TYPE-CERTIFICATE
DATA SHEET

NO. EASA.A.627

for
Ventus-3

Type Certificate Holder
Schempp-Hirth Flugzeugbau GmbH
Krebenstraße 25
73230 Kirchheim/Teck
Germany

For models: Ventus-3T
Ventus-3M
Ventus-3F
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Section A: Ventus-3T

A.I General

1. Type/ Model/ Variant
   1.1 Type: Ventus-3
   1.2 Model: Ventus-3T

2. Airworthiness Category
   Powered Sailplane, CS 22 - Utility

3. Manufacturer
   Schempp-Hirth Flugzeugbau GmbH
   Krebenstraße 25
   73230 Kirchheim / Teck
   Germany

4. EASA Type Certification Application Date
   30 September 2015

5. EASA Type Certification Date
   20 July 2018

A.II EASA Certification Basis

1. Reference Date for determining the applicable requirements
   30 September 2015

2. Airworthiness Requirements
   Certification Specifications for Sailplanes and Powered Sailplanes CS 22, Amend. 2, effective on March 5 2009

3. Special Conditions
   None

4. Exemptions
   None

5. (Reserved) Deviations
   None

6. Equivalent Safety Findings
   CS 22.207 (a), (c)
   CS 22.335 (f)

7. Environmental Protection
   ICAO Annex 16 (details refer to TCDSN EASA.A.627)
A.III  Technical Characteristics and Operational Limitations

1. Type Design Definition
   List of drawing files Ventus-3T,
   Issue April 2018

2. Description
   Single seat, mid-wing non-self-launching
   powered sailplane, CFRP/GFRP/AFRP-construction,
   6-piece 18 m wing with Winglets, chamber
   changing-flaps, triple-panel Schempp-Hirth type
   airbrakes on upper wing surface, water ballast tanks
   in wings and fin (optional), CFRP/GFRP/AFRP-
   fuselage, retractable main wheel with hydraulic disc
   brake, T-shaped horizontal tail (fixed horizontal
   stabilizer with elevator, fin and rudder), retractable
   power plant with folding propeller.

3. Equipment
   Min. required Equipment:
   1  Air speed indicator (up to 300 km/h)
   1  Altimeter
   1  Magnetic compass
   1  Outside air temperature indicator with sensor
   (when flying with water ballast)
   1  Engine control unit featuring:
      - RPM indicator
      - Engine hour meter
      - Fuel quantity indicator
   1  Rear view mirror
   1  4-point harness (symmetrical)
   1  Automatic or manual parachute
      or
   1  Back cushion (thickness approx. 8 cm when
      compressed) when flying without
      parachute
   Additional equipment refer to Flight and
   Maintenance Manual

4. Dimensions
   Span: 15,0 m  18,0 m
   Wing area: 9,53 m²  10,84 m²
   (see AV.4)
   Length: 6,63 m
   When according AV.5:
   Length: 6,78 m

5. Engine
   5.1  Model  SOLO 2350
   5.2  Type Certificate  Type Certificate Data Sheet No. EASA.E.219
   5.3  Limitations  Maximum RPM: 5800 min⁻¹
   Maximum continuous RPM: 5500 min⁻¹
   5.4  Maximum Continuous Power  15,3 kW
6. Propeller
   6.1 Model
      OE-FL 5.83/83 a5, v92
   6.2 Type Certificate
      Data Sheet No. OE-FL .//83
   6.3 Number of blades
      5
   6.4 Diameter
      830 mm +/- 0mm
      Note: Propeller features blades of different lengths (d_{min}/d = 92%)
   6.5 Sense of Rotation
      counter-clockwise

7. Fuel capacities
   7.1 Tank in the fuselage
      10,5 l        11,6 l, when according AV.5
   7.2 Non-usable fuel
      0,3 l

8. Launching Hooks
   Safety hook Tost “Europa G 88”, LBA
   Datasheet No. 60.230/2
   Nose tow hook Tost “E22”, Datasheet 11.402/9NTS

9. Weak Links
   Ultimate strength:
   - for winch- and car launch: max. 825 daN
   - for aero tow: max. 660 daN

10. Load Factors
    +5,3 / -2,65 (up to V_A)
    +4,0 / -1,5 (up to V_{NE})

11. Air Speeds
    Manoeuvring Speed V_A 180 km/h
    Never exceed speed V_{NE} 280 km/h
    Maximum permitted speeds
    - with flaps at 0, -1, -2, S, S1 V_{FE} 280 km/h
    - with flaps at +2, +1 V_{FE} 180 km/h
    - with flaps at L V_{FE} 150 km/h
    - in rough air V_{RA} 180 km/h
    - for winch / car launching V_{W} 150 km/h
    - for aero towing V_{T} 180 km/h
    - for gear operation V_{LO} 180 km/h
    - for extended power plant:
      Ignition ON V_{MAX1} 150 km/h
      Ignition OFF V_{MAX2} 180 km/h
      - for extending / retracting the power plant:
        V_{Pmin} 90 km/h
        V_{Pmax} 120 km/h

