European Union Aviation Safety Agency

TYPE CERTIFICATE DATA SHEET

No. EASA.BA.011

for

Free Manned Gas Balloons
K-STU Series

Type Certificate Holder

Ballonbau Wörner GmbH

Flughafenstraße 20
86169 Augsburg
Germany

For Sizes:
K-STU/300
K-STU/630
K-STU/780
K-STU/945
K-STU/1000
K-STU/1260
K-STU/1680

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SECTION 1: K-STU Series

I. General

1.	Type, Sizes	Type: K-STU Sizes: see III.2
2.	Airworthiness Process	Type Certificate issued i.a.w. Annex I of (EU) No 748/2012
3.	Manufacturer	See 'Section: Administrative', III.
4.	Type Certification Application Date	to LBA for: K-STU/300 9 February 1967 K-STU/630 27 February 1963 K-STU/780 4 March 1968 K-STU/945 9 May 1963 K-STU/1000 1 June 1971 K-STU/1260 9 May 1963 K-STU/1680 19 July 1965
5.	State of Design Authority	EASA
6.	Type Certificate Date	by LBA for: K-STU/300 12 November 1968 K-STU/630 17 August 1964 K-STU/780 27 March 1968 K-STU/945 17 August 1963 K-STU/1000 16 March 1972 K-STU/1260 17 August 1964 K-STU/1680 12 April 1966
7.	Type Certificate n°	EASA: EASA.BA.011 (LBA: 8002/BA, until 2 June 2005)
8.	Type Certificate Data Sheet n°	EASA: EASA.BA.011 (LBA: 8002/BA, until Issue 12, November 1989)
9.	EASA Type Certification Date	28 September 2003, in accordance with CR (EU) 1702/2003, Article 2, 3., (a), (i), 2nd bullet, 1st indented bullet.

II. Certification Basis

1.	Reference Date for determining the applicable requirements	K-STU/300 9 February 1967 K-STU/630 27 February 1963 K-STU/780 25 March 1968 K-STU/945 14 May 1963 K-STU/1000 10 June 1971 K-STU/1260 14 May 1963 K-STU/1680 23 July 1965
2.	Airworthiness Requirements	2.1: Bau- und Prüfvorschriften für Freiballone, Ausgabe Februar 1938, *(Design and inspection requirements for free balloons, issue February 1938)* 2.2: Vorläufige Lufttüchtigkeitsforderungen für bemannte Gasballone (vLFGB), *(Preliminary airworthiness requirements for manned gas balloons (vLFGB))*, see also note V.2.1

2.3: Reference Letters by LBA:
for K-STU/300: I/30-8002/67 (H. Frieß), dated 29 March 1967
for K-STU/630: 3-8002/Tgb.-Nr. 497/63 (Rehm), dated 2 March 1963
for K-STU/780: I 30-8002/68 (H. Frieß), dated 25 March 1968
for K-STU/945: 3-8002/Tgb.-Nr. 1422/63 (Rehm), dated 14 May 1963
for K-STU/1000: I 32-8002/71 (K. Koplin), dated 10 June 1971
for K-STU/1260: 3-8002/Tgb.-Nr. 1422/63 (Rehm), dated 14 May 1963
for K-STU/1680: 14-8002/65 (Rehm), dated 23 July 1965

3. Special Conditions

for K-STU/300, K-STU/630, K-STU/780, K-STU/945 and K-STU/1680:
none

for K-STU/1000 and K-STU/1260:
Preliminary Guidelines for the Prevention of Accidents due to electrostatical Charge with Free Balloons

4. Deviations

none

5. Equivalent Safety Findings

none

III. Technical Characteristics and Operational Limitations

1. Type Design Definition

1.1: Drawing list for free gas balloon type K-STU, LBA-approved, as well as approved subsequent supplements and changes before 30 November 1989;
for K-STU/300: issue November 1968
for K-STU/630: issue March 1963
for K-STU/780: issue March 1968
for K-STU/945: issue August 1964
for K-STU/1000: issue March 1972
for K-STU/1260: issue August 1964
for K-STU/1680: issue April 1966

1.2: Drawing list for free gas balloon type K-STU comprising sizes K-STU/300 up to K-STU/1680, issue October 1989, LBA-approved 30 November 1989, as well as approved subsequent supplements and changes.

2. Description

Manned free gas balloon with net.

2.1 Envelopes:
Spherical envelope; net, lines and coated fabric electrostatically conductive; manually controllable lifting gas valve at the top.

