



AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRASIL

TYPE CERTIFICATE DATA SHEET Nº EP-9602

Type Certificate Holder:

STEMME GmbH Co. KG
Gustav-Meyer-Allee
Berlin, D-13355
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EP-9602-02
Sheet 01

STEMME

STEMME S10
STEMME S10-V
STEMME S10-VT

18 November 2008

This data sheet, which is part of Type Certificate No. 9602, prescribes conditions and limitations under which the product, for which the Type Certificate was issued, meets the airworthiness requirements of the Brazilian Aeronautical Regulations.

I - Model STEMME S10 (Utility Category), approved 29 May 1996.

ENGINE	Limbach L2400 EB1. D, or L2400 EB1, AD. Approved by ANAC-TCDS 9601	
FUEL	Aviation gasoline 100 LL. See section 2.13 of STEMME S10 flight manual.	
ENGINE LIMITS	Takeoff (max. 5 min) 3 400 r.p.m. (69 kW/92.5 hp) continuous operation: 3 000 r.p.m. (62 kW/83 hp)	
OIL	See section 2.4 of STEMME S10 flight manual.	
PROPELLER AND PROPELLER LIMITS	Stemme 10AP-N Propeller approved as a part of the aircraft type certification Diameter 1 610 * 2 mm (63.4 in * 0.08 in) No reduction permitted Fixed pitch at 1 392 mm at 0.7R (22" station: 54,8 in).	
AIRSPEED LIMITS (CAS)	Never exceed speed (VNE):	146 kias
	Maneuvering (VA) - sea level:	97 kias
	Rough air speed (VRA)	97 kias
	Flaps extended (VFE)	
	+ 16° (landing):	76 kias
	-10°, -5°, 0°:	146 kias
	+5°, +10°:	97 kias
	L. G. operation - extend (VLO):	76 kias
CG RANGE (Landing gear extended)	-254 mm to -420 mm (-10 in to -16.5 in) (aft of datum) No moment change due to the retracting of the landing gear	
DATUM	Inner wing leading edge.	

LEVELING MEANS	Wedge 1 000: 84 and level on upper face of tailboom in front of vertical fin (see maintenance manual Fig. 6.3 a).
MAXIMUM WEIGHT	Takeoff: 850 kg (1 874 lb) Landing: 850 kg (1 874 lb)
MINIMUM CREW	One Pilot
MAXIMUM PASSENGERS	Two seats in the range +545.5 mm to +650 mm (+21.46 in to +25.6 in) depending on seat position and pilot's proportions.
MAXIMUM BAGGAGE	22 kg at -93 mm (48.5 lb at -3.67 in)
FUEL CAPACITY	90 l (23.8 US gal) total (two wing tanks 45 l (11.9 US gal) each) at -265 mm (-10.43 in). 1,5 l (0.4 US gal) unusable fuel per tank. (See NOTE 1).
OIL CAPACITY	4.45 l (4.7 qt) total. Engine: 3.5l (3.7 qt) at -530 mm (-20.9 in). Radiator 0,95 l (1.0 qt) at -90 mm (-35.5 in). (See NOTE 1).
CONTROL SURFACE	Elevator: Up 48 mm +5, -2 mm Down 48 mm +5, -2 mm (1.89 in +0.2, -0.08 in) (1.89 in +0.2, -0.08 in)
MOVEMENTS	Measuring radius 140 mm (5.51 in) on inboard of stabilizer. Rudder: Right 220 mm ±15 mm Left 220 mm ±15 mm (8.7 in ±0.6 in) (8.7 in ±0.6 in) Measuring radius 420 mm (16.5 in) on bottom of the rudder's trailing edge. Aileron: Up 48 ± 4 mm Down 27 ± 3 mm (1.89 ± 0.16 in) (1.06 ± 0.12 in) Measuring radius 163 mm (6.42 in) on inboard of aileron Wing flaps: Up 31 ± 4 mm Down 51 ± 4 mm (1.22 ± 0.16 in) (2.0 ± 0.16 in) Measuring radius 175 mm (6.89 in) on inboard of wing All measured from hinge line. See STEMME S10 Instructions for Continued Airworthiness.