12. Approved Operations Capability
    VFR Day only
    Cloud flying permitted
    Aerobatic manoeuvres not permitted

13. Launch methods
    Aero tow
    Winch launch and car launch
14. Maximum Masses

Max. Mass:
With 15 m Wing Span: 525 kg (see AV.4)
With 18 m Wing Span: 600 kg
Max. Mass of non-lifting parts:
Power-plant installed: 320 kg
Power-plant removed: 280 kg

15. Centre of Gravity Range

Power-plant installed:
300 mm – 430 mm aft of datum
Power-plant removed:
290 mm – 430 mm aft of datum

16. Datum

Wing leading edge at root rib

17. Levelling Means

Wedge 100 : 3,0 on slope of rear top fuselage to be horizontal
When according AV.5:
Wedge 100 : 4,4 on slope of rear top fuselage to be horizontal

18. Control Surface Deflections

Refer to Maintenance Manual

19. Minimum Flight Crew

1

20. Maximum Passenger Seating Capacity

0

21. Baggage/ Cargo Compartments

2 kg

22. Lifetime limitations

Refer to Flight Manual, section 2
A.IV Operating and Service Instructions

1. Flight Manual
   - Flight Manual Ventus-3T, Issue April 2018, or later EASA approved revisions
   - When according AV.4:
     - Flight Manual Ventus-3T, Issue January 2021, or later EASA approved revisions
   - When according AV.5:
     - Flight Manual Ventus-3T “Performance”, Issue October 2021, or later EASA approved revisions

   - Maintenance Manual Ventus-3T, Issue April 2018, or later EASA accepted revisions
   - When according AV.4:
     - Maintenance Manual Ventus-3T, Issue January 2021, or later EASA accepted revisions
   - When according AV.5:
     - Maintenance Manual Ventus-3T “Performance”, Issue October 2021, or later EASA accepted revisions

   - Repair Manual for the GFRP/CFRP powered sailplane model “Ventus-3T”, latest applicable issue

   - Approved manual for the SOLO Engine type 2350, latest applicable issue, by SOLO Kleinmotoren GmbH

5. Operating Manual and Maintenance Manual for Propeller
   - Approved manual for the folding propeller type OE-FL /83, latest applicable issue, Ingrid Oehler TB GmbH

6. Manual for the Tost release, latest approved issue
A.V Notes

1. Manufacturing is confined to industrial production.

2. All parts exposed to sun radiation – except the areas for markings, registration and the cockpit area – must have a white colour surface.

3. Approved for operations with power plant temporarily removed or inoperative in accordance with the instructions given in the flight manual.


5. With Modification Bulletin 627-3 the “Performance-Edition”-fuselage can be used.
Section B: Ventus-3M

B.I General

1. Type/ Model/ Variant
   1.1 Type: Ventus-3
   1.2 Model: Ventus-3M

2. Airworthiness Category
   Powered Sailplane, CS 22 - Utility

3. Manufacturer
   Schempp-Hirth Flugzeugbau GmbH
   Krebenstraße 25
   73230 Kirchheim / Teck
   Germany

4. EASA Type Certification Application Date
   2 October 2017

5. EASA Type Certification Date
   15 November 2019

B.II EASA Certification Basis

1. Reference Date for determining the applicable requirements
   2 October 2017

2. Airworthiness Requirements
   Certification Specifications for Sailplanes and Powered Sailplanes CS 22, Amend. 2, effective on March 5 2009

3. Special Conditions
   None

4. Exemptions
   None

5. (Reserved) Deviations
   None

6. Equivalent Safety Findings
   CS 22.207 (a), (c)
   CS 22.335 (f)

7. Environmental Protection
   ICAO Annex 16 (details refer to TCDSN EASA.A.627)
B.III  Technical Characteristics and Operational Limitations

1. Type Design Definition
   List of drawing files Ventus-3M, Issue September 2019

2. Description
   Single seat, mid-wing powered sailplane, CFRP/GFRP/AFRP-construction, 6-piece 18 m wing
   with Winglets, chamber changing-flaps, triple-panel Schempp-Hirth type airbrakes on upper wing
   surface, water ballast tanks in wings and fin (optional), CFRP/GFRP/AFRP-fuselage, retractable
   main wheel with hydraulic disc brake, T-shaped horizontal tail (fixed horizontal stabilizer with
   elevator, fin and rudder), retractable power plant with fixed propeller.

