

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

A51CE Revision 6 AQUILA Aviation GmbH AT01 AT01-100 December 18, 2013
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TYPE CERTIFICATION DATA SHEET NO. A51CE

This data sheet, which is part of Type Certificate No. A51CE prescribes conditions and limitations under which the product for which the type certification was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder AQUILA Aviation GmbH
 OT Schoenhagen
 Flugplatz
 14959 Trebbin
 Germany

Type Certificate Holder Record AQUILA – Aviation by Excellence AG change name to AQUILA Aviation GmbH
 on May 29, 2013
 AQUILA Technische Entwicklungen GmbH
 Flugplatz
 D-14959 Schoenhagen
 Germany

transferred TC A51CE to
 AQUILA – Aviation by Excellence AG
 on November 19, 2008.

I. Model AQUILA AT01, (JAR-VLA), approved November 4, 2003

Engine One Rotax 912 S3, TCDS E00051EN

Fuel See Pilot's Operating Manual/Airplane Flight Manual

Oil API System "SF" or "SG" multi grade (See Airplane Flight Manual recommendations)
 Do not use aviation grade lubricants.

Coolant See Pilot's Operating Manual/Airplane Flight Manual

Engine Limits All operations, 5500 rpm (2260 propeller rpm), (92.5 hp, 69 kW)

Propeller Mt-propeller, MTV-21-A/175-05 constant speed.
 TCDS P16BO

Propeller Limits Diameter: Maximum 69.1 inches (1755 mm)
 Minimum 68.7 inches (1745 mm)

Airspeed Limits V_{NE} 165 KIAS 162 KCAS
 V_A 112 KIAS 109 KCAS
 V_{NO} 130 KIAS 128 KCAS
 V_{FE (TAKEOFF FLAPS)} 90 KIAS 87 KCAS
 V_{FE (MAXIMUM FLAPS)} 90 KIAS 87 KCAS

C.G. Range 16.8 inches (427 mm) to 20.6 in (523 mm) aft of datum line.

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<u>Reference Datum</u>	Wing leading edge at wing root.																								
<u>Leveling Means</u>	Wedge 800:77 (5.5°) on top of fuselage cone at 31.5 inches (800mm) in front of horizontal tail leading edge																								
<u>Maximum Weight</u>	Takeoff and Landing 1653 pounds (750 kg)																								
<u>Minimum Crew</u>	1																								
<u>No. of Seats</u>	2 adjustable seats at 17.9 inches (454 mm) to 23.3 inches (591 mm).																								
<u>Maximum Baggage</u>	Baggage compartment 88.2 lbs (40 kg) at 51.2 inches (1350 mm) aft of datum.																								
<u>Fuel Capacity</u>	31.6 gallons (120 liters) total fuel in wing tanks. 29.0 gallons (109.6 liters) usable.																								
<u>Oil Capacity</u>	3.2 quarts (3.0 liters) total in reservoir at 33.0 (838 mm) in front of datum 1.1 quarts (1.0 liters) usable																								
<u>Coolant Capacity</u>	2.5 quarts (2.4 liters) total minimum 2.6 quarts (2.5 liters) total maximum in engine housing and cooler at 46.0 (1170 mm) in front of datum																								
<u>Maximum Operating Altitude</u>	14500 feet																								
<u>Control Surface Movements</u>	<table border="0"> <tr> <td>Aileron</td> <td>trailing edge up</td> <td>16° + 1.5°</td> </tr> <tr> <td></td> <td>trailing edge down</td> <td>11° + 1.0°</td> </tr> <tr> <td>Elevator</td> <td>trailing edge up</td> <td>23° ± 1.5°</td> </tr> <tr> <td></td> <td>trailing edge down</td> <td>24° ± 1.5°</td> </tr> <tr> <td>Rudder</td> <td>left/right</td> <td>29° ± 1.5°</td> </tr> <tr> <td>Wing flaps</td> <td>up</td> <td>0° at stop of slotted flap</td> </tr> <tr> <td></td> <td>take off</td> <td>17° ± 1.5°</td> </tr> <tr> <td></td> <td>landing</td> <td>35° ± 1.5°</td> </tr> </table>	Aileron	trailing edge up	16° + 1.5°		trailing edge down	11° + 1.0°	Elevator	trailing edge up	23° ± 1.5°		trailing edge down	24° ± 1.5°	Rudder	left/right	29° ± 1.5°	Wing flaps	up	0° at stop of slotted flap		take off	17° ± 1.5°		landing	35° ± 1.5°
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<u>Manufacturer's Serial Numbers</u>	- AT01-101 up to AT01-182 (only manufactured by AQUILA Technische Entwicklungen GmbH in Germany.) - AT01-183 up to AT01-299 (only manufactured by AQUILA Aviation by Excellence AG in Germany.)																								
<u>Certification Basis</u>	<p>Certificated under the Special Class provisions of 14 Code of Federal Regulations (CFR), Part 21.17(b) --</p> <p>JAR-VLA thru amendment VLA/92/1 effective January 1, 1992 and</p> <p>Additional Requirements: Aquila GmbH Engine Mount Connection Design criteria and Winglets for the Aquila GmbH AT01 JAR-VLA Airplane, (final criteria issued 10-20-2003 and published in the Federal Register FR Doc. 03-28138 dated November 10, 2003) (68 FR 56809).</p> <p>14 CFR Part 36 effective November 18, 1969, including Amendments 36-1 through 36-24</p> <p>Additional Requirements for Night VFR option – Must have AQUILA modification/SB-AT01-010 incorporated for this Option: (See Note 7):</p> <p>The EASA Special Conditions are Special Conditions VLA 1, VLA 181, VLA 773, VLA 807, VLA 903, VLA 905, VLA 1107, VLA 1121, VLA 1143, VLA 1147, VLA 1322, VLA 1325, VLA 1331, VLA 1351, VLA 1353, VLA 1381, VLA 1383, VLA 1431, VLA 1547, VLA 1559 and VLA 1583. The FAA also adopted the corresponding EASA acceptable Means of Compliance (AMC) as shown in appendix 2 of the CRI A-01 for the</p>																								

