

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

G39EU
Revision 8
Burkhart Grob
Model G103 TWIN ASTIR
Model G103 TWIN II
Model G103A TWIN II ACRO
Model G103C TWIN III ACRO
March 22, 2007

TYPE CERTIFICATE DATA SHEET NO. G39EU

This Data Sheet, which is part of type Certificate No. G39EU prescribes conditions and limitations under which the product for which the Type Certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder BURKHART GROB LUFT - UND
 RAUMFAHRT GmbH & CO KG
 Am Flugplatz
 D-8939 Mattsies
 Federal Republic of Germany

I. Model G103 TWIN ASTIR (Utility Category), approved June 26, 1978.

Airspeed Limits (I.A.S.)	Maximum Airspeeds (Calm Air Unless Otherwise Noted)																								
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Never Exceed (V_{NE})</td> <td style="text-align: center;">135 kts</td> <td style="text-align: center;">155 mph</td> <td style="text-align: center;">250 km/hr</td> </tr> <tr> <td style="text-align: center;">With Airbrakes Extended</td> <td style="text-align: center;">135 kts</td> <td style="text-align: center;">155 mph</td> <td style="text-align: center;">250 km/hr</td> </tr> <tr> <td style="text-align: center;">In Rough Air (V_S)</td> <td style="text-align: center;">108 kts</td> <td style="text-align: center;">124 mph</td> <td style="text-align: center;">200 km/hr</td> </tr> <tr> <td style="text-align: center;">Maneuvering (V_A)</td> <td style="text-align: center;">92 kts</td> <td style="text-align: center;">105 mph</td> <td style="text-align: center;">170 km/hr</td> </tr> <tr> <td style="text-align: center;">Aero Tow (V_T)</td> <td style="text-align: center;">92 kts</td> <td style="text-align: center;">105 mph</td> <td style="text-align: center;">170 km/hr</td> </tr> <tr> <td style="text-align: center;">Winch Tow (V_W)</td> <td style="text-align: center;">64 kts</td> <td style="text-align: center;">74 mph</td> <td style="text-align: center;">120 km/hr</td> </tr> </table>	Never Exceed (V_{NE})	135 kts	155 mph	250 km/hr	With Airbrakes Extended	135 kts	155 mph	250 km/hr	In Rough Air (V_S)	108 kts	124 mph	200 km/hr	Maneuvering (V_A)	92 kts	105 mph	170 km/hr	Aero Tow (V_T)	92 kts	105 mph	170 km/hr	Winch Tow (V_W)	64 kts	74 mph	120 km/hr
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C.G. Range 10.24 in to 18.11 in (260 mm to 460 mm) aft of datum.

Datum Leading edge of wing at root.

Empty Weight See Flight Handbook.

Leveling Means Flight Handbook, Chapter VI.
 Maintenance Handbook, Chapter IV.

Maximum Weight 1435 lbs (650 kg.) with or without water ballast.

No. of Seats 2-fixed seats with Seat 1 located 44.9 in (1140 mm) forward of datum and Seat 2 located 0.4 in (11 mm.) behind datum.

Water Ballast 2 wing water bags, each 45 liters (12 gal.) (100 lb.) at position 11.7 in. (297 mm) aft of datum.

Baggage Maximum 22 lb. (10 kg) at C.G.

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Control Surface Movements

Aileron	Up:	3.541	±	0.394 in. (radius 8.19 in.)
	Down	1.77	±	0.31 in.
The Radius is the distance measured from the hinge line of the aileron at the inboard edge of the aileron.				
Elevator	Up:	3.58	±	0.24 in. (radius 8.74 in.)
	Down:	2.79	±	0.19 in.
The radius is the distance measured from the hinge line of the elevator at the elevator mid or center point.				
Rudder	Right:	8.78	±	0.39 in. (radius 17.72 in.)
	Left:	8.78	±	0.39 in.
The radius is the distance measured from the hinge line of the rudder at the base of the rudder.				
Airbrake				
At inner level: Up: 7 in.				

Rated load on Winch and
Auto Tow (Weak Link)

Maximum 600 kg (1323 lb.)