II - Model STEMME S10-V (Utility Category), approved 29 May 1996.

ENGINE	Limbach L2400 EB1. D, or L2400 EB1, AD. Approved by ANAC-TCDS 9601
FUEL	Aviation gasoline 100 LL. See section 2.13 of STEMME S10-V flight manual.
ENGINE LIMITS	Takeoff (max. 5 min) 3 400 r.p.m. (69 kW/92.5 hp) continuous operation: 3 000 r.p.m. (62 kW/83 hp)
OIL	See section 2.4 of STEMME S10-V flight manual.

MOVEMENTS (Cont.)

Aileron: Up 48 ± 4 mm (1.89 \pm 0.16 in) Down 27 ± 3 mm (1.06 \pm 0.12 in)
 Measuring radius 163 mm (6.42 in) on inboard of aileron
 Wing flaps: Up 31 ± 4 mm (1.22 \pm 0.16 in) Down 51 ± 4 mm (2.0 \pm 0.16 in)
 Measuring radius 175 mm (6.89 in) on inboard of wing
 All measured from hinge line. See STEMME S10 Instructions for Continued Airworthiness.

III - Model STEMME S10-VT (Utility Category), approved 17 June 2008.**ENGINE**

Rotax 914 F2/S1. (See Note 10).

FUEL

Aviation gasoline 100 LL. See section 2.4.2.1 of STEMME S10-VT flight manual.

ENGINE LIMITSTakeoff (max. 5 min) 5 800 r.p.m. (84.5 kW/113 hp)
 continuous operation: 5 500 r.p.m. (73.5 kW/98 hp)**OIL**

See section 2.4.2.3 of STEMME S10-VT flight manual.

COOLANT FLUID

See section 2.4.2.2 of STEMME S10-VT flight manual

PROPELLER AND PROPELLER LIMITSStemme **11AP-V**

Propeller approved as a part of the aircraft type certification

Diameter 1 630 * 3 mm (64.17 in * 0.12 in)

No reduction permitted

Fixed pitch at 0.7R (22,5 in) station: in TAKEOFF position 1 140 mm (45 in),
 in CRUISE position 1 600 mm (63 in).**AIRSPEED LIMITS (CAS)**

Never exceed speed (VNE):	146 kias
Maneuvering (VA) - sea level:	97 kias
Rough air speed (VRA)	97 kias
Flaps extended (VFE)	
+ 16° (landing):	76 kias
-10°, -5°, 0°:	146 kias
+5°, +10°:	97 kias
L. G. operation - extend (VLO):	76 kias

CG RANGE

(Landing gear extended)

-254 mm to -420 mm (-10 in to -16.5 in) (aft of datum)
 No moment change due to the retracting of the landing gear.**DATUM**

Inner wing leading edge.

LEVELING MEANSWedge 1 000: 84 and level on upper face of tailboom in front of vertical fin
 (see maintenance manual Fig. 6.3 a).**MAXIMUM WEIGHT**

Takeoff:	850 kg (1 874 lb)
Landing:	850 kg (1 874 lb)