3. Equipment
   Min. required Equipment:
   1 Air speed indicator (up to 300 km/h)
   1 Altimeter
   1 Magnetic compass
   1 Outside air temperature indicator with sensor (when flying with water ballast)
   1 Power plant operating unit featuring:
     - RPM indicator
     - Engine hour meter
     - Fuel quantity indicator
     - Coolant liquid temperature indicator
     - Warning signals
   1 Rear view mirror
   1 4-point harness (symmetrical)
   1 Automatic or manual parachute
   or
   1 Back cushion (thickness approx. 8 cm when compressed) when flying without parachute
   Additional equipment refer to Flight and Maintenance Manual

4. Dimensions
   Span: 18,0 m
   Wing area: 10,84 m²
   Length: 6,78 m

5. Engine
   5.1 Model
   SOLO 2625, variation SOLO 2625-01 i
   When according to BV.4:
   SOLO 2625, variation SOLO 2625-01 i neo
   5.2 Type Certificate
   Type Certificate Data Sheet No. EASA.E.218
   5.3 Limitations
   Maximum RPM: $6600 \text{ min}^{-1}$
   Maximum continuous RPM: $6250 \text{ min}^{-1}$
   5.4 Maximum Continuous Power
   45 kW
6. Propeller
   6.1 Model
   KS-1G-152-R 122
   6.2 Type Certificate
   LBA-Data Sheet No. 32.110/18
   6.3 Number of blades
   2
   6.4 Diameter
   1580 mm +/- 50mm
   6.5 Sense of Rotation
   counter-clockwise

7. Fuel capacities
   7.1 Tank in the fuselage
   13.0 l
   7.2 Non-usable fuel
   0.3 l
   7.3 Tank in wing(s)
   optional, see Flight Manual

8. Launching Hooks
   Safety hook Tost “Europa G 88”, LBA
   Datasheet No. 60.230/2
   Nose tow hook Tost “E22”, Datasheet 11.402/9NTS

9. Weak Links
   Ultimate strength:
   - for winch- and car launch: max. 825 daN
   - for aero tow: max. 660 daN

10. Load Factors
    +5.3 / -2.65 (up to $V_A$)
    +4.0 / -1.5 (up to $V_{NE}$)

11. Air Speeds
    Manoeuvring Speed $V_A$ 180 km/h
    Never exceed speed $V_{NE}$ 280 km/h
    Maximum permitted speeds
    - with flaps at 0, -1, -2, S, S1 $V_{FE}$ 280 km/h
    - with flaps at +2, +1 $V_{FE}$ 180 km/h
    - with flaps at L $V_{FE}$ 150 km/h
    - in rough air $V_{RA}$ 180 km/h
    - for winch / car launching $V_W$ 150 km/h
    - for aero towing $V_T$ 180 km/h
    - for gear operation $V_{LO}$ 180 km/h
    - for extended power plant $V_{MAX}$ 180 km/h
    - for extending / retracting the power plant:
      $V_{POmin}$ 92 km/h
      $V_{POmax}$ 120 km/h

12. Approved Operations Capability
    VFR Day only
    Cloud flying permitted
    Aerobatic manoeuvres not permitted

13. Launch methods
    Aero tow
    Winch launch and car launch
    Self launch

14. Maximum Masses
    Max. Mass: 600 kg
    Max. Mass of non-lifting parts:
    Power-plant installed: 365 kg
    Power-plant removed: 320 kg
<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
</table>
| 15. Centre of Gravity Range | Power-plant installed:  
320 mm – 430 mm aft of datum  
Power-plant removed:  
300 mm – 430 mm aft of datum |
| 16. Datum | Wing leading edge at root rib |
| 17. Levelling Means | Wedge 100 : 4,4 on slope of rear top fuselage to be horizontal |
| 18. Control Surface Deflections | Refer to Maintenance Manual |
| 19. Minimum Flight Crew | 1 |
| 20. Maximum Passenger Seating Capacity | 0 |
| 21. Baggage/ Cargo Compartments | 2 kg |
| 22. Lifetime limitations | Refer to Flight Manual, section 2 |
B.IV Operating and Service Instructions

1. Flight Manual
   Flight Manual Ventus-3M, Issue March 2019, or later EASA approved revisions
   When according BV.4:
   Flight Manual Ventus-3M, Issue February 2021, or later approved revisions

