Civil Aviation Authority
United Kingdom

TYPE-CERTIFICATE DATA SHEET

UK.TC.BA.00072

for

Diamond Hot Air Balloons

Type Certificate Holder

Diamond Hot Air Balloons Limited
Berkeley Studios
Breadstone
Berkeley
Gloucestershire
GL13 9HF
UNITED KINGDOM

UK Design Office Reference UK.21J.1002

Model(s):	Diamond P Series of Hot Air Balloons Diamond S Series of Hot Air Balloons Diamond Character Series of Special-Shaped Hot-Air Balloons
Issue:	5
Date of issue:	09 May 2025

TABLE OF CONTENTS

Section 1 General (All Types & Variants) 4
1.A. General 4
1.A.1. Type / Variant / Model 4
1.A.2. Type Certificate Holder 4
1.A.3. Manufacturer 4
1.A.4. Date of Application 4
1.A.5. Approval date 4
1.B. Certification Basis 4
1.B.1. Reference Date for determining the applicable requirements 4
1.B.2. UK Certification Basis 4
1.B.3. Airworthiness Standards 4
1.B.4. Special Conditions (SC) 4
1.B.5. Equivalent Safety Findings (ESF) 4
1.B.6. Deviations 4
1.C. Technical Characteristic and Operating Limitations 5
1.C.1. Type Design Definition 5
1.C.2. Description 5
1.C.3. Equipment 5
1.C.4. Mass 5
1.D. Operating Limitations 6
1.D.1. Envelope Temperature 6
1.D.2. Minimum Crew 6
1.D.3. Maximum Occupants 6
1.D.4. Fuel 6
1.D.5. Other Limitations 6
1.E. Operating & Service Instructions 6
1.E.1. Flight Manual 6
1.E.2. Maintenance Manual 6
1.F. Notes 6
Section 2 Diamond Hot Air Balloons 7
Section 2A Diamond Hot Air Balloon P Series (50,000 – 120,000 cubic feet volume) 7
Table 2A: Diamond P Series Definitions, Limitations and Eligible Equipment 7
Section 2B Diamond Hot Air Balloon S Series (77,000 – 120,000 cubic feet volume) 8
Table 2B: Diamond S Series Definitions, Limitations and Eligible Equipment 8
Section 2C Diamond Hot Air Balloon Character Series (48,000 cubic feet volume) 9
Table 2C: Diamond Character Series Definitions, Limitations and Eligible Equipment 9
Section 3 Administration 10
3.A. Acronyms and Abbreviations 10
3.B. Type Certificate Holder Record 10
3.C. Amendment Record 10

This page is intentionally blank

Section 1 General (All Types & Variants)

1.A. General

1.A.1. Type / Variant / Model

a) Type: Diamond Free Balloon P Series, Diamond Free Balloon S Series, Diamond Character Series of Special-Shaped Balloons

b) Variant or Model: Refer to Section 2

1.A.2. Type Certificate Holder

Diamond Hot Air Balloons Limited
Berkeley Studios
Breadstone
Berkeley
Gloucestershire
GL13 9HF
United Kingdom
Company Number: 5772592

1.A.3. Manufacturer

Diamond Hot Air Balloons Limited
Berkeley Studios
Breadstone
Berkeley
Gloucestershire
GL13 9HF
United Kingdom

1.A.4. Date of Application

Varies, refer to section 2

1.A.5. Approval date

Varies, refer to Section 2

1.B. Certification Basis

1.B.1. Reference Date for determining the applicable requirements

Various, refer to Section 2.

1.B.2. UK Certification Basis

Various, refer to Section 2.

1.B.3. Airworthiness Standards

(UK) CS.31HB Issue 1 Amendment 31HB/1 (September 2020)

1.B.4. Special Conditions (SC)

None

1.B.5. Equivalent Safety Findings (ESF)

None

1.B.6. Deviations

None

1.C. Technical Characteristic and Operating Limitations

1.C.1. Type Design Definition

Refer to Section 2.

1.C.2. Description

Manned Free Hot Air Balloons of conventional (i.e., natural, semi-bulbous or bulbous profile) or non-conventional ('special') shape. Volumes range from 48,000 cubic feet (1,359 cubic metres) to 120,000 cu.ft (3,398 cu.m). The envelope is fitted with a parachute or rapid deflation system, and (optionally) rotation vents. The envelope is attached to the burner load frame and basket using stainless-steel flying cables and optional links.

Third-party burners (heaters) are specified in single or double configurations dependant on envelope size. Each unit incorporates a main burner, a quiet burner, and pilot light(s) as a minimum.

Third-party baskets are generally of traditional woven cane construction in open, or split-compartment configurations, but can also be of a lightweight, tube-framed design with a solid floor and fabric sides. The stainless-steel suspension cables of the basket attach to the burner load frame and envelope flying cables using carabiners.

Third-party pressurised fuel cylinders, manufactured from Titanium, Stainless Steel or Aluminium, are available in a range of volumes from approximately 40 to 90 litres. The cylinders have the facility to withdraw the fuel as liquid and/or vapour as required.

Additional equipment is mounted in the basket as required.

1.C.3. Equipment

a) Envelope

Refer to Section 2, and Diamond Balloons Flight Manual and Supplements — latest approved revision.

b) Burner

Refer to Diamond Balloons Flight Manual and Supplements — latest approved revision.

c) Basket

Refer to Diamond Balloons Flight Manual and Supplements — latest approved revision.

