



## **TYPE CERTIFICATE DATA SHEET**

for  
Hot Air Balloons

Type Certificate Holder:

**Theo Schroeder fire balloons GmbH**  
Schweich, Germany

Manufacturer:

**Theo Schroeder fire balloons GmbH**  
Schweich, Germany

Models:

**fire balloons G**  
**fire balloons M**  
**fire balloons S**

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## SECTION 1: Model fire balloons G

### **I. General**

- |                                 |   |
|---------------------------------|---|
| 1. Type/Variant or Model        | fire balloons G   |
| 2. Airworthiness Category       | Standard  |
| 3. Type Certificate Holder      | Theo Schroeder fire balloons GmbH<br>Gewerbegebiet Am Bahnhof 12<br>54338 Schweich<br>Germany |
| 4. Manufacturer                 | Theo Schroeder fire balloons GmbH<br>Gewerbegebiet Am Bahnhof 12<br>54338 Schweich<br>Germany |
| 5. National certification Date  | 6 April 1987, LBA TC No. 8025/BA  |
| 6. LBA Application Date         | 14 February 1986  |
| 7. EASA Type Certification Date | 2 May 2006  |
| 8. TCDS History                 | This EASA TCDS replaces the German TCDS Nr. 8025/BA issued by the LBA                         |

The EASA TCDS BA.010, model fire balloons S, was added to TCDS EASA.BA:016 with revision 17. The model fire balloons M was part of the model fire balloons G. It will be a separate model from revision 17 on. The serial numbers of model balloons S were in line with the serial numbers of the model fire balloons G. The models fire balloons S and fire balloons M will be undocked from the initial line and will each start a new serial number line starting at serial number 1, after serial number 1871.

### **II. Certification Basis**

- |   |  |
|---|--|
| 1. Reference date for determining the applicable requirements | Refer to tables 1.1; 4.1; 4.2 and 4.3  |
| 2. Certification Basis  | Defined by table section VI  |
| 3. Airworthiness Requirements                                 | Airworthiness Requirements for Hot Air Balloons, Issue 23. February 1982   |
| 4. Elected to Comply Requirements                             | <ul style="list-style-type: none"><li>- Additional requirements for take-off devices for hot air and gas balloons LBA endorsement I 431-523.2/88, 28 June 1988</li><li>- Additional requirements for a registration in the category "Commercial Transport" (TM 8025-15, see also V.3)</li><li>- Certification Specifications for Hot Air Balloons CS-31HB Amendment 1, 5 December 2011 for Polyester fabric so as for envelopes with a volume of 10500 m<sup>3</sup> and 12500 m<sup>3</sup></li></ul> |
| 4. Special Conditions   | none   |
| 5. Exemptions   | none   |
| 6. Equivalent Safety Findings                                 | none   |

### **III. Technical Characteristics and Operational Limitations**

- |                           |  |
|---------------------------|--|
| 1. Type Design Definition | Drawing List Issue January 1987, LBA-approved, as well as subsequent approved editions and changes |
|---------------------------|--|

SECTION 1 Type fire balloons G

- |                           |   |
|---------------------------|---|
| 2. Description/Dimensions | Manned hot air balloon for recreational flying or commercial passenger transport (see V.3), with a height up to 35 m and a diameter up to 32 m.   |
| 3. Envelope               | Conventional envelope shape made of Polyester or Nylon fabric for a volume range from 1200 to 3600 m <sup>3</sup> , with 16 or 24 vertical gores respectively 4000, 4250, 4500, 5000, 6000, 7000 and 8500 m <sup>3</sup> with 24 gores, envelopes with 10500 m <sup>3</sup> and 12500 m <sup>3</sup> with 28 gores. Following deflation systems are applicable to different envelope volume ranges: Parachute system, Paraquick system; Smart Vent, Para Vent, Easy Vent and Lite Vent. Modification of existing Paraquick system. Out of production deflation systems are Ring-valve system and Parachute system with Velcro rip panel. One or more rotation valves are optional or mandatory depending on the balloon configuration. For more details see table 1.1 |
| 4. Basket                 | Conventional braided baskets with solid floor, see table "baskets" in section 4.  |
| 5. Burner                 | Conventional single or clustered burners see table "burners" in section 4   |
| 6. Fuel cylinders         | Thin-walled pressure vessels made of stainless steel see table "cylinders" in section 4.  |
| 7. Equipment              | <ul style="list-style-type: none"><li>- Altimeter</li><li>- Rate of climb/descent indicator</li><li>- Indicator for the limit temperature of the envelope</li><li>- Pressure gauge for each burner</li><li>- Remaining quantity gauge for each fuel cylinder</li><li>- Fire extinguisher</li><li>- Heat resistant gloves</li><li>- Alternative source of ignition</li></ul>   |
| 8. Occupancy              | <p>Maximum number of occupants is 27</p> <p>Minimum crew is 1 pilot</p> <p>The number of occupants in combination with the number of fuel cylinders for each basket size is described in the data matrix of the Flight Manual</p>   |
| 9. Maximum Mass           | The maximum take-off weight is described in the data matrix of the Flight Manual  |
| 10. Life Limit Parts      | see Maintenance Manual  |
| 11. Envelope Temperature  | <p>110°C (230 °F)</p> <p>The maximum take-off mass as well as the maximum basket pay load must not exceed the values laid down in the data matrix of the Flight Manual</p>  |

**IV. Operating and Service Instructions**

- |                           |   |
|---------------------------|---|
| 1. Operating Instructions | <p>Flight Manual for the type fire balloons G of Theo Schroeder fire balloons GmbH, Issue January 1987, and subsequent approved supplements and changes</p> <p>Flight Manual fire balloons G, Issue November 2001, and subsequent approved supplements and changes</p>                      |
| 2. Service Instructions   | <p>Maintenance Manual for the type fire balloons G of Theo Schroeder fire balloons GmbH, Issue January 1987, and subsequent supplements and changes</p> <p>Maintenance Manual Schroeder fire balloons GmbH, Issue 1, Amendment 0, October 2011, and subsequent changes and supplements;</p> |

Applicability: all fire balloons G with burner FB 6; refer to Maintenance Manual Annex 1 concerning 'out of production' components

