

This document is approved by the EASA.
For Add-on envelope "Euter: EASA-approval-number: 10066357
For Add-on envelope "t Zusje": EASA-approval-number: 10079610

This appendix describes the specifications and procedures of special shapes and add-on envelopes produced by Schroeder fire balloons.

1. General information

For simple special shapes and add-on envelope there are attachments sewn onto the envelope. Additionally, depending on the shape and size of the attachment, there are ribs or load tapes sewn to the inside of the attachment in order to gain a certain form stability. The attachments are connected to the supporting envelope by upper and lower openings through which the attachments are supplied with air during the inflation process. Due to the very small surface of the openings, there is very few exchange of air during flight. The air inside the attachments is much cooler because of the lacking hot air circulation. Therefore, the cooler air inside the attachments does not cause any buoyancy. The attachments are usually equipped with discharge openings in order to release the air from the attachments and a better deflation. The number and position of the openings are declared in this appendix. Attachments that might get into the area of the burner flame or even all the way to the basket, where it could get into contact with the inflation fan during inflation because of their length and position at the envelope, must be paid extra attention to in order to avoid unnecessary damages.

2. Tethered flight

Special shapes and add-on envelopes are equipped with attachments, which make them very sensitive to prevailing winds. That must be taken in account for tethered flight. The envelope is to be tethered so, that it is flying with the least wind resistance. An unnecessary turning of the envelope during flight must be avoided. The tethering operation is defined by the flight manual appendix J.1 "Tethered flight". The tethered flight operation should not be conducted with ground wind speeds higher than 5 kts.

3. Maintenance and care

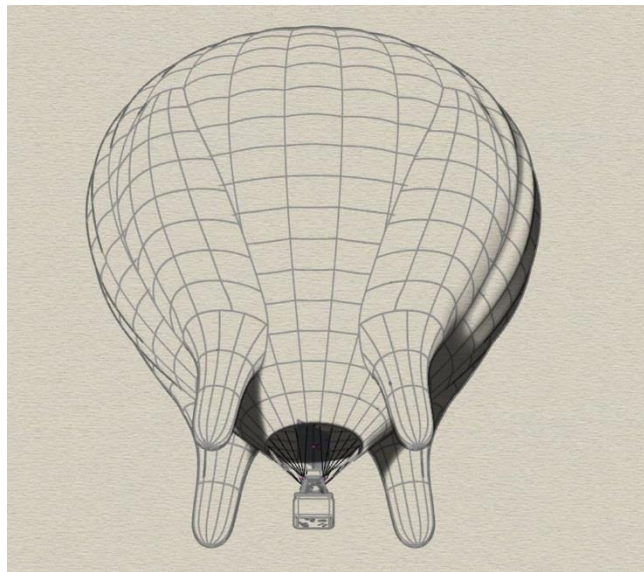
The hot air introduced into the attachments cools down as described above. The cooling down of the air can cause the air humidity to condensate inside on the outer attachment surfaces. If applicable, this moisture can be dried by air ventilation after flight. At each inflation, the inflation fan blows dirt and plant remains after mowing into the envelope. This impurity gathers inside the lower corners and dead ends of the attachments. The discharge openings of the attachments can be used for cleaning.

4. Specifications to add-on envelopes

Every envelope mentioned in the appendix has its own constructional and operational specifications in contrast to standard envelopes. These deviations in construction and operation are explained in the following sections.

4.1. Add-on envelope „Euter“ („Udder“)

The add-on envelope „Euter“ is a standard envelope with 24 gores and a buoyancy volume of 3400 m³. The envelope is shaped like an udder and equipped with 4 downward standing teat add-ons, which are symmetrically arranged around the lower circumference.



Picture 4.4.1: Schematic view from below

Attachments:

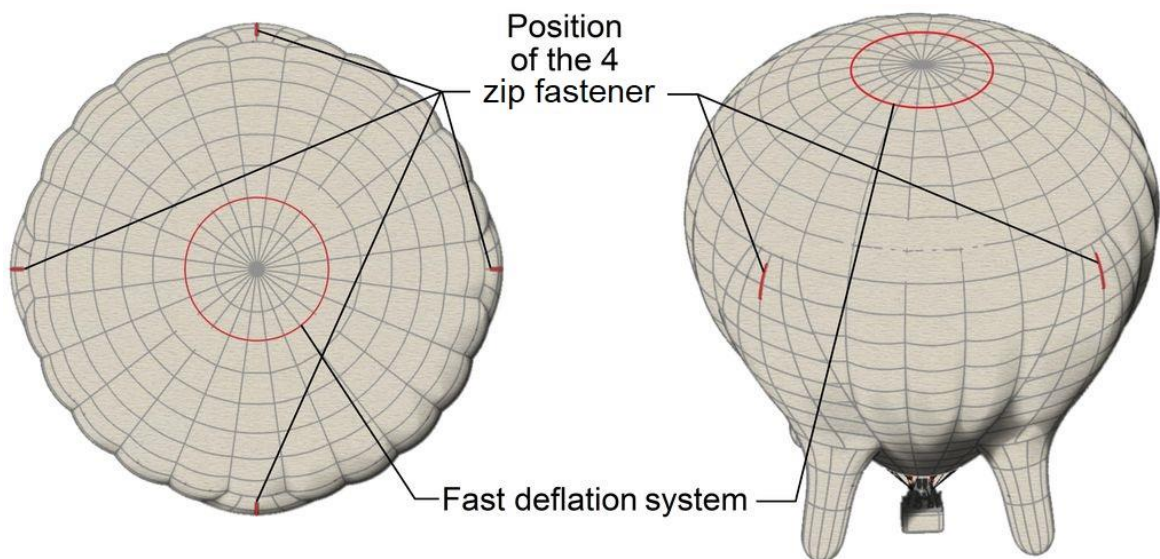
Each teat is connected to the main volume with two upper and three small, lower openings. The teats do not touch the ground when the balloon is standing upright. The attachments are equipped with a system of lines that allow the pilot to raise the teats pairwise from inside the basket. Damages to the attachments caused during the landing or starting procedure can be avoided by raising the teats. In addition, the circumferential visibility during flight can be increased by raising the teats. At high descending speeds, it is recommendable to also raise the teats to avoid the intrusion of the attachments into the effective range of the burner.

4.1.1. Emergency procedures

There is no change to the emergency procedures described in the flight manual.

4.1.2. Normal procedures

Each of the 4 teats is equipped with a zip fastener, which must be closed and secured before inflation (pictures 4.1.3 and 4.1.4). The zip fasteners are almost at the top of the attachments (picture 4.1.2). Once the zip fasteners are closed and secured, the teats can be raised with the system of lines or laid alongside the envelope towards the top of the envelope for inflation. The intrusion of the attachments into the effective range of burner and inflation fan can be avoided by this. When using the system of lines before inflation, an intrusion of envelope fabric into the pulleys must be avoided.



Picture 4.1.2: Position of the zip fastener and the fast deflation system



Picture 4.1.3: Securing the zip fastener



Picture 4.1.4: Closed zip fastener

During the hot inflation of the balloon, it must be considered that the attachments may intrude the working range of the burner by variable winds or movement of the balloon. Additional personnel can be appointed to monitor and control the attachments and hold them back if necessary. If the system of lines is used to raise the teats, the additional personnel is not essential. Anyway, the pilot must keep an eye on the attachments.

The attachments do not cause any buoyancy and they are not included in the stated envelope volume.

Deflation system:

The envelope is equipped with a fast deflation system. The Schroeder fire balloons flight manual is to be looked up for operation instructions to the system. There are no further changes to normal procedures.

4.1.3. Limitations

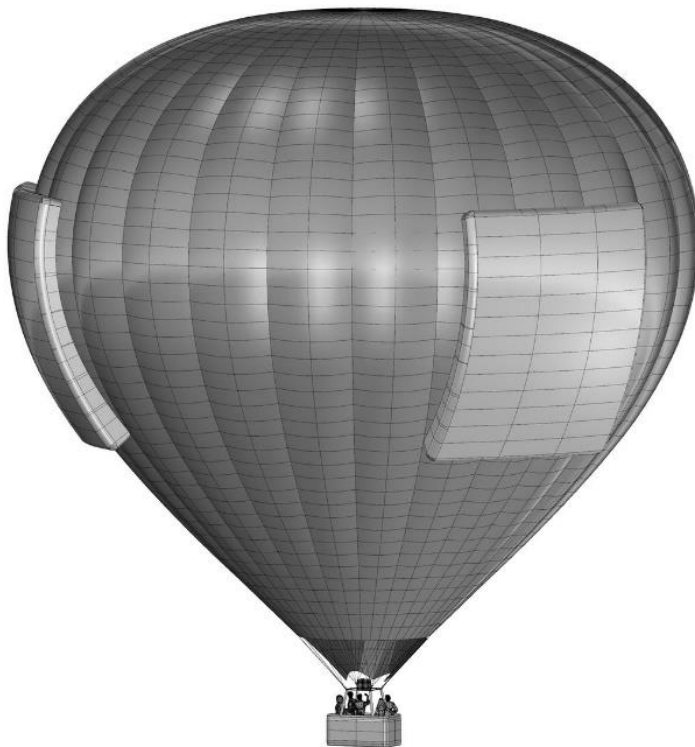
Starting with one or more open zip fasteners of the add-ons is not allowed. The limitations, repair- and maintenance instructions of the current flight- and maintenance manual and their appendices are to be applied additionally.

4.1.4. Equipment and loading

The configuration according to the data matrices, based on the envelope volume in the flight manual and its appendices are to be obeyed.