night VFR project. (final design criteria issued 8-12-2013 as published in the Federal Register FR Doc. 2013-20151 dated August 19, 2013) (78 FR 50313).

Type Certificate No. A51CE was issued November 4, 2003.
Date of Application for Type Certificate was December 3, 2001.

The Luftfahrt Bundesamt originally type certificated this aircraft under its type certificate Number 1106. The FAA validated this product under U.S. Type Certificate Number A51CE. Effective September 28, 2003, the European Aviation Safety Agency (EASA) began oversight of this product on behalf of Germany.

Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the airplane for certification.

In addition, the following items of equipment are required:
Pilot's Operating Handbook and Airplane Flight Manual, document number AT01-1010-100-US, Rev. A.01 dated July 18, 2003 or later approved revision, must be carried. The list of basic required equipment for Day-VFR operation is contained in the Pilot's Operating Handbook (POH) and Airplane Flight Manual (AFM). The required Night VFR operation equipment is in Pilot's Operating Handbook and Airplane Flight Manual, document number AT01-1010-100-US, Rev. B.04 dated March 18, 2013 or later approved revision.

Limitations

(Reserved.)

II. Model AQUILA AT01-100, (JAR-VLA), approved December 18, 2013

<u>Engine</u>	One Rotax 912 S3, TCDS E00051EN
<u>Fuel</u>	See Pilot's Operating Manual/Airplane Flight Manual
<u>Oil</u>	API System "SF" or "SG" multi grade (See Airplane Flight Manual recommendations) Do not use aviation grade lubricants.
<u>Coolant</u>	See Pilot's Operating Manual/Airplane Flight Manual
<u>Engine Limits</u>	Maximum take off power, 5800 rpm (2385 propeller rpm), (98.6 hp, 73.5 kW) Maximum continuous power, 5500 rpm (2260 propeller rpm), (92.5 hp, 69 kW)
<u>Propeller</u>	Mt-propeller, MTV-21-A/170-05 constant speed 2-bladed. TCDS P16BO
<u>Propeller Limits</u>	Diameter: Maximum 67.1 inches (1705 mm) Minimum 66.7 inches (1695 mm)
<u>Airspeed Limits</u>	V _{NE} 165 KIAS 162 KCAS V _A 112 KIAS 109 KCAS V _{NO} 130 KIAS 128 KCAS V _{FE (TAKEOFF FLAPS)} 90 KIAS 87 KCAS V _{FE (MAXIMUM FLAPS)} 90 KIAS 87 KCAS
<u>C.G. Range</u>	16.8 inches (427 mm) to 20.6 in (523 mm) aft of datum line.
<u>Reference Datum</u>	Wing leading edge at wing root.
<u>Leveling Means</u>	Wedge 800:77 (5.5°) on top of fuselage cone at 31.5 inches (800mm) in front of horizontal tail leading edge
<u>Maximum Weight</u>	Takeoff and Landing 1653 pounds (750 kg)