## **V. Notes**

1. Manufacturing is confined to industrial production
2. The combination of a fire balloons G envelope with Cameron Balloons parts of Cameron Hot Air Balloons (BA.013 Cameron HAB) is described by the Technical Note TM 8025-5, including subsequent approved revisions.
3. The use for commercial passenger transport according to the stipulations of the Technical Note TM 8025-15, LBA-approved dated 14 March 1991, as well as subsequent approved revisions, is permitted.
4. The Flight Manual fire balloons G, Issue November 2001, is mandatory for all serial numbers from manufacturing date 1. November 2001 onwards.
5. The combination of a fire balloons G envelope with Thunder&Colt parts of Cameron Hot Air Balloons (BA.013 Cameron HAB) is described by the Technical Note TM 8025-36, including subsequent approved revisions.
6. The combination of a fire balloons G envelope with parts of Ultramagic Hot Air Balloons (BA.014 Ultramagic HAB) is described by the Technical Note TM 8025-45, including subsequent approved revisions.
7. The combination of a fire balloons G envelope with parts of Lindstrand Hot Air Balloons Ltd (BA.021, BA.501, BA.502, BA.503, BA.504, BA.505, BA.506) is described by the Technical Note TM EASA.BA.016-44, including subsequent approved revisions.
8. The combination of a fire balloons G envelope with parts of Cameron Balloons Ltd (BA.013) is described by the Technical Note TM EASA.BA.016-42, including subsequent approved revisions.
9. The combination of a fire balloons G envelope with parts of Aerostar International Inc. is regulated by the Technical Note TM EASA.BA.016-48, including subsequent approved revisions.
10. The combination of a fire balloons G envelope with parts of Balóny Kubíček spol. s r. o. is defined by the Technical Note TM EASA.BA.016-51, including subsequent approved revisions.

## **VI. Fire balloons G envelope details**

### **Certification information**

Envelope	Volume [m³]	gores	MTOM [kg]	Appr. Weight [kg]	Airworthiness requirements	Certification basis	Certification date
G 12/16 to G 36/16	1200 to 3600	16	378 to 1040	45-130	LFHB; 23. Feb.1982	LBA letter I 33 - 8025/86, dated 5 March 1986	6.Apr. 1987
G 12/24 to G 36/24	1200 to 3600	24	378 to 1040	50-150	LFHB; 23. Feb.1982	LBA letter I 33 - 8025/86, dated 5 March 1986	6.Apr. 1987
G 40/24	4000	24	1260	150-170	LFHB; 23. Feb.1982	LBA letter I 33 - 8025/86, dated 5 March 1986	20.Apr. 1990
G 42/24	4250	24	1340	155-175	LFHB; 23. Feb.1982	LBA letter I 33 - 8025/86, dated 5 March 1986	20.Apr. 1990
G 45/24	4500	24	1410	160-180	LFHB; 23. Feb.1982	LBA letter I 33 - 8025/86, dated 5 March 1986	20.Apr. 1990
G 50/24	5000	24	1575	175-210	LFHB; 23. Feb.1982	LBA letter I 33 - 8025/86, dated 5 March 1986	20.Apr. 1990
G 60/24	6000	24	1890	200-240	LFHB; 23. Feb.1982	LBA letter I 33 - 8025/86, dated 5 March 1986	16.Oct.1991
G 70/24	7000	24	2205	220-270	LFHB; 23. Feb.1982	LBA letter I 33 - 8025/86, dated 5 March 1986	16.Oct.1991
G 85/24	8500	24	2205	270-310	LFHB; 23. Feb.1982	LBA Letter M332-8025-85/24	23.May 2000
G 105/28	10500	28	3400	310-350	CS 31HB Amdt.1	CS 31HB Amdt.1	05.Jul.2021
G 125/28	12500	28	4000	330-370	CS 31HB Amdt.1	CS 31HB Amdt.1	05.Jul.2021

Table 1.1: Envelope data

## SECTION 2: Model fire balloons M

### **I. General**

1. Type/Variant or Model	fire balloons M
2. Airworthiness Category	Standard
3. Type Certificate Holder	Theo Schroeder fire balloons GmbH Gewerbegebiet Am Bahnhof 12 54338 Schweich Germany
4. Manufacturer	Theo Schroeder fire balloons GmbH Gewerbegebiet Am Bahnhof 12 54338 Schweich Germany
5. National certification Date	6 April 1987, LBA TC No. 8025/BA
6. LBA Application Date	14 February 1986
7. EASA Type Certification Date	2 May 2006
8. TCDS History	This EASA TCDS replaces the German TCDS Nr. 8025/BA issued by the LBA  The EASA TCDS BA.010, model fire balloons S, was added to TCDS EASA.BA:016 with revision 17. The model fire balloons M was part of the model fire balloons G. It will be a separate model from revision 17 on. The serial numbers of model balloons S were in line with the serial numbers of the model fire balloons G. The models fire balloons S and fire balloons M will be undocked from the initial line and will each start a new serial number line starting at serial number 1, after serial number 1871.

### **II. Certification Basis**

1. Reference date for determining the applicable requirements	09.March 2009
2. Certification Basis	CS-31HB Amdt.0
3. Airworthiness Requirements	CS-31HB Amdt.0
4. Elected to Comply Requirements	<ul style="list-style-type: none"><li>- Additional requirements for take-off devices for hot air and gas balloons LBA endorsement I 431-523.2/88, 28 June 1988</li><li>- Additional requirements for a registration in the category "Commercial Transport" (TM 8025-15, see also V.3)</li><li>- Certification Specifications for Hot Air Balloons CS-31HB Amendment 1, 5 December 2011 for Polyester fabric.</li></ul>
5. Special Conditions	none
6. Exemptions	none
7. Equivalent Safety Findings	none

### **III. Technical Characteristics and Operational Limitations**

1. Type Design Definition	Drawing List Issue January 1987, LBA-approved, as well as subsequent approved editions and changes
2. Description/Dimensions	Manned hot air balloon for recreational flying or commercial passenger transport (see V.3).