4.2. Add-on envelope „t Zusje“

The basic structure of the Add-on envelope “t Zusje” is a standard Schroeder fire balloons G envelope with 24 gores and a volume of 7000 m³. The envelope is equipped with 3 add-ons that are evenly distributed around the circumference. The 3 add-ons are equal in size and shape and represent a picture frame as can be seen in picture 4.2.1. The volume of the add-ons is only indirectly involved in the circulation of the hot air inside the balloon. The air of the add-ons is much cooler than the hot air of the primary envelope and must not be added to the buoyancy volume of the envelope.



Picture 4.2.1: Add-on envelope ‘t Zusje

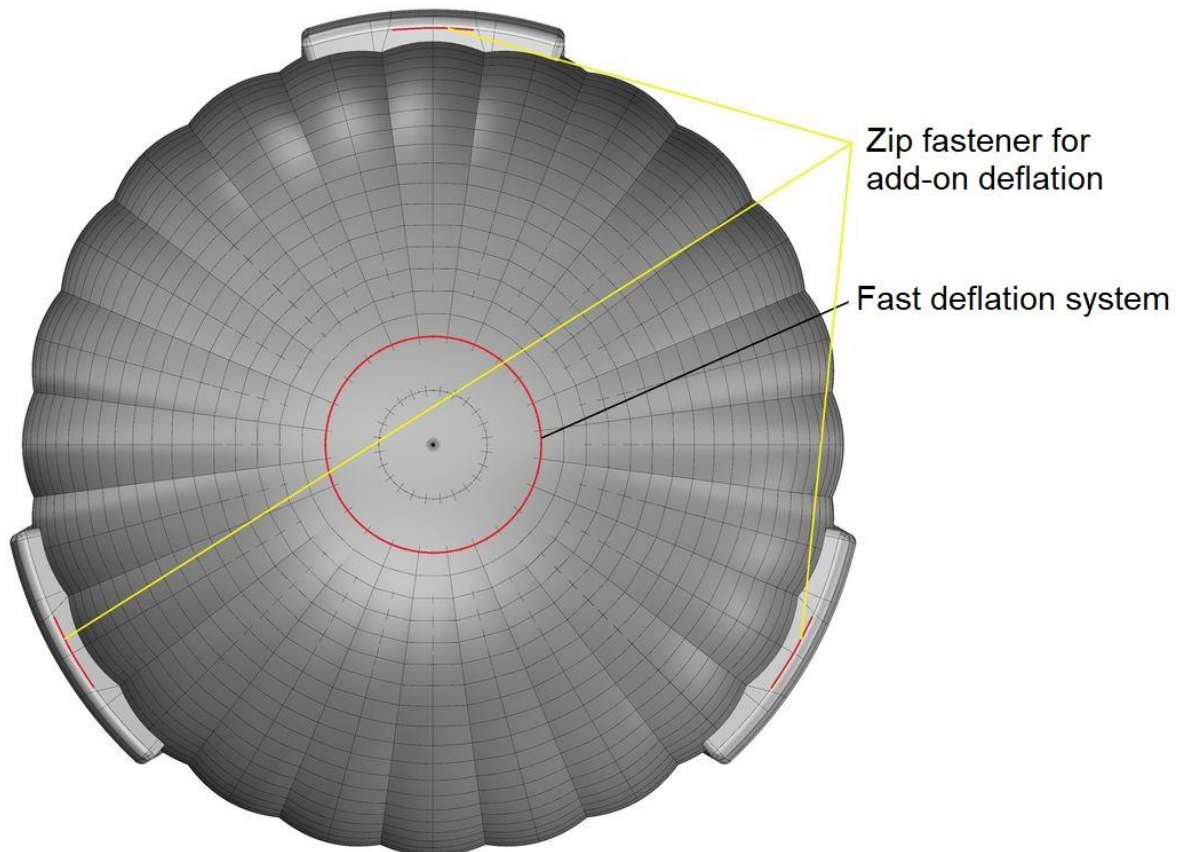
Jeder Anbau ist über eine obere und eine kleinere untere Öffnung mit dem Volumen der Primärhülle verbunden. Die Hülle ist aufgrund des großen Volumens mit einem Schnellentleerungssystem und 2 Drehventilen ausgestattet.

4.2.1. Emergency procedures

There is no change to the emergency procedures stated in the flight manual.

4.2.2. Normal procedures

The normal procedures specified in the current flight manual apply. In addition, the following procedure are applicable: Each of the 3 picture frames is equipped with an approx. 2 m long zip fasteners on the top in the horizontal part. These openings must be opened to completely deflate the attachments after landing.



Picture 4.2.2: Position of the zip fasteners

A Velcro tab is attached to the lock of the zip fastener. To secure the zip fastener after closing, the tab must be attached to the counterpart sewn to the envelope. The zip fasteners must be closed and secured before or during the cold inflation. The balloon must not be hot inflated before.

4.2.3. Limitations

Starting with one or more open zip fasteners of the add-ons is not allowed. The limitations, repair- and maintenance instructions of the current flight- and maintenance manual and their appendices are to be applied additionally.

4.2.4. Equipment and loading

The configuration according to the data matrices, based on the envelope volume in the flight manual and its appendices are to be obeyed.