II. Model G103 TWIN II (Utility Category), Approved March 26, 1982.

Airspeed Limits (I.A.S.)

Maximum Air Speeds (Calm Air Unless Otherwise Noted)

Never exceed (V_{NE})			
0 - 6500 ft alt	135 kts	155 mph	250 km/hr
6501 - 10000 ft alt	128 kts	146 mph	237 km/hr
10001 - 13000 ft alt	121 kts	139 mph	225 km/hr
13001 - 16500 ft alt	115 kts	132 mph	213 km/hr
16501 - 19000 ft alt	109 kts	125 mph	202 km/hr
With Airbrakes extended	135 kts	155 mph	250 km/hr
In rough air (V_S)	92 kts	105 mph	170 km/hr
Maneuvering (V_A)	92 kts	105 mph	170 km/hr
Aero Tow (V_T)	92 kts	105 mph	170 km/hr
Winch tow (V_W)	65 kts	74 mph	120 km/hr

C.G. Range

+10.24 in. (260 mm) to +18.11 in. (460 mm) aft of datum.

Datum

Leading edge of wing at root.

Empty Weight

See Flight Manual

Leveling Means

Flight Manual, Chapter II.

Maximum Weight

1279 lb (580 kg).

No. of Seats

2-fixed seats with Seat 1 located 45.3 in (1150 mm) forward of datum and Seat 2 located 1.6 in. (40 mm) behind datum.

Baggage

Maximum 22 lb. (10 kg) at C.G.

Control Surface Movements

Aileron	Up	3.541	±	0.394 in. (radius 8.19 in.)
	Down	1.97	±	0.31 in.
The radius is the distance measured from the hinge line of the aileron at the inboard edge of the aileron.				

Control Surface Movements, cont'd

Elevator Up 3.54 ± 0.24 in. (radius 8.35 in.)
 Down 2.76 ± 0.20 in.
 The radius is the distance measured from the hinge line of the elevator at the elevator mid or center point.

With elevator No. 103A-3520 for gliders modified by TM 315-16
 Up 3.82 ± 0.31 in. (radius 9.17 in.)
 Down 2.99 ± 0.24 in.
 The radius is the distance measured from the hinge line of the elevator at the elevator mid or center point.

For glider serial numbers 3730 through 3838 modified by AM 315-12
 Up 3.82 ± 0.31 in. (radius 9.65 in.)
 Down 2.99 ± 0.24 in.
 The radius is the distance measured from the hinge line of the elevator at the elevator mid or center point.

For glider serial number 3839 and subsequent and gliders modified by AM 315-13/1, and for glider serial numbers 33879 and subsequent by AM 315-14 (spring trim system)

 Up 3.74 ± 0.31 in. (radius 9.45 in.)
 Down 2.92 ± 0.24 in.
 The radius is the distance measured from the hinge line of the elevator at the elevator inboard edge.

Rudder Right 9.17 ± 0.39 in. (radius 17.72 in.)
 Left 9.17 ± 0.39 in.

The radius is the distance measured from the hinge line of the rudder at the base of the rudder.

Airbrakes
 At inner level Up: 7.0 in

Rated Load on Winch and
 Auto Tow (Weak Link) Maximum 1323 lb. (600 kg).

III. Model G103A TWIN II ACRO, (Utility and Aerobatic Categories), Approved April 2, 1984.

(Similar to TWIN II except for stronger spar in the wing. Modifications per Grob Service Bulletin OSB315-66 are required for operation in Aerobatic Category)

Airspeed Limits (I.A.S.)
 (for category utility)

Maximum Airspeed (Calm Air Unless Otherwise Noted)

Never exceed (V_{NE})			
0 - 6500 ft alt	135 kts	155 mph	250 km/hr
6501 - 10000 ft alt	128 kts	146 mph	237 km/hr
10001 - 13000 ft alt	121 kts	139 mph	225 km/hr
13001 - 16500 ft alt	115 kts	132 mph	213 km/hr
16501 - 19000 ft alt	109 kts	125 mph	202 km/hr
With Airbrakes extended	135 kts	155 mph	250 km/hr
In rough air (V_S)	92 kts	105 mph	170 km/hr
Maneuvering (V_A)	92 kts	105 mph	170 km/hr
Aero Tow (V_T)	92 kts	105 mph	170 km/hr
Winch tow (V_W)	65 kts	74 mph	120 km/hr