SECTION 2 Type fire balloons M

- |                          |   |
|--------------------------|---|
| 3. Envelopes             | Slim shaped envelopes made of Polyester or Nylon fabric with volumes of 1800; 2000 and 2200 m <sup>3</sup> with 24 vertical load tapes. The following deflation systems are applicable to the envelopes: Parachute system, Paraquick system; Smart Vent, Para Vent, Easy Vent and the modification of existing Paraquick systems. One or more rotation valves are optional. Envelopes may be equipped with "top windows". |
| 4. Baskets               | Conventional braided baskets with solid floor, see table "baskets" in section 4.  |
| 5. Burners               | Conventional single or clustered burners see table "burners" in section 4   |
| 6. Fuel cylinders        | Thin-walled fuel cylinders made of stainless steel see table "Fuel cylinders" in section 4.   |
| 7. Equipment             | <ul style="list-style-type: none"><li>- Altimeter</li><li>- Rate of climb/descent indicator</li><li>- Indicator for the limit temperature of the envelope</li><li>- Pressure gauge for each burner</li><li>- Remaining quantity gauge for each fuel cylinder</li><li>- Fire extinguisher</li><li>- Heat resistant gloves</li><li>- Alternative source of ignition</li></ul>   |
| 8. Occupancy             | <p>Maximum number of occupants is 5</p> <p>Minimum crew is 1 pilot</p> <p>The number of occupants in combination with the number of fuel cylinders for each basket size is described in the data matrix of the Flight Manual</p>  |
| 9. Maximum Mass          | The maximum take-off weight is described in the data matrix of the Flight Manual  |
| 10. Life Limit Parts     | see Maintenance Manual  |
| 11. Envelope Temperature | <p>110°C (230 °F)</p> <p>The maximum take-off mass as well as the maximum basket pay load must not exceed the values laid down in the data matrix of the Flight Manual</p>  |

**IV. Operating and Service Instructions**

- |                           |  |
|---------------------------|--|
| 1. Operating Instructions | <p>Flight Manual for the type fire balloons G of Theo Schroeder fire balloons GmbH, Issue January 1987, and subsequent approved supplements and changes</p> <p>Flight Manual fire balloons G, Issue November 2001, and subsequent approved supplements and changes</p>   |
| 2. Service Instructions   | <p>Maintenance Manual for the type fire balloons G of Theo Schroeder fire balloons GmbH, Issue January 1987, and subsequent supplements and changes</p> <p>Maintenance Manual Schroeder fire balloons GmbH, Issue 1, Amendment 0, October 2011, and subsequent changes and supplements.</p> <p><u>Applicability:</u> all fire balloons M with burner FB 6; refer to Maintenance Manual Annex 1 concerning 'out of production' components</p> |

## **V. Notes**

1. Manufacturing is confined to industrial production
2. The combination of a fire balloons M envelope with Cameron Balloons parts of Cameron Hot Air Balloons (BA.013 Cameron HAB) is described by the Technical Note TM 8025-5, including subsequent approved revisions.
3. The use for commercial passenger transport according to the stipulations of the Technical Note TM 8025-15, LBA-approved dated 14 March 1991, as well as subsequent approved revisions, is permitted.
4. The Flight Manual fire balloons M, Issue November 2001, is mandatory for all serial numbers from manufacturing date 1. November 2001 onwards.
5. The combination of a fire balloons M envelope with Thunder&Colt parts of Cameron Hot Air Balloons (BA.013 Cameron HAB) is described by the Technical Note TM 8025-36, including subsequent approved revisions.
6. The combination of a fire balloons M envelope with parts of Ultramagic Hot Air Balloons (BA.014 Ultramagic HAB) is described by the Technical Note TM 8025-45, including subsequent approved revisions.
7. The combination of a fire balloons M envelope with parts of Lindstrand Hot Air Balloons Ltd (BA.021, BA.501, BA.502, BA.503, BA.504, BA.505, BA.506) is described by the Technical Note TM EASA.BA.016-44, including subsequent approved revisions.
8. The combination of a fire balloons M envelope with parts of Cameron Balloons Ltd (BA.013) is described by the Technical Note TM EASA.BA.016-42, including subsequent approved revisions.
9. The combination of a fire balloons M envelope with parts of Aerostar International Inc. is regulated by the Technical Note TM EASA.BA.016-48, including subsequent approved revisions.
10. The combination of a fire balloons M envelope with parts of Balóny Kubíček spol. s r. o. is defined by the Technical Note TM EASA.BA.016-51, including subsequent approved revisions.

## **VI. Fire balloons M envelope details**

### **Certification information**

Envelope	Volume [m³]	gores	Appr. weight [kg]	Airworthiness requirements	Certification basis	Certification date
M 18/24	1800	24	70	CS 31HB; Amdt.0	CS 31HB; Amdt.0	27.Apr. 2009
M 20/24	2000	24	80	CS 31HB; Amdt.0	CS 31HB; Amdt.0	27.Apr. 2009
M 22/24	2200	24	90	CS 31HB; Amdt.0	CS 31HB; Amdt.0	27.Apr. 2009

Table 2.1: Envelope data

## SECTION 3: Model fire balloons S

### **I. General**

1. Type/Variant or Model	fire balloons S - Special shape hot air balloons
2. Airworthiness Category	Standard
3. Type Certificate Holder	Theo Schroeder fire balloons GmbH Gewerbegebiet Am Bahnhof 12 54338 Schweich Germany
4. Manufacturer	Theo Schroeder fire balloons GmbH Gewerbegebiet Am Bahnhof 12 54338 Schweich Germany
5. Type certification Date	see paragraph VI, table 1
6. LBA Application Date	see paragraph VI, table 1
7. EASA Type Certification Date	19. July 2005
8. TCDS History	<p>The TCDS EASA.BA.010, issued 19 July 2005 encompassed only the "Kasper" model. The re-issued TC references to the "fire balloons S" type. The TCDS EASA.BA.010, Issue 2 has been modified to comprise further special shape envelopes.</p> <p>The EASA TCDS BA.010, model fire balloons S, was added to TCDS EASA.BA:016 with revision 17. The model fire balloons M was part of the model fire balloons G. It will be a separate model from revision 17 on. The serial numbers of model balloons S were in line with the serial numbers of the model fire balloons G. The models fire balloons S and fire balloons M will be undocked from the initial line and will each start a new serial number line starting at serial number 1, after serial number 1871.</p>