Envelope Size	Volume [m³]	Gores [-] 1)	Diameter [m] 2)
K-STU/300	300-360	22 ±3	8.8
K-STU/630 3)	361-630	27 ±3	10.6
K-STU/780	631-780	28 ±4	11.4
K-STU/945	781-945	30 ±4	12.2
K-STU/1000 4)	946-1 050	32 ±4	12.4

K-STU/1260	1 001-1 260	34 ±4	13.4
K-STU/1680	1 261-1 680	37 ±4	14.7

[1] see Note V.2.4
[2] see Note V.2.5
[3] see Note V.1.1
[4] see Note V.1.2

2.2 Baskets:

Conventional braided basket reinforced by wooden laths; see Note V.2.2.

Basket Size	Dimensions [cm]	max. Occupancy [-]	Approved for Size
I	80 x 65 x 110	1	K-STU/300
II	95 x 80 x 110	2	K-STU/300 K-STU/630
III	110 x 95 x 110	3	K-STU/300 K-STU/630 K-STU/780
IV	125 x 105 x 110	4	K-STU/630 K-STU/780 K-STU/945 K-STU/1000 K-STU/1260
V	135 x 115 x 110	5	K-STU/630 K-STU/780 K-STU/945 K-STU/1000 K-STU/1260 K-STU/1680
VI	145 x 125 x 110	6	K-STU/780 K-STU/945 K-STU/1000 K-STU/1260 K-STU/1680
Lightweight	125 x 105 x 110	4	K-STU/780 K-STU/945 K-STU/1000

2.3 Loadrings:

Formed of seamless steel tube, welded butt joint.

Loadring Size	Approved for Basket Size	Approved for Size
I	I, II, III	K-STU/300
II, II a	II, III, IV, V	K-STU/630
	III, IV, V, VI, Lightweight	K-STU/780
III	IV, V, VI, Lightweight	K-STU/945 K-STU/1000
	IV, V, VI	K-STU/1260
	V, VI	K-STU/1680

3. Equipment

1 Altimeter
1 Rate of climb indicator

4. Minimum Ballast

Size	Mass [kg]
K-STU/300	30
K-STU/630 K-STU/780	60
K-STU/945 K-STU/1000	75
K-STU/1260	90
K-STU/1680	120

5. Occupants

Minimum: 1 pilot
Maximum: see III., 2.2 Baskets

6. Maximum Mass

Size	Mass [kg]
K-STU/300	348
K-STU/630	731
K-STU/780	905
K-STU/945	1 100
K-STU/1000	1 160
K-STU/1260	1 462
K-STU/1680	1 950

7. Lifting Gas

Hydrogen (H_2), Helium (He), Illuminating (coal) gas

8. Life-limited Parts

[reserved]

IV. Operating and Service Instructions

1. Operating Instructions

for K-STU/300:

1.1 Flight and Operation Manual for the Free Gas Balloon, Issue January 1964 including supplement, dated November 1968, as well as subsequent approved supplements and changes.

1.2 Up to and including Serial-No. 0131:
Flight and Operation Manual, Issue January 1983, and subsequent approved supplements and changes.

1.3 Subsequent s/n from Serial-No. 0131 onwards: Flight and Operation Manual, issue August 1989, and subsequent approved supplements and changes, see note V.2.3.

for K-STU/630:

1.1 Flight and Operation Manual for the Free Gas Balloon, Issue January 1964 including supplement, dated August 1964, as well as subsequent approved supplements and changes.

1.2 Up to and including Serial-No. 0134:

Flight and Operation Manual, Issue January 1983, and subsequent approved supplements and changes.

1.3 Subsequent s/n from Serial-No. 0134 onwards:
Flight and Operation Manual, issue August 1989, and subsequent approved supplements and changes, see note V.2.3.

for K-STU/780:

1.1 Flight and Operation Manual for the Free Gas Balloon, Issue January 1964 including supplement, dated March 1968, as well as subsequent approved supplements and changes.

1.2 Up to and including Serial-No. 0305:
Flight and Operation Manual, Issue January 1983, and subsequent approved supplements and changes.

1.3 Subsequent s/n from Serial-No. 0305 onwards:
Flight and Operation Manual, issue August 1989, and subsequent approved supplements and changes, see note V.2.3.

for K-STU/945:

1.1 Flight and Operation Manual for the Free Gas Balloon, Issue January 1964 including supplement, dated August 1964, as well as subsequent approved supplements and changes.

1.2 Up to and including Serial-No. 0283:
Flight and Operation Manual, Issue January 1983, and subsequent approved supplements and changes.

1.3 Subsequent s/n from Serial-No. 0283 onwards:
Flight and Operation Manual, issue August 1989, and subsequent approved supplements and changes, see note V.2.3.

for K-STU/1000:

1.1 Flight and Operation Manual for the Free Gas Balloon, Issue January 1964 including supplement, dated March 1972, as well as subsequent approved supplements and changes.

1.2 Up to and including Serial-No. 0312:
Flight and Operation Manual, Issue January 1983, and subsequent approved supplements and changes.