Airspeed Limits (I.A.S.)
(for category aerobatic)

Maximum Airspeed (applies to serial number 33879 and subsequent only)
(Calm Air Unless Otherwise Noted)

Never exceed (V_{NE}).			
0 - 6500 ft alt	135 kts	155 mph	250 km/hr
6501 - 10000 ft alt	128 kts	146 mph	237 km/hr
10001 - 13000 ft alt	121 kts	139 mph	225 km/hr
13001 - 16500 ft alt	115 kts	132 mph	213 km/hr
16501 - 19000 ft alt	109 kts	125 mph	202 km/hr
With Airbrakes extended	135 kts	155 mph	250 km/hr
In rough air (V_S)	98 kts	112 mph	180 km/hr
Maneuvering (V_A)	98 kts	112 mph	180 km/hr
Aero Tow (V_T)	92 kts	105 mph	170 km/hr
Winch tow (V_W)	65 kts	74 mph	120 km/hr

C. G. Range

10.24 in. (260 mm) to 18.11 in (460 mm) aft of datum.

Datum

Leading edge of wing at root.

Empty Weight

See Flight Manual.

Leveling Means

Flight Manual, Chapter II.

Maximum Weight

1279 lb (580 kg).

No. of Seats

2- fixed seats with Seat 1 located 45.3 in. (1150 mm) forward of datum and Seat 2 located 1.6 in. (40 mm) behind datum.

Baggage

Maximum 22 lb. (10 kg) at C.G.

Control Surface Movements

Aileron Up 3.541 ± 0.394 in. (radius 8.19 in.)
 Down 1.97 ± 0.31 in.
 The radius is the distance measured from the hinge line of the aileron at the inboard edge of the aileron.

Elevator Up 3.82 ± 0.31 in. (radius 9.45 in.)
 Down 2.99 ± 0.24 in.
 The radius is the distance measured from the hinge line of the elevator at the elevator mid or center point.

For gliders serial numbers 3730-K through 3838-K

3.82 ± 0.31 in. (radius 9.65 in.)

Up

Down 2.99 ± 0.24 in.

The radius is the distance measured from the hinge line of the elevator at the elevator mid of center point.

For glider 3839-K and subsequent and those gliders modified by AM 315-13/1, and for glider serial numbers 33879 and subsequent by AM 315-14 (spring trim system)

Up 3.74 ± 0.31 in. (radius 9.45 in.)

Down 2.91 ± 0.24 in.

The radius is the distance measured from the elevator hinge line at the elevator inboard edge.

Rudder Right 9.17 ± 0.39 in. (radius 17.72 in.)
 Left 9.17 ± 0.39 in.

The radius is the distance measured from the hinge line of the rudder at the base of the rudder.

Airbrakes At inner level: Up 7.0 in

Rated Load on Winch and
Auto Tow (Weak Link) Maximum 1662 lb (754 kg).

IV. Model G 103 C TWIN III ACRO (Aerobatic Category), Approved September 18, 1989.

(Similar to TWIN II except for: wing. Modifications per Grob Service Bulletin OSB315-66 are required for operation in Aerobatic Category)

Airspeed Limits (I.A.S.)

Maximum Airspeed (Calm Air Unless Otherwise Noted)

Never exceed (V_{NE})			
0 - 6500 ft alt	151 kts	174 mph	280 km/hr
6501 - 10000 ft alt	143 kts	165 mph	265 km/hr
10001 - 16500 ft alt	130 kts	149 mph	240 km/hr
16501 - 23000 ft alt	116 kts	134 mph	215 km/hr
23001 - 29500 ft alt	103 kts	118 mph	190 km/hr
With Airbrakes extended	151 kts	174 mph	280 km/hr
In rough air (V_S)	108 kts	124 mph	200 km/hr
Maneuvering (V_A)	100 kts	115 mph	185 km/hr
Aero Tow (V_T)	100 kts	115 mph	185 km/hr
Winch tow (V_W)	76 kts	87 mph	140 km/hr

C.G. Range 10.63 in. (270 mm) to 18.90 in. (480 mm) aft of datum.

