
Type Acceptance Report

TAR 14/21B/13

SCHLEICHER ASW 28-18 E

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Executive Summary

New Zealand Type Acceptance has been granted to the ASW 28-18 E based on validation of EASA Type Certificate number A.034. There are no special requirements for import.

Applicability is currently limited to the Models and/or serial numbers detailed in Appendix 1, which are now eligible for the issue of an Airworthiness Certificate in the Standard Category in accordance with NZCAR §21.177, subject to any outstanding New Zealand operational requirements being met. (See Section 5 of this report for a review of compliance of the basic type design with the operating Rules.) Additional variants or serial numbers approved under the foreign type certificate can become type accepted after supply of the applicable documentation, in accordance with the provisions of NZCAR §21.43(c).

1. Introduction

This report details the basis on which Type Acceptance Certificate No.14/21B/13 was granted in the Standard Category in accordance with NZCAR Part 21 Subpart B.

Specifically the report aims to:

- (a) Specify the foreign type certificate and associated airworthiness design standard used for type acceptance of the model(s) in New Zealand; and
- (b) Identify any special conditions for import applicable to any model(s) covered by the Type Acceptance Certificate; and
- (c) Identify any additional requirements which must be complied with prior to the issue of a NZ Airworthiness Certificate or for any subsequent operations.

2. ICAO Type Certificate Details

Manufacturer:	Alexander Schleicher GmbH & Co		
Type Certificate:	A.034		
Issued by:	European Aviation Safety Agency		
Model:	ASW 28-18 E		
MCTOW	575 kg [1267 lb.] – 18.0 m span wingtips with water ballast 525 kg [1157 lb.] – 15.0 m span wingtips with water ballast		
Noise Standard:	LVL		
Engine:	Solo Type 2350		
	Type Certificate:	EASA.E.219	
	Issued by:	European Aviation Safety Agency	
Propeller:	AS2F1-2/L120-43-N2		
	Type Certificate:	EASA.P.004	
	Issued by:	European Aviation Safety Agency	

3. Type Acceptance Details

The application for New Zealand type acceptance of the ASW 28-18 E was from Mr Ross Gaddes, dated 6 November 2013. The first-of-type example was serial number 28754, registered ZK-GRU. The Schleicher ASW 28-18 E is a single-seat all-composite self-sustaining powered glider with mid mounted wing, T-tail and provision for water ballast.

Type Acceptance Certificate No. 14/21B/13 was granted on 13 December 2013 to the Schleicher ASW 28-18 E based on validation of EASA Type Certificate A.034. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

The ASW 28-18 E is the powered version of the current Schleicher ASW 28 FAI-Standard Class glider, and can be fitted with different outer wing panels to obtain either 15m or 18m span configuration. It uses a retractable 24 hp two-stroke Solo 2350 engine with direct-drive two-blade fixed-pitch composite propeller and single-lever control.

4. NZCAR §21.43 Data Requirements

The type data requirements of NZCAR Part 21B Para §21.43 have been satisfied by supply of the following documents, or were already held by the CAA:

(1) ICAO Type certificate:

EASA Type Certificate Number A.034

EASA Type Certificate Data Sheet no. A.034 at Issue 01 dated 12 April 2005
– Model ASW 28-18 E approved 12 April 2005

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the ASW 28-18 E is JAR 22 Change 6, issued 1 August 2001, plus compliance with the Standards for Structural Substantiation of Sailplane and Powered Sailplane Components Consisting of Glass or Carbon Fibre Reinforced Plastics issued July 1991, and Additional Requirements for the Installation of a Water Ballast System in the Vertical Tail for the Purpose of Balancing a Nose Down Moment Caused by Water Ballast in the Wing, issued August 1991. This is an acceptable certification basis in accordance with NZCAR Part 21B Para §21.41, as JAR 22 is the basic design standard for Gliders called up under Part 21 Appendix C and Advisory Circular 21-1. There are no non-compliances and no additional special conditions have been prescribed by the Director under §21.23. The ASW 28-18 E is approved for Day VFR operations, and cloud flying without water ballast.

(ii) *Special Conditions:*

Nil

(iii) *Equivalent Level of Safety Findings:*

JAR 22.335(f) Design Air Speeds – The use of C_{Dmin} leads to an unrealistic high V_D (Design Maximum Speed) because minimum drag is achieved at a much lower speed. An iterative method determining actual C_D from calculated C_L was used to find a V_D at which the sink rate achieved is around 7.8 m/s, which is the value originally intended by OSTIV. A proposed revision to CS-22 along these lines has been submitted to EASA. This changes CS 22.335(f) from using C_{Dmin} to using the C_D in a steady dive at V_D at MAUW, with wing flaps in whichever en-route position is permitted.

