraft maintenance manual
CS-LSA	Certification specification for light sport aeroplanes
EASA	European Union Aviation Safety Agency
ESS	Energy Storage System
IPC	Illustrated parts catalogue
KIAS	Indicated airspeed in knots
KTAS	True airspeed in knots
MAC	Mean aerodynamic chord
MSL	Mean sea level
MDL	Master document list
POH	Pilot's operating handbook
RPM	Revolutions per minute
VFR	Visual flight rules

II. Type Certificate Holder Record

Pipistrel Vertical Solutions d.o.o.
 Vipavska cesta 2,
 5270 Ajdovščina
 Slovenia, Europe

III. Change Record

Issue	Date	Changes	TC Issue No. & Date
Issue 01	18/04/2016	Initial Issue	18/04/2016
Issue 02	22/09/2017	Update for major change Night VFR operations	
Issue 03	12/03/2018	Corrected in section A.IV the reference to the Maintenance Manual	
Issue 04	15/10/2018	Change of Type Certification Holder, Removed reference to CRI A-01 from section A.II (2)	
Issue 05	10/06/2020	Model Virus SW 128 added	
Issue 06	10/06/2020	Corrected Commercial designation "Velis Electro" for Virus SW 128	
Issue 07	15/06/2020	Corrected typos (see right bar)	

-END-