Datum Wing leading edge at the root rib.

Empty Weight See Flight Manual.

Leveling Means See Maintenance Manual Chapter 7.

Maximum Weight 1323 lb (600 kg)

No. of Seats 2-fixed seats with Seat 1 located 44.57 in. (1132 mm) forward of datum and Seat 2 located 1.38 in. (35 mm) behind datum.

Baggage Maximum 22 lb. (10 kg) at C.G. 31.89 in. (810 mm) aft of datum.

Control Surface Movements

Aileron Up 2.95 ± 0.31 in. (radius 8.46 in.)
Down 1.97 ± 0.20 in.
The radius is the distance measured from the hinge line of the aileron at the inboard edge of the aileron.

Elevator Up 4.02 ± 0.31 in. (radius 9.45 in.)
Down 2.91 ± 0.24 in.
The radius is the distance measured from the hinge line of the elevator at the elevator inboard edge.

Rudder Right 9.17 ± 0.39 in. (radius 17.72 in.)
Left 9.17 ± 0.39 in.
The radius is the distance measured from the hinge line of the rudder at the base of the rudder.

Airbrakes
At inner level Up 5.0 in

Rated Load on Winch and
Auto Tow (Weak Link) Maximum 1863 lb (845 kg)

DATA PERTINENT TO ALL MODELS.

Serial Nos. Eligible	See Import Requirements.
Certification Basis	<p>FAR 21.23 and FAR 21.29 effective February 1, 1965.</p> <p><u>For Model G103 TWIN ASTIR:</u></p> <p>Federal Republic of Germany Airworthiness Requirements for Sailplane and Powered Sailplanes (LFSM), dated October 1975.</p> <p>Type Certificate G39EU issued June 26, 1978. Date of Application for Type Certificate: December 30, 1976.</p> <p><u>For Model G103 TWIN II:</u></p> <p>Compliance with FAR 21.23 as revised by Amendment 21-53 has been shown utilizing the provisions of Advisory Circular 21.23-1 dated 12 January 1981, Section 5, paragraph a. The airworthiness requirements met under this provision are the Joint Airworthiness Requirement for Sailplane and Powered Sailplane (JAR-22) dated 1 April 1980 including Amendments 1 through 2, and Section 5, paragraph (e)(6) of Advisory Circular 21.23-1 dated 12 January 1981. Joint Airworthiness Requirements and Powered Sailplanes (JAR-22) dated 1 April 1980.</p> <p>Type Certificate G39EU amended 26 March 1982. Date of Application for amendment of the Type Certificate: 1 July 1980.</p> <p><u>For Model G103A TWIN II ACRO:</u></p> <p>Compliance with FAR 21.23 as revised by Amendment 21-53 has been shown utilizing the provisions of Advisory Circular 21.23-1 dated 12 January 1981, Section 5, paragraph a. The airworthiness requirements met under this provision are the Joint Airworthiness Requirement for Sailplanes and Powered Sailplanes (JAR-22) dated 1 April 1980 including Amendments 1 through 2, and Section 5, paragraph (e)(6) of Advisory Circular 21.23-1 dated 12 January 1981.</p> <p>Type Certificate G39EU amended 2 April 1984. Date of Application for amendment of the Type Certificate: 27 June, 1983.</p> <p><u>For Model G103C TWIN III ACRO:</u></p> <p>Compliance with FAR 21.23 as revised by Amendment 21-53 has been shown utilizing the provisions of Advisory Circular 21.23-1 dated 12 January 1981, Section 5, paragraph a. The airworthiness requirements met under this provision are the Joint Airworthiness Requirement for Sailplanes and Powered Sailplanes (JAR-22) dated 1 April 1980 including Amendments 1 through 2, and Section 5, paragraph (e)(6) of Advisory Circular 21.23-1 dated 12 January 1981.</p> <p>Type Certificate G39EU amended September 18, 1989. Date of Application for amendment of the type Certificate: 12 June 1989.</p>
Import Requirements	<p>A U.S. Standard Airworthiness Certificate may be issued on the basis of a German Export Certificate of Airworthiness signed by a representative of the Luftfahrt-Bundesamt (LBA), containing the following statement:</p> <p style="padding-left: 40px;">"The glider covered by this certificate has been examined, tested and found to comply with the type design approved under FAA Type Certificate No. G39EU and to be in a condition for safe operation."</p>