<u>Minimum Crew</u>	1																								
<u>No. of Seats</u>	2 adjustable seats at 19.1 inches (484 mm) to 22.8 inches (581 mm).																								
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<u>Fuel Capacity</u>	31.6 gallons (120 liters) total fuel in wing tanks. 29.0 gallons (109.6 liters) usable.																								
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<u>Manufacturer's Serial Numbers</u>	<p>Model AT01-100 has three different serial number ranges that correspond to the EASA TCDS A.527 sub-models termed "variants", which is a term not recognized by the FAA for part 23 airplanes. The Model AT01-100 will have one of these three serial number ranges (Note 8): S/N AT01-100A-300 and ff (subsequent), AT01-100B-300 and ff (subsequent), AT01-100C-300 and ff (subsequent).</p>																								
<u>Certification Basis</u>	<p>Certificated under the Special Class provisions of 14 Code of Federal Regulations (CFR), Part 21.17(b) --</p> <p>JAR-VLA thru amendment VLA/92/1 effective January 1, 1992 and</p> <p>Additional Requirements: AQUILA GmbH Engine Mount Connection Design criteria and Winglets for the AQUILA GmbH AT01 JAR-VLA Airplane, (final criteria issued 10-20-2003 and published in the Federal Register FR Doc. 03-28138 dated November 10, 2003) (68 FR 56809).</p> <p>14 CFR Part 36 effective November 18, 1969, including Amendments 36-1 through 36-28</p> <p>Additional Requirements for Night VFR option – If modification option is approved</p> <p>The EASA Special Conditions are Special Conditions VLA 1, VLA 181, VLA 773, VLA 807, VLA 903, VLA 905, VLA 1107, VLA 1121, VLA 1143, VLA 1147, VLA 1322, VLA 1325, VLA 1331, VLA 1351, VLA 1353, VLA 1381, VLA 1383, VLA 1431, VLA 1547, VLA 1559 and VLA 1583. The FAA also adopted the corresponding EASA acceptable Means of Compliance (AMC) as shown in appendix 2 of the CRI A-01 for the night VFR project. (final design criteria issued 8-12-2013 as published in the Federal Register FR Doc. 2013-20151 dated August 19, 2013) (78 FR 50313).</p> <p>Additional Requirements for Advanced Avionics for this model:</p> <p>14 CFR part 23 § 23.1307 at amendment 23-49, "Miscellaneous Equipment".</p>																								

14 CFR part 23 § 23.1311 at amendment 23-62, "Electronic Display Instrument Systems"

14 CFR part 23 § 23.1321 at amendment 23-49, "Arrangement and visibility"

14 CFR part 23 § 23.1359 at amendment 23-49, "Electrical System Fire Protection". (final design criteria issued October 28, 2013 and published in the Federal Register November 15, 2013) (78 FR 68687):

Date of Application for Amended Type Certificate was April 22, 2013.

Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the airplane for certification.

In addition, the following items of equipment are required:

Pilot's Operating Handbook and Airplane Flight Manual, document number FM-AT01-1010-101 (variant AT01-100A), Rev. A.02 dated October 15, 2013 or FM-AT01-1010-102 (variant AT01-100B), Rev. A.02 dated October 15, 2013 or FM-AT01-1010-103 (variant AT01-100C) Rev. A.02 dated October 15, 2013 must be carried. The list of basic required equipment for Day-VFR operation is contained in the Pilot's Operating Handbook (POH) and Airplane Flight Manual (AFM).