   Maintenance Manual Ventus-3M, Issue March 2019, or later EASA accepted revisions
   When according BV.4:
   Maintenance Manual Ventus-3M, Issue February 2021, or later accepted revisions

   Repair Manual for the GFRP/CFRP powered sailplane model “Ventus-3M”, latest applicable issue

   Approved manual for the SOLO Engine type 2625-01i, latest applicable issue, by SOLO Kleinmotoren GmbH
   When according to BV.4:
   Approved manual for the SOLO Engine type 2625-01i neo, latest applicable issue, by SOLO Kleinmotoren GmbH

5. Operating Manual and Maintenance Manual for Propeller
   Operation and Installation Manual No. P3 for the two blade composite propellers with fixed pitch KS 1 G()()() KS 1 C ()(), valid issue as appropriate

6. Manual for the Tost release, latest approved issue
B.V Notes

1. Manufacturing is confined to industrial production.

2. All parts exposed to sun radiation – except the areas for markings, registration and the cockpit area – must have a white colour surface.

3. Approved for operations with power plant temporarily removed or inoperative in accordance with the instructions given in the flight manual.

Section C: Ventus-3F

C.I  General

1. Type/ Model/ Variant
   1.1 Type: Ventus-3
   1.2 Model: Ventus-3F
2. Airworthiness Category Powered Sailplane, CS 22 - Utility
3. Manufacturer Schempp-Hirth Flugzeugbau GmbH
   Krebenstraße 25
   73230 Kirchheim / Teck
   Germany
4. EASA Type Certification Application Date 04 May 2017
5. EASA Type Certification Date 8 June 2022

C.II  EASA Certification Basis

1. Reference Date for determining the applicable requirements 04 May 2017
2. Airworthiness Requirements Certification Specifications for Sailplanes
   and Powered Sailplanes CS 22, Amend. 2, effective on March 5 2009
3. Special Conditions SC.22-2014-01 Installation of Electric Propulsion in
   sailplanes, SC E-01 Airworthiness Standard for CS-22H Electrical Retractable Engine to be operated in Powered Sailplanes
4. Exemptions None
5. (Reserved) Deviations None
6. Equivalent Safety Findings CS 22.207 (c)(1), CS 22.335 (f)
7. Environmental Protection ICAO Annex 16 (details refer to TCDSN EASA.A.627)
C.III  Technical Characteristics and Operational Limitations

1. Type Design Definition
   List of drawing files Ventus-3F, Issue July 2021

2. Description
   Single seat, mid-wing non-self-launching powered sailplane, CFRP/GFRP/AFRP-construction, 6-piece 18 m wing with Winglets, chamber changing-flaps, triple-panel Schempp-Hirth type airbrakes on upper wing surface, water ballast tanks in wings and fin (optional), CFRP/GFRP/AFRP-fuselage, retractable main wheel with hydraulic disc brake, T-shaped tail (fixed horizontal stabilizer with elevator, fin and rudder), electric motor with foldable propeller in nose.

3. Equipment
   Min. required Equipment:
   1  Air speed indicator (up to 300 km/h)
   1  Altimeter
   1  Magnetic compass
   1  Outside air temperature indicator with sensor (when flying with water ballast)
   1  Engine control unit FCU:
      - RPM indicator
      - Engine time
      - Battery level (V meter, A meter)
      - Motor temperature
   1  4-point harness (symmetrical)
   1  Automatic or manual parachute or
   1  Back cushion (thickness approx. 8 cm when compressed) when flying without parachute

   Additional equipment refer to Flight and Maintenance Manual

4. Dimensions
   Span: 18,0 m
   Wing area: 10,84 m²
   Length: 6,63 m

5. Engine

   5.1 Model
   FES-VEN-M100
   Outrunner BLDC brushless synchronous permanent Magnet motor with electronically controlled commutation system 3 phase

   5.2 Type Certificate
   Limitations
   Maximum Temperature: 90°C
   Max. continuous Temperature: 70°C
6. Propeller
   6.1 Model       FES-VEN-P1-102, traktor type
   6.2 Type Certificate accepted as part of the aircraft
   6.3 Number of blades 2
   6.4 Diameter 1000 mm +20/- 0mm
   6.5 Sense of Rotation clockwise
   6.6 Limitations 4300 RPM max. continuous rotational speed
       4500 RPM maximum rotational speed

7. Fuel capacities    N/A
8. Launching Hooks    Safety hook Tost “Europa G 88”, LBA
                      Datasheet No. 60.230/2
                      Nose tow hook Tost “E 85”, LBA
                      Datasheet No. 60.230/2