1.C.4. Mass

Refer to Sections 2 and subsequent sections of this document

1.D. Operating Limitations

1.D.1. Envelope Temperature

The operating temperature at the top of the envelope in level flight at maximum load is 100°C (212°F) The envelope temperature must not exceed 125°C (257°F)

1.D.2. Minimum Crew

One pilot

1.D.3. Maximum Occupants

Not to exceed maximum take-off mass and limitations.

Refer to Approved Aircraft Flight Manual Issue 1.1 or later approved revision and supplements.

1.D.4. Fuel

Commercial Propane as standard

1.D.5. Other Limitations

When a basket is used, minimum of two independent fuel cylinders with the provision to supply two pilot lights are required.

1.E. Operating & Service Instructions

1.E.1. Flight Manual

Diamond Hot Air Balloons Flight Manual issue 1.1, and Supplements, or later approved revisions.

1.E.2. Maintenance Manual

Diamond Hot air Balloons Maintenance Manual and Supplements-Issue 1.1 or later approved revision.
Inspection shall be in accordance with the latest issue of the inspection schedule – Diamond Hot air Balloons Maintenance Manual and Supplements-Issue 1.1 or later approved revision refers.

1.F. Notes

Note 1) For the purpose of maintenance and inspection a log book must be maintained with each hot air balloon envelope. If the burner, basket, instruments and/or cylinders are interchanged, they must be listed in the log book of each envelope with which they are used.

Note 2) Where applicable, Special Shape variants are known by their original designation or by generic shape (given in brackets in Table 1).

Section 2 Diamond Hot Air Balloons

Section 2A Diamond Hot Air Balloon P Series (50,000 – 120,000 cubic feet volume)

Manned free hot air balloon of natural shape with a semi-bulbous cross-section and 16 horizontally-cut gores. The envelope general assembly drawing numbers are shown in Table 2A below. The definitions of all variants (models) are also listed in Table 2A

Table 2A: Diamond P Series Definitions, Limitations and Eligible Equipment

Model	Volume (cu.ft)	Volume (cu.m)	Drawing Number	MTOM (kg)	MLM (kg)	Burners	Baskets	Approval Date
Diamond P-50	50,000	1,415	DB1-050-001	500	n/a	† See note	† See note	10 Jul 2023
Diamond P-90	90,000	2,548	DB1-090-001	900	n/a	† See note	† See note	09 May 2025
Diamond P-90L	90,000	2,548	DB1-090L-001	800	n/a	† See note	† See note	09 May 2025

† Compatible burner assemblies and baskets are listed in Flight Manual Supplement 1 (latest edition).

Section 2B Diamond Hot Air Balloon S Series (77,000 – 120,000 cubic feet volume)

Manned free hot air balloon of natural shape with a smooth cross-section and 24 horizontally-cut gores. The envelope general assembly drawing numbers are shown in Table 2B below. The definitions of all variants (models) are also listed in Table 2B

Table 2B: Diamond S Series Definitions, Limitations and Eligible Equipment

Model	Volume (cu.ft)	Volume (cu.m)	Drawing Number	MTOM (kg)	MLM (kg)	Burners	Baskets	Approval Date
Diamond S-77	77,000	2,180	DB2-077-001	770	n/a	† See note	† See note	05 Nov 2024
Diamond S-90	90,000	2,548	DB2-090-001	900	n/a	† See note	† See note	05 Nov 2024
Diamond S-120	120,000	3,398	DB2-120-001	1,200	600	† See note	† See note	09 May 2024

† Compatible burner assemblies and baskets are listed in Flight Manual Supplement 1 (latest edition).

Section 2C Diamond Hot Air Balloon Character Series (48,000 cubic feet volume)

Manned free hot air balloon of various shapes depicting characters. The envelope general assembly drawing numbers are shown in Table 2C below. The definitions of all variants (models) are also listed in Table 2C

Table 2C: Diamond Character Series Definitions, Limitations and Eligible Equipment

Model	Volume (cu.ft)	Volume (cu.m)	Drawing Number	MTOM (kg)	MLM (kg)	Burner and Basket	Approval Date
Diamond Alien-48 (Character-1)	48,000	1,359	DBS-001-001	480	n/a	† See note	26 Nov 2023

† Compatible burner assemblies and baskets are listed in Flight Manual Supplement 1 (latest edition).

Section 3 Administration

3.A. Acronyms and Abbreviations

Acronym / Abbreviation	Definition
cu.ft	Cubic Feet
cu.m	Cubic Metres
MTOM	Maximum take-off mass
MLM	Maximum landing mass
TC	Type Certificate
TCDS	Type Certificate Data Sheet
TCH	Type Certificate Holder

3.B. Type Certificate Holder Record

TCH Record	Period
Diamond Hot Air Balloons Limited Berkeley Studios Breadstone Berkeley Gloucestershire GL13 9HF UNITED KINGDOM	Present. No changes.

3.C. Amendment Record

TCDS Issue No.	TCDS Issue Date	Changes	TC Issue and Date
1	10 Jul 2023	Initial (P-50 envelope)	Issue 1: 10 Jul 2023
2	10 Jan 2024	Add Character-1 (Alien-48)	Issue 1: 10 Jul 2023
3	09 May 2024	Add S-120 (S-series, 120,000cuft volume)	Issue 2: 15 Apr 2024
4	05 Nov 2024	Add S-77 (S-series, 77,000cuft volume), S-90 (S-series, 90,000cuft volume). Add “Diamond” to model names	Issue 2: 15 Apr 2024
5	09 May 2025	Add P-90 and P-90L (P-series, 90,000cuft volume)	Issue 2: 15 Apr 2024

– END –