MINIMUM CREW

One Pilot

MAXIMUM PASSENGERS	Two seats in the range +545.5 mm to +650 mm (+21.46 in to +25.6 in) depending on seat position and pilot's proportions.
MAXIMUM BAGGAGE	22 kg at -93 mm (48.5 lb at -3.67 in)
FUEL CAPACITY	90 l (23.8 US gal) total (two wing tanks 45 l (11.9 US gal) each) at -265 mm (-10.43 in). 1,5 l (0.4 US gal) unusable fuel per tank. (See NOTE 1).
OIL CAPACITY	3.97 l (4.2 qt) total. Engine 3.03 at -1330 mm (3.2 qt at -52.4 in). Radiator: 0.57 l at -900 mm (0.6 qt at -35.4 in). Engine and hoses: 0.38 l at -650 mm (0.4 qt at -25.6 in). (See NOTE 1).
CONTROL SURFACE	Elevator: Up 48 mm +5, -2 mm Down 48 mm +5, -2 mm (1.89 in +0.2, -0.08 in) (1.89 in +0.2, -0.08 in)
MOVEMENTS	Measuring radius 140 mm (5.51 in) on inboard of stabilizer. Rudder: Right 220 mm \pm 15 mm Left 220 mm \pm 15 mm (8.7 in \pm 0.6 in) (8.7 in \pm 0.6 in) Measuring radius 420 mm (16.5 in) on bottom of the rudder's trailing edge. Aileron: Up 48 \pm 4 mm Down 27 \pm 3 mm (1.89 \pm 0.16 in) (1.06 \pm 0.12 in) Measuring radius 163 mm (6.42 in) on inboard of aileron Wing flaps: Up 31 \pm 4 mm Down 51 \pm 4 mm (1.22 \pm 0.16 in) (2.0 \pm 0.16 in) Measuring radius 175 mm (6.89 in) on inboard of wing

All measured from hinge line. See STEMME S10-VT Maintenance Manual Section 3.3.

DATA PERTINENT TO ALL MODELS:

SERIAL NUMBER ELIGIBLE	A Certificate of Airworthiness for Export endorsed as noted under "Import Requirements" must be submitted for each individual aircraft for which application for a Brazilian Certificate of Airworthiness is made.
IMPORT ELIGIBILITY	A Brazilian Certificate of Airworthiness may be issued on the basis of on an LBA Export Certificate on Airworthiness (or a third country Export Certificate on Airworthiness, in case of used aircraft imported from such country), including the following statement: "The aircraft covered by this certificate has been inspected, tested and found to be in conformity with the Brazilian approved type design as defined by the Brazilian Type Certificate no. 9602 and in condition of safe operation". The CTA Report H.10-1500-00, dated 29 May 1996 or further revisions, contains the Brazilian requirements for the acceptance of these airplanes. (See note 4)

CERTIFICATION BASISFor STEMME S10:

Brazilian Type Certificate Nr. 9602 issued on 29 May 1996 based on the RBHA 22 Brazilian Requirements for Aeronautical Certification, which endorses the JAR 22 effective 15 March 1982, as amended by Change 3; including amendment 22/84/1.

Special condition ... accepted by ANAC.

- Preliminary standards for structural substantiation of sailplane and powered sailplane components consisting of glass or carbon fiber reinforced plastics, issue January 1981.
- Preliminary standards for the substantiation of the electrical system of powered sailplanes, issue 1 February 1990.
- Preliminary standard for the substantiation of indirect drive shafts in powered sailplanes (JAR 22) (with modifications for S10), dated 05.08.1988.
- JAR 22.375 from amendment 22/90/1 (winglets).

For STEMME S10-V:

Brazilian Type Certificate Nr. 9602 issued on 29 May 1996 based on the RBHA 22 Brazilian Requirements for Aeronautical Certification, which endorses the JAR 22 effective 15 March 1982, as amended by Change 3; including amendment 22/84/1.

Special condition ... accepted by ANAC.

- Standards for structural substantiation of sailplane and powered sailplane components consisting of glass or carbon fiber reinforced plastics, issue July 1991.
- Standards for the substantiation of the electrical system of powered sailplanes, dated 15 September 1992.
- Preliminary standard for the substantiation of indirect drive shafts in powered sailplanes (JAR 22) (with modifications for STEMME S10), dated 05.08.1988.
- NPA 22E-XX (Proposed amendment to JAR 22 for variable pitch propellers), Issue 25 March 1993.
- JAR 22.375 from amendment 22/90/1 (winglets).

