



TYPE CERTIFICATE DATA SHEET

No. EASA.BA.009

for

Free Manned Gas Balloons
NL-STU Series

Type Certificate Holder

Ballonbau Wörner GmbH

Flughafenstraße 20
86169 Augsburg
Germany

For Sizes: NL-STU/280
NL-STU/380
NL-STU/510
NL-STU/640
NL-STU/840
NL-STU/1000



TABLE OF CONTENTS

SECTION 1: NL-STU Series	3
I. General	3
II. Certification Basis	3
III. Technical Characteristics and Operational Limitations	3
IV. Operating and Service Instructions	5
V. Notes	6
SECTION: ADMINISTRATIVE	7
I. Acronyms and Abbreviations	7
II. Type Certificate Holder Record	7
III. Production Approval Holder Record	7
IV. Change Record	7



SECTION 1: NL-STU Series

I. General

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| 1. Type, Sizes | Type: NL-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: 21 November 1991 |
| 5. State of Design Authority | EASA |
| 6. Type Certificate Date | by LBA: 17 September 1993 |
| 7. Type Certificate n° | EASA: EASA.BA.009
(LBA: 8038/BA, until 2 June 2005) |
| 8. Type Certificate Data Sheet n° | EASA: EASA.BA.009
(LBA: 8038/BA, until Issue 1, 17 September 1993) |
| 9. EASA Type Certification Date | 28 September 2003,
in accordance with CR (EU) 1702/2003, Article 2, 3., (a),
(i), 2 nd bullet, 1 st indented bullet. |

II. Certification Basis

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|---|--|
| 1. Reference Date for determining the applicable requirements | 8 January 1992 |
| 2. Airworthiness Requirements | Preliminary Airworthiness Requirements for Manned Gas Balloons (vLFGB), LBA file number I1-602.4/50/4/91.
<i>Vorläufige Lufttüchtigkeitsforderungen für bemannte Gasballone (vLFGB), LBA Aktenzeichen I1-602.4/50/4/91.</i>
Defined by LBA letter I431-8038/91, dated 8 January 1992 |
| 3. Special Conditions | none |
| 4. Deviations | none |
| 5. Equivalent Safety Findings | none |

III. Technical Characteristics and Operational Limitations

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|---------------------------|---|
| 1. Type Design Definition | Drawing list for free gas balloon type NL-STU comprising sizes NL-STU/280 up to NL-STU/1000, Issue January 1993, LBA-approved 17 September 1993 as well as subsequent approved supplements and changes. |
| 2. Description | Manned free netless gas balloon. |

2.1 Envelopes:

Spherical envelope, coated fabric, electrostatically conductive; load transfer by a tape-arch system and lines; manually controllable lifting gas valve at the top (parachute), emergency opening optional.

Envelope Size	Volume [m³]	Gores [-]	Diameter [m]
NL-STU/280	280	18	8.11
NL-STU/380	380	20	9.00
NL-STU/510	510	22	9.91
NL-STU/640	640	24	10.81
NL-STU/840	840	26	11.71



NL-STU/1000	1 000	28	12.61
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2.2 Baskets:

Conventional braided basket reinforced by wooden laths;
see Note V.4.

Basket Size	Dimensions [cm]	max. Occupancy [-]	Approved for Size
I	80 x 65 x 110	1	NL-STU/280
II	95 x 80 x 110	2	NL-STU/280 NL-STU/380 NL-STU/510 NL-STU/640
III	110 x 95 x 110	3	NL-STU/380 NL-STU/510 NL-STU/640
IV	125 x 105 x 110	4	all, except NL-STU/280
V	135 x 115 x 110	5	NL-STU/510 NL-STU/640 NL-STU/840 NL-STU/1000
VI	145 x 125 x 110	6	NL-STU/640 NL-STU/840 NL-STU/1000
Lightweight	125 x 105 x 110	4	all, except NL-STU/280
Fabric walled	125 x 105 x 110	2	all, except NL-STU/280

2.3 Loadings:

Formed of seamless steel tube, welded butt joint.