### **II. Certification Basis**

1. Reference date for determining	see paragraph VI, table 1
2. Certification Basis	see paragraph VI, table 1
3. Airworthiness Requirements	<ul style="list-style-type: none"><li>- Airworthiness Requirements for Hot Air Balloons (LFHB), Issue 23. February 1982</li><li>- Certification Specifications for Hot Air Balloons CS-31HB, final CG9 draft 27. Feb 2003</li><li>- Certification Specifications for Hot Air Balloons CS 31HB Amdt. 1, issue February 2009</li><li>- For details see paragraph VI, table 1</li></ul>
4. Elected to Comply Requirements	<ul style="list-style-type: none"><li>- Additional requirements for take-off devices for hot air and gas balloons LBA endorsement I 431-523.2/88, 28 June 1988</li><li>- Additional requirements for a registration in the category "Commercial Transport" (TM 8025-15)</li><li>- Certification Specifications for Hot Air Balloons CS-31HB Amendment 1, 5 December 2011 for Polyester fabric and envelopes with a volume of 10500 m<sup>3</sup> and 12500 m<sup>3</sup></li></ul>
5. Special Conditions	none
6. Exemptions	none

7. Equivalent Safety Findings none

### **III. Technical Characteristics and Operational Limitations**

- |    |                        |   |
|----|------------------------|---|
| 1. | Type Design Definition | Fire balloons drawing list in combination with envelope specific overview drawing and approved subsequent supplements and changes; see paragraph VI, table 2  |
| 2. | Description            | Manned hot air balloon special shape for recreational flying or commercial passenger transport. Special shape envelopes with a volume range between 2,600 and 7000 m <sup>3</sup> . Some shapes have additional fabric formers, tapes and lines. Envelopes built from conventional envelope materials, vertical and horizontal tapes; breather holes in primary structure to supply add-ons with pressure; the following deflation systems can be installed: Parachute system, Paraquick system; Smart Vent, Para Vent, Easy Vent and the modification of existing Paraquick systems. |
| 3. | Envelopes              | see paragraph VI  |
| 4. | Basket                 | Conventional braided baskets with solid floor, see table 3 “Applicable baskets” of paragraph VI and table “Baskets” in section 4.   |
| 5. | Burner                 | Conventional burner see table 3 in paragraph VI and table “Burners” in section 4  |
| 6. | Fuel cylinders         | Thin-walled pressure vessels made of stainless steel see table “Fuel cylinders” in section 4.   |
| 7. | Equipment              | <ul style="list-style-type: none"><li>- Altimeter</li><li>- Rate of climb/descent indicator</li><li>- Indicator for the limit temperature of the envelope</li><li>- Pressure gauge for each burner</li><li>- Remaining quantity gauge for each fuel cylinder</li><li>- Fire extinguisher</li><li>- Heat resistant gloves</li><li>- Alternative source of ignition</li></ul>   |
| 8. | Occupancy              | <p>Maximum number of occupants is 15</p> <p>Minimum crew is 1 pilot</p> <p>The number of occupants in combination with the number of fuel cylinders for each basket size is described in the data matrix of the Flight Manual</p>   |
| 5. | Maximum Mass           | see paragraph VI table 2  |
| 6. | Life Limit Parts       | see Maintenance Manual  |
| 7. | Envelope Temperature   | <p>110°C (230 °F)</p> <p>The maximum take-off mass as well as the maximum basket pay load must not exceed the values laid down in the data matrix of the Flight Manual</p>  |

### **IV. Operating and Service Instructions**

- |    |                        |   |
|----|------------------------|---|
| 1. | Operating Instructions | <p>Flight Manual for the type fire balloons G of Theo Schroeder fire balloons GmbH, Issue January 1987, including envelope specific supplemental pages; in each case in its effective issue as well as approved subsequent supplements and changes.</p> <p>Flight Manual fire balloons G, Issue November 2001 including envelope specific supplemental pages; in each case in its effective issue, and subsequent approved supplements and changes.</p> |
|----|------------------------|---|

2. Service Instructions

Maintenance Manual for the type fire balloons G of Theo Schroeder fire balloons GmbH, Issue January 1987, and subsequent supplements and changes

Maintenance Manual Schroeder fire balloons GmbH, Issue 1, Change 0, October 2011, and subsequent changes and supplements

Applicability: all fire balloons S with burner FB 6; refer to Maintenance Manual Annex 1 concerning 'out of production' components

**V. Notes**

1. Manufacturing is confined to industrial production
2. Some envelope models are limited to serial numbers; see paragraph VI, Table 1

**VI. Fire balloons S envelope details**

**Certification information**

Envelope	Application	Certification basis	Airworthiness code	Certification date	Remarks
Teekanne	02.Feb.1988	I 431-8028/88 09.Feb.1988	LFHB, 23 Feb 1982	14 Apr 1988	initial data sheet: LBA 8028; §41 Abs. 2 LuftGerPO; s/n 30 only
Teefix	18.Apr.1988	I 431-8028/88 04. Apr. 1988	LFHB, 23 Feb 1982	3 May 1988	initial data sheet: LBA 8028a; §41 Abs. 2 LuftGerPO; s/n 31 only
Ottifant	19. Mai 1988	I 431-8029/88 03. Juni 1988	LFHB, 23 Feb 1982	30 Dec 1988	initial data sheet: LBA 8029
Gutfried	20.Apr. 1989	I 431-8030/89 10. Mai 1989	LFHB, 23 Feb 1982	2 Nov 1989	initial data sheet: LBA 8030; §41 Abs. 2 LuftGerPO; s/n 64 only
Bierglas	06.Juli 1990	I431-8034/90 16. Juli 1990	LFHB, 23 Feb 1982	30 Nov 1990	initial data sheet: LBA 8034
Kopfhörer	10.Apr.1992	I 431-8039/92 15.Juni 1992	LFHB, 23 Feb 1982	15 Jun 1992	initial data sheet: LBA 8039; §41 Abs. 2 LuftGerPO; s/n 262 only
Erdbeere	25.Aug.1992	I431-8041/92 03. Aug. 1992	LFHB, 23 Feb 1982	19 Oct 1992	initial data sheet: LBA 8041
Katze	25.Aug.1992	I431-8042/92 07.Aug.1992	LFHB, 23 Feb 1982	25 Sept 1992	initial data sheet: LBA 8042; §41 Abs. 2 LuftGerPO; s/n 305 only
Kater	10.Nov.1992	I 431-8042a/92 20.Nov.1992	LFHB, 23 Feb 1982	19 Nov 1992	initial data sheet: LBA 8042A; §41 Abs. 2 LuftGerPO; s/n 311 only
Pinguin	25.Mai 1993	I431-8045/93 01.Juni 1993	LFHB, 23 Feb 1982	11 Aug 1998	initial data sheet: LBA 8045
Vase	22.März 1995	I 431-8058/95 23.März 1995	LFHB, 23 Feb 1982	10 Jul 1995	initial data sheet: LBA 8058
Kopf	11.Nov.1996	I431-8067/96 18.Nov.1996	LFHB, 23 Feb 1982	16 Jan 1997	initial data sheet: LBA 8067
Maus	13.Mai 1997	I431-8071/97 15.Mai 1997	LFHB, 23 Feb 1982	14 Oct 1997	initial data sheet: LBA 8071; §41 Abs. 2 LuftGerPO; s/n 614 only
Lefax	10.Juni 1997	I431-8072/97 13.Juni 1997	LFHB, 23 Feb 1982	3 Sep 1997	initial data sheet: LBA 8072