For NVFR-operation refer to AFM-Supplement AS-01 (variant AT01-100A), AS-05 (variant AT01-100B) and AS-06 (variant AT01-100C), Section 2, all dated October 15, 2013 or later approved Revision

Limitations

(Reserved.)

DATA PERTINENT TO BOTH MODELS – AT01 and AT01-100

Import Requirements

The FAA can issue a U.S. airworthiness certificate based on an NAA Export Certificate of Airworthiness (Export C of A) signed by a representative of the Luftfahrt Bundesamt on behalf of the European Community. The Export C of A should contain the following statement: 'The aircraft covered by this certificate has been examined, tested, and found to comply with U.S. airworthiness regulations 14 CFR Part 21.17(b) approved under U.S. Type Certificate No. A51CE and to be in a condition for safe operation.

Service Information

Each of the documents listed below must state that it is approved by the European Aviation Safety Agency (EASA) or – for approvals made before September 28, 2003 – by the Luftfahrt Bundesamt.

- Service bulletins,
- Structural repair manuals,
- Vendor manuals,
- Aircraft flight manuals, and
- Overhaul and maintenance manuals.

The FAA accepts such documents and considers them FAA-approved unless one of the following conditions exists:

- The documents change the limitations, performance, or procedures of the FAA approved manuals; or

- The documents make an acoustical or emissions changes to this product's U.S. type certificate as defined in 14 CFR § 21.93.

The FAA uses the post type validation procedures to approve these documents. The FAA may delegate on case-by-case to EASA to approve on behalf of the FAA for the U.S. type certificate. If this is the case it will be noted on the document.

Available Documents for the Aquila AT01-100 are:

Airplane Flight Manual:

FM-AT01-1010-101 (variant AT01-100A), Rev. A.02 dated October 15, 2013 or later EASA approved revisions

FM-AT01-1010-102 (variant AT01-100B), Rev. A.02 dated October 15, 2013 or later EASA approved revisions

FM-AT01-1010-103 (variant AT01-100C), Rev. A.02 dated October 15, 2013 or later EASA approved revisions

Airplane Maintenance Manual, MM-AT01-1020-110, Rev. A.03 dated October 24, 2013 or later EASA approved revisions. (Chapter 4 is FAA and EASA approved)

NOTES:

NOTE 1: Weight and Balance:

A current weight and balance report including list of equipment included in the certificated empty weight and loading instructions, when necessary, must be provided for each aircraft at the time of original certification.

The certificated empty weight and corresponding center of gravity location must include full oil and unusable fuel.

NOTE 2: The placards specified in the LBA approved Pilot's Operating Handbook must be displayed

NOTE 3: Instructions for Continued Airworthiness and Service Life Limited components is included in the Aquila AT01 Maintenance Manual Section 4, "Airworthiness Limitations." Revisions to Airworthiness Limitations cannot be made without EASA and FAA approval.

Airframe life limit is 6,000 flight hours.

NOTE 4: All external portions of the airplane structure exposed to sunlight must be painted white except for areas of markings and warning marks. Any deviation must be approved by the manufacturer.

NOTE 5: This airplane cannot be converted for IFR operations or to a 14 CFR Part 23 airplane.

NOTE 6: (left blank at this time)

NOTE 7: Model AT01 that has Aquila modification defined by Service Bulletin (SB)-AT01-010 installed for Night VFR option must have AT01-1010-100-US, Rev. B.04 dated March 18, 2013 or later approved revision and AMM Doc No. MM-AT01-1020-100, revision 25, dated October 30, 2013 or later approved revision.

NOTE 8: EASA TCDS variant A has S/Ns: AT01-100A-300 and subsequent and has traditional analog instruments or ASPEN EFD 1000 display. EASA TCDS variant B has S/Ns: AT01-100B-300 and subsequent and has Garmin G-500 with analog engine instruments. EASA TCDS variant C has S/Ns AT01-100C-300 and subsequent and has Garmin G-500 with and Engine Monitoring System (EMS) MVP 50P.

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