Loading Size	Approved for Basket Size I	Approved for Size NL-STU/280
II b	II, III	NL-STU/380 NL-STU/510 NL-STU/640
III	IV, V, VI, Lightweight, Fabric walled	NL-STU/1000
III b	IV, V, VI, Lightweight, Fabric walled	NL-STU/840 NL-STU/1000
III c	IV, Lightweight, Fabric walled	NL-STU/380
	IV, V, Lightweight, Fabric walled	NL-STU/510
	IV, V, VI, Lightweight, Fabric walled	NL-STU/640

3. Equipment

1 Altimeter



- 1 Rate of climb indicator
- 1 Hook knife
- 1 First-aid kit

4. Minimum Ballast

Size	Mass [kg]
NL-STU/280	30
NL-STU/380 NL-STU/510	45
NL-STU/640 NL-STU/840	60
NL-STU/1000	75

5. Occupants

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

6. Maximum Mass

Size	Mass [kg]
NL-STU/280	325
NL-STU/380	441
NL-STU/510	592
NL-STU/640	749
NL-STU/840	975
NL-STU/1000	1 160

7. Lifting Gas

Hydrogen (H₂), Helium (He), Illuminating (coal) gas

8. Life-limited Parts

[reserved]

IV. Operating and Service Instructions

1. Operating Instructions

- 'Fahrt- und Betriebshandbuch NL-STU', Ausgabe 1, Januar 1993, einschließlich nachfolgender anerkannter Änderungen und Ergänzungen.
'Flight and Operation Manual NL-STU', Issue 1, January 1993, including subsequent approved changes and supplements.
See Note V.3.
- 'Flughandbuch für Gasballone des Baumusters NL-STU'.
'Flight Manual for Gas Balloons of Type NL-STU', including subsequent approved changes and supplements.
See Note V.3.
- 'Flight Manual for Gas Balloons of Type NL-STU', including subsequent approved changes and supplements.
See Note V.3.

2. Service Instructions

- Anweisungen zur Aufrechterhaltung der Lufttüchtigkeit Gasballon Baumuster NL-STU, (deutsch).
- Instructions for Continued Airworthiness Gas Balloon Model NL-STU, (English).



V. Notes

1. Eligible Serial Numbers (s/n): s/n 1039 and up, except s/n 1040
2. Maximum permissible number of occupants in the baskets may be limited according to Technical Note TN8038-7, including revisions.
3. Applicability of Flight Manuals to serial numbers:

The Flight Manual 'Fahrt- und Betriebshandbuch NL-STU, Ausgabe 1, Januar 1993' in German language is exclusively applicable to Serial Numbers up to and including s/n 1103.

The 'Flughandbuch für Gasballone des Baumusters NL-STU', in German language is applicable to all NL-STU Serial Numbers.

The 'Flight Manual for Gas Balloons of Type NL-STU' in English language is applicable to all NL-STU serial numbers.
4. Baskets of sizes 'I' to 'VI' and 'Lightweight' and 'fabric walled', with Part Numbers plates referring to type K-STU (EASA.BA.011), are also approved for use as per configuration table III.2.2.

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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
LBA	Luftfahrt-Bundesamt German Federal Aviation Office		

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	3 Dec 2013	Operating and Service Instructions updated.	---
Issue 3	8 Jul 2016	Applicability of Operating Instructions with regard to s/n updated.	---
Issue 4	31 May 2019	Basket and Loading definition updated.	---
Issue 5	12 Jul 2023	New address of TC and Production Approval holder.	12 July 2023
Issue 6	20 May 2025	Updated to latest EASA TCDS format; Sections (1 to 6) merged for improved readability; eligibility of K-STU baskets added (see Note V.4.).	---

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