Envelope	Application	Certification basis	Airworthiness code	Certification date	Remarks
Gasflasche	27 Aug 1998	M332-8073/98.1, 8 Sep 1998	LFHB, 23 Feb 1982	27 Nov 1998	initial data sheet: LBA 8073
Gasbehälter	23 Apr 2001	M332-8073a, 27 Apr 2001	LFHB, 23 Feb 1982	19 Jul 2001	initial data sheet: LBA 8073A
Schwartau	23 Apr 1999	M332-8077/99 27Apr.1999	LFHB, 23 Feb 1982	27 May 1999	initial data sheet: LBA 8077; §41 Abs. 2 LuftGerPO; s/n 731 only
Auto	28.Mai 1999	M331-8078/99 02.Juni 1999	LFHB, 23 Feb 1982	16 Nov 1999	initial data sheet: LBA 8078
Clown-Kopf	25 Sep 2002	M332-8083, 27 Sep 2002	LFHB, 23 Feb 1982	16 Dec 2002	initial data sheet: LBA 8083
Kasper	12 Nov 2003	CRI A-01, Iss. 2, 16 Apr 2004	CS 31HB, final CG9 draft 27 Feb 2003	11 Jul 2005	-/-
Sky Heart	11 Apr 2008	CRI A-01, Iss. 1, 18 Dec 2008	CS 31HB, final CG9 draft 27 Feb 2003	18 Dec 2008	-/-
Cat	11 Jun 2009	CRI A-01, Iss. 1, 23 Jun 2009	LFHB, 23 Feb 1982	24 Jun 2009	initial data sheet: LBA 8042
Pig 30	30 Apr 2010	CRI A-01, Iss. 1, 3 Dec 2010	CS 31HB, Feb 2009	16 Dec 2010	-/-
Pig 36	7 Dec 2010	CRI A-01, Iss. 1, 15 Dec 2010	CS 31HB, Feb 2009	16 Dec.2010	-/-
Sunflower 36	21 Mar 2011	CRI A-01, Iss. 2, 1 Jun 2011	CS 31HB, Feb 2009	5 Aug.2011	-/-
Euter	25. Jul. 2018	CS-31HB Amdt.1	CS-31HB Amdt.1	3.Aug.2018	Add-on envelope based on fire balloons G
t'Zusje	29.Nov.2021	CS-31HB Amdt.1	CS-31HB Amdt.1	30.June 2022	Add-on envelope based on fire balloons G

Table 3.1: Type Certification Data

**Envelope information**

Envelope	Volume [m³]	MTOM [kg]	Envelope mass [kg]	Type design	Remarks
Teekanne	3·200	975	154	Drawing 100.1 u. 100.2 "Teekanne"	-/-
Teefix	3·200	975	153	Drawing 100.1 u. 100.2 "Teekanne"	-/-
Ottifant	3·100	975	144	Drawing 100.3 "Ottifant"	-/-
Gutfried	3·000	910	188	Drawing 100.4 "Gutfried"	-/-
Bierglas	2·650	850	106	Drawing 100.8 "Bierglas"	-/-
Kopfhörer	3·600	1040	147	Drawing 100.9 "Kopfhörer"	-/-
Erdbeere	2·600	820	126	Drawing 100.11 "Erdbeere"	-/-
Katze	3·000	910	149	Drawing 100.10 "Katze"	-/-
Kater	3·000	910	149	Drawing 100.10 "Katze"	-/-

Envelope	Volume [m³]	MTOM [kg]	Envelope mass [kg]	Type design	Remarks
Pinguin	3·800	1·200	214	Drawing 100.12 "Pinguin"	-/-
Vase	3·200	910	178	Drawing 100.14 "Vase"	-/-
Kopf	3·300	1·040	220	Drawing 100.15 "Kiekeboe"	-/-
Maus	2·600	820	286	Sonderbauform "Maus" 24/24"	-/-
Lefax	3·600	1·040	246	Übersichtsplan "Lefax" 36/24 (6 pages)	-/-
Gasflasche	3·000	910	220	Drawing 100.15 "Gasflasche"	-/-
Gasbehälter	3·000	900	228	Drawing 100.15.1 "Gasbehälter"	-/-
Schwartau	4·000	994	180	fire balloons – Schwartau 40/24	-/-
Auto	3·600	916	216	Drawing 100.7 "Auto"	-/-
Clown-Kopf	3·000	900	155	Drawing 100.17 "Clown-Kopf"	-/-
Kasper	4·300	1·040	233	Drawing 100.18 "Kasper"	-/-
Sky Heart	4·300	1·040	245	Drawing 100.19 "Sky Heart"	no breather holes
Cat	3·000	910	149	Drawing 100.10 "Katze"	-/-
Pig 30	3·000	910	162	Drawing 100.20 "Sparkasse-PIG 30"	-/-
Pig 36	3·600	1 040	198	Drawing 100.21 "Sparkasse-PIG 36"	-/-
Sunflower 36	4 200	1 150	274	Drawing 100.22 "Sunflower 36"	-/-
Euter	3 400	1040	160	Drawing 100.1	based on type fire balloons G
t'Zusje	7000	2205	279	Drawing 100.1	based on type fire balloons G