or,

Import Requirements, cont'd

For gliders imported from a third-party country that have never held a U.S. airworthiness certificate, either an export certificate of airworthiness from the third-party country or a detailed conformity inspection performed by a FAA manufacturing DAR or a FAA manufacturing inspector, shall be required prior to issuance of a standard airworthiness certificate. (Note: A FAA maintenance inspector is not authorized to perform this conformity inspection.) Eligibility for a U.S. Standard Airworthiness Certificate under this condition is established through compliance with FAR 21.183(d)

Eligible Serial Numbers

a) For the Model G103 TWIN ASTIR:

Eligible Serial Numbers: 3001 through 3291

Note: serial numbers 3001 through 3031 (prematurely exported) are eligible for a U.S. Standard Airworthiness Certificate when the glider has been modified in accordance with the LBA-approved Grob Technical Information TM103-3.

b) For the Model G103 TWIN II:

Eligible Serial Numbers: Serial numbers 3501 through 3878
Serial numbers 33879 through 34078

Note: serial numbers 3543, 3601 through 3604, 3609, 3615, 3648, 3650, 3652 and 3664 (prematurely exported) are eligible for a U.S. Standard Airworthiness Certificate when the glider has been modified in accordance with the LBA-approved Grob Technical Information TM315-14

c) For the Model G103A TWIN II ACRO:

Eligible Serial Numbers: Serial numbers 3544-K-() through 3878-K-()
Serial numbers 33879-K-() through 34078-K-()

Note: the following serial numbers (prematurely exported) are eligible for a U.S. Standard Airworthiness Certificate when the glider has been modified in accordance with the LBA-approved Grob Technical Information TM315-23:

3799-K-66	3843-K-89
3815-K-76	3847-K-93
3822-K-81	3848-K-94
3823-K-82	3850-K-96
3840-K-86	3852-K-98
3841-K-87	3854-K-100
3842-K-88	3855-K-101

d) For the Model G103C TWIN III ACRO:

Eligible Serial Numbers: Serial numbers 34101 through 34203

Eligible Serial Numbers, cont'd

Note: serial numbers 34107, 34110 and 34121 (prematurely exported) are eligible for a U.S. Standard Airworthiness Certificate when the glider has been modified in accordance with the LBA-approved Grob Technical Information TM315-44

Equipment

For the Model G103 TWIN ASTIR

The Required Equipment for the Kinds of Approved Operations are listed in the GROB Model G103 TWIN ASTIR Flight Manual LBA-approved 5 June 1978.

Equipment, cont'd

For the Model G103 TWIN II

The Equipment Approved for the GROB Model G103 TWIN II is listed in the GROB Master Equipment List dated 24 September 1981.

The Required Equipment for the Kinds of Approved Operations are listed in the GROB Model G103 TWIN II Flight Manual, LBA-approved 17 March 1982.

For Model G103A TWIN II ACRO

The Equipment approved for the GROB Model G103A TWIN II ACRO is listed in the GROB Master Equipment List dated 22 June 1983.

The Required Equipment for the Kinds of Approved Operations are listed in the GROB Model G103A TWIN II ACRO Flight Manual, LBA-approved 12 July 1983.

For Model G103C TWIN III ACRO

The Equipment approved for the GROB Model G103C TWIN III ACRO is listed in the GROB Master Equipment List dated June 1989.

The Required Equipment for the Kinds of Approved Operations are listed in the GROB Model G103C TWIN III ACRO Flight Manual, Revision 1, LBA-approved September 8, 1989.

Service Information

GROB Technical Information (Service Bulletins), published in the English language for the U.S. Type Design that carry a statement "Approved by the Luftfahrt-Bundesamt (LBA)" may be interpreted as FAA-approved.