For STEMME S10-VT:

Brazilian Type Certificate Nr. 9602 issued on 07 December 2007 based on the RBHA 22 Brazilian Requirements for Aeronautical Certification, which endorses the JAR 22 effective 27 June 1989, as amended by Change 4; including JAR 22.357 from amendment 22/90/1.

Special condition ... accepted by ANAC.

- Standards for structural substantiation of sailplane and powered sailplane components consisting of glass or carbon fiber reinforced plastics, issue July 1991.
- Standards for the substantiation of the electrical system of powered sailplanes, dated 15 September 1992.
- Preliminary standard for the substantiation of indirect drive shafts in powered sailplanes (JAR 22) (with modifications for STEMME S10), dated 05.08.1988.
- NPA 22E-XX (Proposed amendment to JAR 22 for variable pitch propellers), Issue 25 March 1993.

REQUIRED EQUIPMENT

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

DATA PERTINENT TO ALL MODELS:**NOTES:****NOTE 1** Weight and balance.

Current weight and balance report including list of equipment in certificated empty weight, and loading instructions, when necessary, must be provided for each powered glider at the time of original certification.

The certificated empty weight and corresponding center of gravity location must include the following:

- a) Unusable fuel of 6.7 lb (0.8 US gal) at - 265 mm (-10.43 in), and
For the Stemme S10 and S10 V only
- b) Undrainable engine oil of 1.7 lb (1 qt) at -900 mm (-35.5 in).

NOTE 2 Markings and placards.

The placards listed in Section 2 of the ANAC-approved STEMME S10 Flight Manual, or the S10-V Flight Manual, or STEMME S10-VT Flight Manual, as applicable, must be installed in the appropriate location. Complete listing of all placards is shown in Section 8 of the STEMME Maintenance manual, LBA approved February 17, 1995. The flight Manual airworthiness limitation may not be changed without ANAC approval.

NOTE 3 Continuing Airworthiness.

Section 4 of the LBA-approved STEMME S10 Maintenance Manual, or the S10-V Maintenance Manual, or the S10-VT Maintenance Manual, as applicable, specifies mandatory replacement times. These Maintenance Manual airworthiness limitations may not be changed without ANAC approval.

NOTE 4 The differences of the Brazilian airplanes in relation to the basic FAA type design are summarized below:

- 1. The Brazilian Airplane Flight Manual...
- 2. Markings and placards...

NOTE 5 All external portions of the glider exposed to the solar radiation must be painted white, except of areas provided for registration markings and for warning paint.

NOTE 6 Major structural repairs must be accomplished at ANAC certificated repair stations rated for composite aircraft structure work, in accordance with Stemme repair methods approved by the ANAC.

NOTE 7 Optionally the powered glider may be equipped with 2 enlarged fuel tanks of 60l (15.85 US gallons) each. This is accomplished in accordance with Modification Bulletin Number A30-92-077, dated July 14, 1992. The modification has no effect on any other aircraft parameter of G.C. of performance.

NOTE 8 Transformation of powered gliders model S10 to model S10-V to be accomplished in accordance with Service Bulletin Number A31-10-010. The serial N° of modified aircraft consists of the model index 14, hyphen, the old running number (three figures with leading) and the character M. Example: S/N 10-21 becomes 14-021M after modification. Both old and new identification plate must be mounted close together.

NOTE 9 The S 10-VT may optionally be equipped with winglets.
This may be accomplished in accordance with STEMME Service Bulletin Number A31-10-023.

- NOTE 10** The ROTAX 914 F2/S1 is a slightly modified version of the original engine. These minor modifications were necessary to accommodate it in the S10's airframe and are basically limited to the exhaust system. The modifications of the engine, which is exclusively used in motorgliders STEMME S10-VT, are part of the certification of the airframe of model S10-VT, and therefore, the ROTAX 914 F2/S1 does not have separate Type Certificate.



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