Table 3.2: Envelope Data

#### Applicable baskets

Envelope	Baskets	Remarks
Teekanne	up to V/5	Double burner FB V, FB 6 or FB 7
Teefix	up to V/5	Double burner FB V, FB 6 or FB 7
Ottifant	up to V/5	Double burner FB V, FB 6 or FB 7
Gutfried	up to V/5	Double burner FB V, FB 6 or FB 7
Bierglas	up to V/5	Double burner FB V, FB 6 or FB 7
Kopfhörer	up to V/5	Double burner FB V, FB 6 or FB 7
Erdbeere	up to V/5	Double burner FB V, FB 6 or FB 7; further baskets see TM 8041-1
Katze	up to V/5	Double burner FB V, FB 6 or FB 7
Kater	up to V/5	Double burner FB V, FB 6 or FB 7
Pinguin	up to VI/6	Double burner FB V, FB 6 or FB 7; further baskets see TM 8045-1

Envelope	Baskets	Remarks
Vase	up to V/5	Double burner; further baskets see TM 8058-1
Kopf	up to VI/6	Double burner; further baskets see TM 8067-1
Maus	up to VI/6	Double burner; further baskets see TM 8071-1
Lefax	up to VI/6	Double burner; further baskets see TM 8072-1
Gasflasche	up to V/5	Double burner; further baskets see TM 8073-1
Gasbehälter	up to V/5	Double burner; further baskets see TM 8073a-1
Schwartau	up to VI/6	Double burner; further baskets see TM 8077-1
Auto	up to V/5	Double burner; further baskets see TM 8078-1
Clown-Kopf	up to V/5	Double burner FB V, FB 6 or FB 7
Kasper	up to V/5	Double burner FB V, FB 6 or FB 7
Sky Heart	up to VI/6	Double burner FB V, FB 6 or FB 7
Cat	up to V/5	Double burner FB V, FB 6 or FB 7
Pig 30	up to VI/6	Double burner FB V, FB 6 or FB 7
Pig 36	up to VI/6	Double burner FB V, FB 6 or FB 7
Sunflower 36	up to VI/6	Double burner FB V, FB 6 or FB 7
Euter	up to VI/6	Double burner FB V, FB 6 or FB 7
t'Zusje	from VIII/9 to X/15	Triple- or quadruple burner FB V or FB 6 or FB 7

Table 3.3: Applicable baskets

#### Flight- and Maintenance Manual information

Envelope	Flight Manual pages
Teekanne	Flight Manual "Teekanne" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001
Teefix	Flight Manual "Teefix" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001
Ottifant	Flight Manual "Ottifant" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as LBA-approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001
Gutfried	Flight Manual "Gutfried" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001
Bierglas	Flight Manual "Bierglas" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001
Kopfhörer	Flight Manual "Kopfhörer" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as approved subsequent supplements and changes from September 1997,



Envelope	Flight Manual pages
	amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001
Erdbeere	Flight Manual "Erdbeere" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001
Katze	Flight Manual "Katze" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001
Kater	Flight Manual "Kater" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as LBA-approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001
Pinguin	Flight Manual "Pinguin" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001
Vase	Flight Manual "Vase" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001
Kopf	Flight Manual "Kopf" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001
Maus	Flughandbuch "Maus" auf Basis des Flughandbuchs fire balloons, Ausgabe Januar 1987 sowie spätere anerkannte Änderungsstände ab September 1997, ergänzt durch die Seiten 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Ausgabe April 2001
Lefax	Flight Manual "Lefax" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001
Gasflasche	<ol style="list-style-type: none"> <li>1) Flight Manual for the individual product "Gasflasche" on the basis of the Flight Manual fire balloons G of Theo Schroeder fire balloons GmbH, Issue January 1987,as well as approved subsequent supplements and changes from September 1997 onwards, supplemented by the pages 1, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1 und 77, Issue August 1998</li> <li>2) Flight Manual "Gasflasche" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001</li> </ol>
Gasbehälter	Flight Manual for the individual product "Gasbehälter" on the basis of the Flight Manual fire balloons G of Theo Schroeder fire balloons GmbH, Issue January 1987,as well as approved subsequent supplements and changes from September 1997 onwards, supplemented by the pages 1, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1 und 77, Issue April 2001
Schwartau	<ol style="list-style-type: none"> <li>1) Flight Manual for the individual product "Schwartau" on the basis of the Flight Manual fire balloons G of Theo Schroeder fire balloons GmbH, Issue January 1987,as well as approved subsequent supplements and changes from September 1997 onwards, supplemented by the pages 1, 7, 8, 8a und 12.1, Issue April 1999</li> <li>2) Flight Manual "Schwartau" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001</li> </ol>
Auto	1) Flight Manual for the individual product "Auto" on the basis of the Flight Manual fire balloons G of Theo Schroeder fire balloons GmbH, Issue January 1987,as well as

Envelope	Flight Manual pages
	approved subsequent supplements and changes from September 1997 onwards, supplemented by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001 2) Flight Manual "Auto" on the basis of the Flight Manual fire balloons, Issue January 1987 as well as approved subsequent supplements and changes from September 1997, amended by the pages 1, 5.4, 7, 8.1, 11A, 14, 34, 34a, 36, 41, 53, 60, 68, 69.1, 77, Issue April 2001
Clown-Kopf	Flight Manual for the individual piece "Clown-Kopf", Issue November 2002, as well as LBA-approved subsequent supplements and changes
Kasper	Flight Manual fire balloons, issue November 2001, including supplemental pages "fire balloons Kasper" 9-13; 16-19; 35, 42, 43, 45, 46, 52, 81 and 95 dated June 2005 as well as approved subsequent supplements and changes Maintenance Manual fire balloons, issue January 1987 including supplemental pages "fire balloons Kasper" 21, 21a, 31a and 39.1, Juni 2005, as well as approved subsequent supplements and changes
Sky Heart	Flight Manual fire balloons, issue November 2001, including supplemental pages "fire balloons Sky Heart" 2, 3, 9, 10-13, 42, 43, 45 and 46, dated September 2008 as well as approved subsequent supplements and changes Maintenance Manual fire balloons, issue January 1987 as well as approved subsequent supplements and changes
Cat	Flight Manual fire balloons, issue November 2001, including supplemental pages "fire balloons Cat" 9-13; 16-19; 35, 42, 43, 45, 46, 52, 81 and 95 dated June 2009 as well as approved subsequent supplements and changes Maintenance Manual fire balloons, issue January 1987 as well as approved subsequent supplements and changes
Pig 30 Pig 36	Flight Manual fire balloons, issue November 2001, plus Flight Manual Supplement "fire balloons Sparkasse Pig" dated 27 May 2011 as well as approved subsequent changes Maintenance Manual fire balloons, issue January 1987 as well as approved subsequent supplements and changes
Sunflower 36	Flight Manual fire balloons, issue November 2001, plus Flight Manual Supplement "fire balloons Sunflower 36" dated December 2010 as well as approved subsequent changes Maintenance Manual fire balloons, issue January 1987 as well as approved subsequent supplements and changes
Euter	Flight Manual fire balloons, issue November 2001 and Flight Manual Supplement K.1 Maintenance Manual fire balloons, issue January 1987 as well as approved subsequent supplements and changes
t'Zusje	Flight Manual fire balloons, issue November 2001 and Flight Manual Supplement K.1 Maintenance Manual fire balloons, issue January 1987 as well as approved subsequent supplements and changes