9. Weak Links         Ultimate strength:
       - for winch- and car launch: max. 825 daN
       - for aero tow: max. 660 daN

10. Load Factors      +5,3 / -2,65 (up to Vₐ)
                +4,0 / -1,5 (up to Vₘₐₓ)

11. Air Speeds        Manoeuvring Speed \( Vₐ \) 180 km/h
                     Never exceed speed \( Vₘₐₓ \) 280 km/h
                     Maximum permitted speeds
                     - with flaps at 0, -1, -2, S, S1 \( Vₑ \) 280 km/h
                     - with flaps at +2, +1 \( Vₑ \) 180 km/h
                     - with flaps at L \( Vₑ \) 150 km/h
                     - in rough air \( Vₐₕ \) 180 km/h
                     - for winch / car launching \( Vₘ \) 150 km/h
                     - for aero towing \( Vₜ \) 180 km/h
                     - for gear operation \( Vₙₒ \) 180 km/h
                     - for engine operation and
                       for engine start: \( Vₘₐₓ \) 160 km/h

12. Approved Operations Capability VFR Day only
       Cloud flying permitted
       Aerobatic manoeuvres not permitted

13. Launch methods    Aero tow
       Winch launch and car launch

14. Maximum Masses    Max. Mass:
                     With 18 m Wing Span: 600 kg
                     Max. Mass of non-lifting parts:
                     FES-Batteries installed: 320 kg
                     FES-Batteries removed: 280 kg

15. Centre of Gravity Range FES-Batteries installed:
                     300 mm – 430 mm aft of datum
                     FES-Batteries removed:
                     290 mm – 430 mm aft of datum

16. Datum           Wing leading edge at root rib
17. Levelling Means

Wedge 100 : 3,0 on slope of rear top fuselage to be horizontal

18. Control Surface Deflections

Refer to Maintenance Manual

19. Minimum Flight Crew

1

20. Maximum Passenger Seating Capacity

0

21. Baggage/ Cargo Compartments

2 kg

22. Lifetime limitations

Refer to Flight Manual, section 2
C.IV  Operating and Service Instructions

1. Flight Manual
4. Manual for the Tost release, latest approved issue

Flight Manual Ventus-3F, Issue August 2021
Maintenance Manual Ventus-3F, Issue August 2021
Repair Manual for the GFRP/CFRP powered sailplane model “Ventus-3F”, latest applicable issue
C.V  

Notes

1. Manufacturing is confined to industrial production.

2. All parts exposed to sun radiation – except the areas for markings, registration and the cockpit area – must have a white colour surface.

3. Approved for operations with FES-Batteries and/or propeller temporarily removed in accordance with the instructions given in the flight manual.

4. Engine and propeller are accepted as part of the aircraft according to PART 21.A.23(b)(2).
Section D: Administrative Section

D.I Acronyms & Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>AFRP</td>
<td>Aramid Fibre Reinforced Plastic</td>
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<tr>
<td>CFRP</td>
<td>Carbon Fibre Reinforced Plastic</td>
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<tr>
<td>GFRP</td>
<td>Glass Fibre Reinforced Plastic</td>
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<tr>
<td>CRI</td>
<td>Certification Review Item</td>
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<td>CS</td>
<td>Certification Specification</td>
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<td>EASA</td>
<td>European Union Aviation Safety Agency</td>
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<td>LBA</td>
<td>Luftfahrt-Bundesamt</td>
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<td>VFR</td>
<td>Visual Flight Rules</td>
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D.II Type Certificate Holder Record

Schempp-Hirth Flugzeugbau GmbH
Krebenstr. 25
73230 Kirchheim / Teck
Germany

D.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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<tbody>
<tr>
<td>01</td>
<td>20 July 2018</td>
<td>Initial Issue</td>
<td>Initial Issue, 20. July 2018</td>
</tr>
<tr>
<td>02</td>
<td>01 July 2019</td>
<td>Some editorial and layout changes.</td>
<td></td>
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<tr>
<td>03</td>
<td>15 November 2019</td>
<td>Addition of new model Ventus-3M</td>
<td>15 November 2019</td>
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<tr>
<td>04</td>
<td>28 April 2021</td>
<td>Introduction of 15m-wingtips for variant Ventus-3T and some editorial changes</td>
<td>n/a</td>
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<td>05</td>
<td>15 October 2021</td>
<td>Introduction of modification bulletin 627-1 for Ventus-3M</td>
<td>n/a</td>
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<td>06</td>
<td>22 July 2022</td>
<td>Introduction of new model Ventus-3F, Introduction of modification bulletin 627-3 for Ventus 3T, Some editorial changes</td>
<td>08 June 2022</td>
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