Available documents for GROB Model G103 TWIN ASTIR:

- Flight Manual, LBA-approved 5 June 1978 or later approved revision
- Maintenance Manual for GROB G103 TWIN ASTIR, LBA-approved 5 June 1978
- Repair Instructions for the GROB G103 TWIN ASTIR, dated 5 June 1978

Available documents for GROB Model G103 TWIN II:

- Flight Manual, LBA-approved 17 March 1982 or later approved revision
- Airworthiness Limitations (Section X) of the G103 TWIN II Maintenance Handbook, LBA-approved 17 March 1982
- Repair Instructions for the GROB G103 TWIN II, dated September 1981

Available documents for GROB Model G103A TWIN II ACRO:

- Flight Manual, dated 12 July 1983 and Model G103 TWIN II Flight Manual LBA-approved 17 March 1982 or later approved revision
- Airworthiness Limitations (Section X) of the G103 TWIN II Maintenance Handbook, LBA-approved 17 March 1982
- Repair Instructions for the GROB G103 TWIN II, dated September 1981

Available documents for GROB Model G103C TWIN III ACRO:

- Flight Manual, Revision 1, LBA-approved 8 September 1989 or later approved revision
- Maintenance Manual for GROB G103C TWIN III ACRO, LBA-approved January 1989
- Airworthiness Limitations (Section XI, FAA) of the G103C TWIN III ACRO Maintenance manual, LBA-approved January 1989
- Repair Instructions for the GROB G103C TWIN III ACRO, dated 26 May 1989

NOTES

- NOTE 1. Current weight and balance report including list of equipment in certificated empty weight, and loading instructions, when necessary, must be provided for each glider at the time of original certification.

NOTES, cont'd

- NOTE 2. All placards and markings listed in Section II of the LBA-approved Grob Flight Manual must be installed in the location defined.
- NOTE 3. LBA-approved Section XI of the GROB TWIN ASTIR Glider Maintenance Manual dated 5 June 1978 and LBA-approved Section X of the GROB Glider Maintenance Manual for Models
-GROB G103 TWIN II LBA-approved 17 March 1982, and
-GROB G103 TWIN II ACRO, LBA-approved 17 March 1982 and
LBA-approved Section 11 of the GROB G103C TWIN III ACRO Glider Maintenance Manual dated January 1989 specifies mandatory replacement times, structural inspection intervals, and related structural inspection procedures. These airworthiness limitations may not be changed without FAA approval.
- NOTE 4. All external portions of the glider exposed to sunlight must be painted white except the wing tips, nose of fuselage, ailerons, and rudder. The colors of the excepted areas must be approved by Grob.
- NOTE 5. Major airframe repairs must be accomplished at FAA certificated repair stations rated for composite construction of small aircraft, using Grob Werke repair methods for model of interest, approved by the FAA.
- NOTE 6. Tost release hooks for the Grob Model G103 TWIN III ASTIR to be maintained in accordance with Tost Manual E75 and Europa G73 published in May 1975.
- All Tost tow release hooks for Grob gliders are to be maintained in accordance with the latest LBA/EASA-approved Tost Manual for each particular model hook.
- NOTE 7. G103 C TWIN III ACRO, Serial Number 34171 and up, incorporates the following improvements. The modifications are:
- a) Headrest, Part Number 103SL-7301/7302,
 - b) Main Landing Gear Frame Supports, Part Number 103SL-2017/2018;
 - c) Steerable Nose Landing Gear, Part Number 103SL-5100;
 - d) Rudder: Shape and Rudder Control Attachment, (Actuator Rib Part Number 103SL-3175)
 - e) Pedal Units, Part Number 103SL-4420 and 103SL-4800;
 - f) Airbrake Operating Rear Lever, Part Number 103SL-4412;
 - g) Horizontal Stabilizer Hinges, Part Number 115-1276 (one required) and 115-1278 (one required);
 - h) Elevator hinges, Part Number 103SL-3721 (two required);
 - i) Resin - hardener system:
 - 1) Resin: Type L285 from Martin G. Scheufler MGS Company
 - 2) Hardener: Type 285, 286 and 287 from MGS Company.

...END...