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 (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

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.
### 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 m² (102.4 ft²)

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
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
    \( V_E \): 81 KIAS
    \( V_{AE} \): 100 KIAS

11. Flight Envelope
    Maximum operating altitude 18,000 ft MSL

12. Approved Operations
    VFR day operations; Night VFR operations (see note 3)
    Capability

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
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

   Refer to AMM

   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.
SECTION B: MODEL B DESIGNATION

B.I. General

1. Type/ Model/ Variant
   1.1 Type: Virus SW 121
   1.2 Model: Virus SW 128 (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: 15.05.2020

B.II. EASA Certification Basis

1. 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.
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**
<table>
<thead>
<tr>
<th>Length</th>
<th>6.47 m</th>
<th>21.22 ft</th>
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<tbody>
<tr>
<td>Span</td>
<td>10.71 m</td>
<td>35.13 ft</td>
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<tr>
<td>Height</td>
<td>2.08 m</td>
<td>6.82 ft</td>
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<tr>
<td>Wing Area</td>
<td>9.51 m²</td>
<td>102.4 ft²</td>
</tr>
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</table>

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 4)**
   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.
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 capacities
    10.1 Coolant system
    - for engine cooling system: 0.9 liters (approximately)
    - for battery cooling system: 5.4 liters (approximately)

11. Air Speeds
    $V_{NE}$: 108 KIAS
    $V_{NO}$: 98 KIAS
    $V_{A}$: 100 KIAS
    $V_{FE}$: 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 deflections
    Refer 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
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


Refer to AMM-128-00-60-001 Aircraft Maintenance 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
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

<table>
<thead>
<tr>
<th>Issue</th>
<th>Date</th>
<th>Changes</th>
<th>TC Issue No. &amp; Date</th>
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<td>Issue 01</td>
<td>18/04/2016</td>
<td>Initial Issue</td>
<td>18/04/2016</td>
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<tr>
<td>Issue 02</td>
<td>22/09/2017</td>
<td>Update for major change Night VFR operations</td>
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<td>Issue 03</td>
<td>12/03/2018</td>
<td>Corrected in section A.IV the reference to the Maintenance Manual</td>
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<tr>
<td>Issue 04</td>
<td>15/10/2018</td>
<td>Change of Type Certification Holder, Removed reference to CRI A-01 from section A.II (2)</td>
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<tr>
<td>Issue 05</td>
<td>10/06/2020</td>
<td>Model Virus SW 128 added</td>
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