1.3 Subsequent s/n from Serial-No. 0312 onwards:
Flight and Operation Manual, issue August 1989, and subsequent approved supplements and changes, see note V.2.3.

for K-STU/1260:

1.1 Flight and Operation Manual for the Free Gas Balloon, Issue January 1964 including supplement, dated August 1964, as well as subsequent approved supplements and changes.

1.2 Up to and including Serial-No. 0309:
Flight and Operation Manual, Issue January 1983, and subsequent approved supplements and changes.

1.3 Subsequent s/n from Serial-No. 0309 onwards:
Flight and Operation Manual, issue August 1989, and subsequent approved supplements and changes, see note V.2.3.

for K-STU/1680:

1.1 Flight and Operation Manual for the Free Gas Balloon, Issue January 1964 including supplement, dated April 1966, as well as subsequent approved supplements and changes.

1.2 Up to and including Serial-No. 0401:
Flight and Operation Manual, Issue January 1983, and subsequent approved supplements and changes.

1.3 Subsequent s/n from Serial-No. 0401 onwards:
Flight and Operation Manual, issue August 1989, and subsequent approved supplements and changes, see note V.2.3.

2. Service Instructions — see IV.1.:
The 'Operating' and the 'Service' instructions' are provided as a joint document.

V. Notes

1. Notes specific to certain Sizes:

1.1 For K-STU/630:
The use of an envelope of the balloon K-630/1-Ri is permitted if the modification is performed according to the Modification Note No. 2 of Ballonfabrik Augsburg, dated 7 August 1964

1.2 For K-STU/1000:
The use of basket, load ring, net and valve of the size K-1050/3-Ri together with an envelope of the size K-STU/1000 according to Technical Note 8002-5, dated 11 April 1989 is permitted.

2. Notes pertinent to all 'Sizes':

2.1 Eligible Serial Numbers (s/n):

The serial numbers have been assigned to each produced balloon in consecutive order.

0102, 0120, 0125, 0127, 0129, 0131 up to 0134,
0202, 0211 to 0213, 0215, 0219, 0221, 0222, 0224, 0225, 0228 to 0232, 0234, 0235, 0247 up to 0249, 0252, 0253, 0256 up to 0260, 0267, 0269 up to 0271, 0273 to 0288, 0291, 0296 up to 0298,
0306 up to 0326,
0401,
1025 to 1032, 1034 up to 1040, 1045.

2.1 From Serial-No. 1040 onwards the "Airworthiness Requirements for Manned Gas Balloon" (LFGB), issued 20 September 1993, are also applicable instead of "vLFGB" in II.3.2.

2.2 Maximum permissible number of occupants in the baskets may be limited according to Technical Note TN 8002-12 including revisions.

2.3 According to Technical Note TN 8002-8 the Flight and Operation Manual, issue 3, dated August 1989, LBA-approved, dated 30 November 1989 is mandatory from Serial-No. 0322 onwards or when supplying spare parts.

2.4 The number of gores (see III.2.1) of an individual envelope s/n may vary within the given ± limits. Historically, this depends on the width of the available fabric roll lot and its colour scheme.

2.5 For envelope sizes which allow for a range of volumes (see III.2.1) the diameter listed is the largest approved for this size.

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SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

EU	European Union	max.	maximum
i.a.w.	in accordance with	s/n	Serial Number, Serial-No.
LBA	Luftfahrt-Bundesamt German Federal Aviation Office	TN	Technical Note
LFGB	Lufttüchtigkeitsforderungen für bemannte Gasballone Airworthiness Requirements for Manned Gas Balloon		

II. Type Certificate Holder Record

Type Certificate Holder	**Period**
Ballonbau Wörner GmbH Flughafenstraße 20 86169 Augsburg, Germany	From 2 September 2021
Ballonbau Wörner GmbH Zirbelstraße 57c 86154 Augsburg, Germany	From 17 September 1993 until 1 September 2021

III. Production Approval Holder Record

Production Approval Holder	**Period**
Ballonbau Wörner GmbH Flughafenstraße 20 86169 Augsburg, Germany	From 2 September 2021
Ballonbau Wörner GmbH Zirbelstraße 57c 86154 Augsburg, Germany	From 17 September 1993 until 1 September 2021

IV. Change Record

Issue	**Date**	**Changes**	**TC issue**
Issue 1	2 Jun 2005	Initial issue of TC and TCDS in EASA format.	2 June 2005
Issue 2	23 Oct 2023	SECTION 1 till 7: - I.3, I.4.: change of TC Holder and Manufacturer address - I.9: legal reference to EASA Type Certification Date added SECTION: ADMINISTRATIVE - II.1: TC Holder record updated All pages: EASA TCDS format updated	---
Issue 3	24 Jun 2025	Updated to latest EASA TCDS format; Sections (1 to 7) merged for improved readability.	---

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