Table 3.4: Flight and Maintenance Manual

#### Notes

Envelope	Remarks
Teekanne	When applying the Technical Note TM 8028/1-1 the Flight Manual "Teekanne", Issue April 2001 and subsequent supplements and changes, becomes mandatory
Teefix	When applying the Technical Note TM 8028/1-1 the Flight Manual "Teefix", Issue April 2001 and subsequent supplements and changes, becomes mandatory
Ottifant	1) The use for commercial passenger transport according to the stipulations of the Technical Note TM 8029-1, LBA-approved dated 7 September 1992 is permitted 2) When applying the Technical Note TM 8029-2 the Flight Manual "Ottifant", Issue April 2001 and subsequent supplements and changes, becomes mandatory
Gutfried	1) The use for commercial passenger transport according to the stipulations of the Technical Note TM 8030-1, LBA-approved dated 7 May 1992 is permitted 2) When applying the Technical Note TM 8030-2 the Flight Manual "Gutfried", Issue April 2001 and subsequent supplements and changes, becomes mandatory

Envelope	Remarks
Bierglas	When applying the Technical Note TM 8034-1 the Flight Manual "Bierglas", Issue April 2001 and subsequent supplements and changes, becomes mandatory
Kopfhörer	1) The use for commercial passenger transport according to the stipulations of the Technical Note TM 8030-1, LBA-approved dated 7 September 1992 is permitted 2) When applying the Technical Note TM 8030-1 the Flight Manual "Kopfhörer", Issue April 2001 and subsequent supplements and changes, becomes mandatory
Erdbeere	1) The use for commercial passenger transport according to the stipulations of the Technical Note TM 8030-1, LBA-approved dated 7 September 1992 is permitted 2) When applying the Technical Note TM 8041-1 the Flight Manual "Erdbeere", Issue April 2001 and subsequent supplements and changes, becomes mandatory
Katze	When applying the Technical Note TM 8041-1 the Flight Manual "Katze", Issue April 2001 and subsequent supplements and changes, becomes mandatory
Kater	When applying the Technical Note TM 8041a-1 the Flight Manual "Kater", Issue April 2001 and subsequent supplements and changes, becomes mandatory
Pinguin	1) The use for commercial passenger transport according to the stipulations of the Technical Note TM 8030-1, LBA-approved dated 7 September 1992 is permitted 2) When applying the Technical Note TM 8045-1 the Flight Manual "Pinguin", Issue April 2001 and subsequent supplements and changes, becomes mandatory
Vase	When applying the Technical Note TM 8058-1 the Flight Manual "Vase", Issue April 2001 and subsequent supplements and changes, becomes mandatory
Kopf	When applying the Technical Note TM 8067-1 the Flight Manual "Kopf", Issue April 2001 and subsequent supplements and changes, becomes mandatory
Maus	When applying the Technical Note TM 8071-1 the Flight Manual "Maus", Issue April 2001 and subsequent supplements and changes, becomes
Lefax	When applying the Technical Note TM 8072-1 the Flight Manual "Lefax", Issue April 2001 and subsequent supplements and changes, becomes mandatory
Gasflasche	When applying the Technical Note TM 8073-1 the Flight Manual "Gasflasche", Issue April 2001 and subsequent supplements and changes, becomes mandatory
Schwartau	1) Commercial passenger transport permissible when using steel cylinders VA 50 or VA 70 2) When applying the Technical Note TM 8077-1 the Flight Manual "Schwartau", Issue April 2001 and subsequent supplements and changes, becomes mandatory
Auto	When applying the Technical Note TM 8078-1 the Flight Manual "Auto", Issue April 2001 and subsequent supplements and changes, becomes mandatory

Table 3.5: Specific notes to envelopes

## SECTION 4 Bottom-end equipment

### I. Load frames

Load frame	Measures [cm]	Remarks	Airworthiness requirements	Certification basis
201.1	90 x 90	Individual piece for double, triple or quadruple burner	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
201.2	68,5x68,5	Up to 3600 m <sup>3</sup> , replaced by 201.6 / 201.7; out of production	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
201.5	103 x 103	Frame for double, triple or quadruple burner	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
201.6	73 x 73	Frame with mechanical height adjustment for double burner	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
201.7	73 x 73	Frame with gas spring height adjustment for double burner	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
BR-D-01-0001	103 x 103	Frame with hydraulic height adjustment for double burner.	CS 31HB Amdt. 1	CS 31HB Amdt. 1
BR-F-01-0001	73 x 73	Fixed small frame with cardan joint for double burner	CS 31HB Amdt. 1	CS 31HB Amdt. 1
BR-G-01-0001	68 x 68	Fixed frame for single burners with corresponding joint.	CS 31HB Amdt. 1	CS 31HB Amdt. 1
BR-I-01-0001	200 x 130	Mechanically adjustable in height for quadruple burner	CS 31HB Amdt. 1	CS 31HB Amdt. 1
BR-I-01-0010	200 x 130	Fixed frame for quadruple burner	CS 31HB Amdt. 1	CS 31HB Amdt. 1

Table 4.1: Applicable load frames

### II. Burners

Burner	configuration	Envelope range	Airworthiness requirements	Certification basis
Optima I	Single	Up to 2000 m <sup>3</sup>	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
Optima II	Double, triple; quadruple	Double up to 4500 m <sup>3</sup> ; triple from 4000 m <sup>3</sup> to 8500 m <sup>3</sup> ; Quad from 6000 m <sup>3</sup> to 8500 m <sup>3</sup>	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
Optima IV	Double, triple; quadruple	Double up to 4500 m <sup>3</sup> ; triple from 4000 m <sup>3</sup> to 7000 m <sup>3</sup> ; Quad from 6000 m <sup>3</sup> to 8500 m <sup>3</sup>	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
FB V	Double, triple; quadruple	Double up to 4500 m <sup>3</sup> ; triple from 4000 m <sup>3</sup> to 8500 m <sup>3</sup> ; Quad from 6000 m <sup>3</sup> to 8500 m <sup>3</sup>	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986