(iv) *Exemptions:*

Nil

(v) *Airworthiness Limitations:*

See MM Section 4: Information on Service Life Limitations and Operating Intervals

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

Lärmvorschrift für Luftfahrzeuge (LVL), third edition, issued 01-August-2004

(ii) *Compliance Listing:*

Noise Test Report Certificate – Noise Level Corrected Max = 63.5 dB(A)

(4) Certification Compliance Listing:

Compliance Checklist ASW 28-18 E

(5) Flight Manual: EASA-Approved Flight Manual for the self-sustaining powered sailplane ASW 28-18 E – CAA Accepted as AIR 3273

(6) Operating Data for Aircraft, Engine and Propeller:

(i) *Maintenance Manual:*

Maintenance Manual for the self-sustaining powered sailplane model ASW 28-18 E

(ii) *Current service Information:*

Technical Notes ASW 28-18E

(iii) *Illustrated Parts Catalogue:*

Not produced.

(7) Agreement from manufacturer to supply updates of data in (5), and (6):

CAA 2171 Form from Project Engineer Michael Greiner, dated 03.12.13

5. Additional New Zealand Requirements

Compliance with the retrospective airworthiness requirements of NZCAR Part 26 is a prerequisite for the grant of a type acceptance certificate.

Civil Aviation Rules Part 26

Subpart B – Additional Airworthiness Requirements

Appendix B – All Aircraft

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
B.1	Marking of Doors and Emergency Exits	<i>To be determined on an individual aircraft basis</i>
B.2	Crew Protection Requirements – CAM 8 Appdx. B # .35	Not Applicable – Agricultural Aircraft only

Compliance with the following additional NZ operating requirements has been reviewed and were found to be covered by either the original certification requirements or the basic build standard of the aircraft, except as noted:

Civil Aviation Rules Part 91

Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
91.505	Shoulder Harness if Aerobatic; >10 pax; Flight Training	JAR 22.1307 – Required Equipment – See TCDS §*.III.3
91.507	Pax Information Signs - Smoking, safety belts fastened	Not Applicable – Single-seat glider
91.509	Minimum Instruments and Equipment	Not Applicable – Powered glider
91.511	Night VFR Instruments and Equipment	Not Applicable – Certificated for Day VFR flight only
91.513	VFR Communication Equipment	<i>Operational requirement – compliance as applicable</i>
91.517	IFR Instruments and Equipment	Not Applicable – Certificated for Day VFR flight only
91.519	IFR Communication and Navigation Equipment	Not Applicable – Certificated for Day VFR flight only
91.523	Emergency Equipment	N/A – Single-seat glider [Superseded by §104.101(5)]
91.529	ELT – TSO C126 (406 MHz) Appendix A.15 – Installation Requirements	<i>To be determined on an individual aircraft basis</i> Maintenance Manual Section 2.11 addresses locations
91.531	Oxygen Indicators – Volume/Pressure/Delivery	Optional factory oxygen provisions – See Flight Manual §7.11
91.533	Oxygen for Non-Pressurised Aircraft For flight >30 min above FL100 – Supplemental for crew	<i>Operational requirement – compliance as applicable</i>
91.541	SSR Transponder and Altitude Reporting Equipment	<i>Operational requirement – compliance as applicable</i>
91.543	Altitude Alerting Device - Turbojet or Turbofan	Not Applicable – Certificated for Day VFR flight only
91.545	Assigned Altitude Indicator	Not Applicable – Certificated for Day VFR flight only
A.15	ELT Installation Requirements	<i>To be determined on an individual aircraft basis</i>

Civil Aviation Rules Part 104

Subpart C – Equipment and Maintenance Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
104.101	(1) Airspeed Indicator (2) Altimeter (Adjustable for barometric pressure) (3) Magnetic Compass (4) Safety Harness for each seat (5) A First Aid Kit (6) For powered gliders – (i) Fuel gauge for each main fuel tank (ii) Oil Pressure Gauge or warning device (iii) A tachometer or engine governor light (7) For IMC flight – (i) A variometer (ii) Turn & Slip/Artificial Horizon (iii) Radio transceiver	Required as Minimum Equipment – See TCDS Section §*.III.3 Required as Minimum Equipment – See TCDS Section §*.III.3 Required as Minimum Equipment – See TCDS Section §*.III.3 Required as Minimum Equipment – See TCDS Section §*.III.3 <i>To be determined on an individual aircraft basis</i> Displayed by (required) ASW28E Engine Control Unit Not Applicable – Two-Stroke engine Displayed by (required) ASW28E Engine Control Unit } Required for IMC (Cloud) Flight – See FM Section 2 Limitations <i>Operational requirement – compliance as applicable</i>

Attachments

The following documents form attachments to this report:

Three-view drawing Alexander Schleicher Model ASW 28-18 E
Copy of EASA Type Certificate Data Sheet number EASA.A.034

Sign off

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David Gill
Team Leader Airworthiness

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Checked – Peter Gill
Airworthiness Engineer

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
ASW 28-18 E	R M Gaddes	14/21B/13	13 December 2013