

CS 31HB.25 Factors of safety

ED Decision 2011/013/R

(a) A factor of safety must be used in the balloon design as provided in the table.

	Safety factor
Envelope	5.00
Suspension components (fibrous or non-metallic)	2.25
Suspension components (metallic)	1.50
Other	1.50

(b) A reduced factor of 2 or more may be used in the envelope design if it is shown that the selected factor will preclude failure due to creep or instantaneous rupture from lack of rip stoppers. The selected factor must be applied to the more critical of the maximum operating pressure or envelope stress.

(c) The primary attachments of the envelope to the basket must be designed so that any single failure will not jeopardise safety of flight.

(d) For design purposes, an occupant mass of at least 77 kg must be assumed.

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The term „envelope“ here includes the integral vertical and horizontal load tapes as well as the envelope fabric(s). It should be noted that the envelope to suspension system pick-up points (sometimes known as 'turnbacks') should be regarded as part of the suspension system, rather than the envelope, as far as CS 31HB.25 is concerned.

„Suspension components“ here are those components, from the base of the envelope down, upon which form the primary load paths of the trapeze, basket or other means provided for the occupants.

The individual structural elements in the suspension system should be dimensioned and configured or duplicated so that failure of one structural element (single failure) does not cause any uncontrollable operating condition. The factors of safety apply to all parts of the load bearing path (e.g. joints, splices, knots, terminals etc).

The post-single failure case should be justified with the application of limit loads.

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