FB 6	Double, Triple; Quadruple	Double up to 4500 m <sup>3</sup> ; Triple from 4000 m <sup>3</sup> to 8500 m <sup>3</sup> ; Quad from 6000 m <sup>3</sup> to 12500 m <sup>3</sup>	CS 31HB Amdt. 1	CS 31HB Amdt. 1
FB 7	Double, Triple; Quadruple	Double up to 6000 m <sup>3</sup> ; Triple from 4000 m <sup>3</sup> to 8500 m <sup>3</sup> ; Quad from 6000 m <sup>3</sup> to 12500 m <sup>3</sup>	CS 31HB Amdt. 1	CS 31HB Amdt. 1

Table 4.2: Burners

Double-, triple and quadruple burners FBV, FB6 and FB 7 each consist of separate burner units. The triple burner Optima IV for volumes from 4000m<sup>3</sup> until 7000m<sup>3</sup> consists of a double burner Optima IV and a single unit of the Optima IV burner. The allocation in respect to the envelope volumes is described in the data matrix of the Flight Manual

### III. Baskets

Basket size	Measures [cm]	Envelope range [m³]	Applicable load frames	Payload [kg]	Airworthiness requirements	Certification basis
M/2	115 x 90	1200 - 2200	201.2, 201.6, 201.7; BR-G-01-0001; BR-F-01-0001	406	CS 31HB Amdt. 1	CRI A-1 to TM EASA.BA.016-55
M/3	130 x 100	1700 - 2600	201.2, 201.6, 201.7; BR-G-01-0001; BR-F-01-0001	450	CS 31HB Amdt. 1	CRI A-1 to TM EASA.BA.016-57
I/2	107 x 95	1200 - 1700	201.2, 201.6, 201.7; BR-G-01-0001; BR-F-01-0001	316	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
II/3	125 x 100	1300 - 2400	201.2, 201.6, 201.7; BR-G-01-0001; BR-F-01-0001	406	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
III/4	130 x 115	1300 - 3100	201.2, 201.6, 201.7; BR-G-01-0001; BR-F-01-0001	550	CS 31HB Amdt. 1	CS 31HB Amdt. 1
IV/5	145 x 115	1700 - 4250	201.2, 201.6, 201.7; BR-F-01-0001	650	CS 31HB Amdt. 1	CS 31HB Amdt. 1
M/5	155 x 120	1700 - 4250	201.2, 201.6, 201.7; BR-F-01-0001	700	CS 31HB Amdt. 1	CS 31HB Amdt. 1
V/5	155 x 120	1700 - 4250	201.2, 201.6, 201.7; BR-F-01-0001	700	CS 31HB Amdt. 1	CS 31HB Amdt. 1
V-A	155 x 120	1700 - 4250	201.2, 201.6, 201.7; BR-F-01-0001	700	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
VI/P	180 x 140	2600 - 4250	201.2, 201.6, 201.7; BR-F-01-0001	500	CS 31HB Amdt. 1	CS 31HB Amdt. 1
VI/6	175 x 125	2900 - 4500	201.1, 201.2, 201.5, 201.6, 201.7, BR-D-01-0001, BR-F-01-0001	800	CS 31HB Amdt. 1	CS 31HB Amdt. 1
VII/7	180 x 140; 215 x 145	4000 - 6000	201.1, 201.5; BR-D-01-0001	815	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
VIII/8	215 x 140; 245 x 145	4000 - 6000	201.1, 201.5; BR-D-01-0001	975	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
VIII/9	235 x 140; 260 x 145	4500 - 7000	201.1, 201.5; BR-D-01-0001	1065	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
IX/10	230 x 165	5000 - 7000	201.1, 201.5; BR-D-01-0001	1065	CS 31HB Amdt. 1	CS 31HB Amdt. 1

IX/11	250 x 170; 275 x 150	6000 - 8500	201.1, 201.5	1200	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
X/13	275 x 175; 300 x 170	7000 - 8500	201.1, 201.5	1700	LFHB; 23 Feb. 1982	LBA letter I 33 - 8025/86, dated 5 March 1986
X/15	300 x 170	7000 - 8500	201.1, 201.5	1700	CS 31HB Amdt. 1	CRI A-1 to TM EASA.BA.016-52
XI/19	365 x 165; 380 x 180	10500 - 12500	BR-I-01-0001; BR-I-01-0010	2400	CS 31HB Amdt. 1	CS 31HB Amdt. 1
XII/23	425 x 165; 440 x 180	10500 - 12500	BR-I-01-0001; BR-I-01-0010	2800	CS 31HB Amdt. 1	CS 31HB Amdt. 1
XIII/27	485 x 165; 500 x 180	10500 - 12500	BR-I-01-0001; BR-I-01-0010	3200	CS 31HB Amdt. 1	CS 31HB Amdt. 1

Table 4.2: Baskets sizes and applicable load frames

Open baskets II/3 to VI/6 can be equipped with one door and/or one seat. Baskets from VII/7 to X/15 with 1 or 2 doors and/or 1 or 2 seats. The applicable envelope size, maximum basket payload and the maximum permissible number of occupants and fuel cylinders is described in the data matrix of the Flight Manual.

#### IV. Fuel cylinders

Fuel cylinder	Measures [mm]	Total volume [l]	Fuel capacity [kg]	Airworthiness code
VA 50	Ø350; h = 880	50	21,2	LFHB 23 Feb. 1982
VA 70	Ø400; h = 920	70	30	LFHB 23 Feb. 1982

Table 4.3: Fuel cylinders

All cylinders are equipped with the following parts:

- Vapor take-off valve
- Pressure relief valve (included in the vapour valve)
- Remaining content gauge
- Liquid take-off valve
- Bleed valve
- Protective cover of the vessel and padding of the upper safety ring
- Optional equipment: pressure reducer for vapor pilot lights or a automated Fill-stop

All equipment is described in the flight- and maintenance manual