



Speed of opening, stability, descent rate

Inspection certificate number: **EP_257.2019**

Test Report

Manufacturer data

Manufacturer name: **AirDesign GmbH**
 Representative: **Stephan Stiegler**
 Street: **Rhomberstrasse 9, 3. Stock**
 Post code / Place: **6067 Absam**
 Country: **Austria**

Sample data

Name: **Donut SL** Size: **90**
 Steerable ⁽¹⁾: **No** Maximum weight in flight ⁽²⁾ [kg]: **90**
 Weight ⁽³⁾ [kg]: **0.88** volume packed [cm³]: **2600**
 Serial number: **XR01853PP183008**

Test data ⁽⁴⁾

	Test no. 1	Test no. 2
Place of test	Villeneuve	Villeneuve
Date of test	04.09.2018	12.09.2018
Inspector:	Claude Thurnheer	Claude Thurnheer

Atmosphere AGL

[°C]	21	25
RH [%]	68	60
[hPa]	972.2	977.2
Wind [m/s]	0.1	0.1

Summary of both results ⁽⁵⁾

	EN	LTF
Time of opening test [s]:	3.11	3.11
Calculated descent rate test [m/s]:	5.49	5.49
Stability test:	POSITIVE	POSITIVE
Behaviour during descent test:	Stable	Stable
Glider ratio:	POSITIVE	

If steerable:

Any flight procedure and/or configuration described in the user's manual	N/A	N/A
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Formula using to calculate corrected mass

$$m_{\text{corr}} := m_{\text{dec}} \cdot \frac{p \cdot T_0}{p_0 \cdot T}$$

Sink rate test no. 1 ⁽⁶⁾

Ground level atmospheric pressure at test location: (p)	972.2 [hPa]
ICAO standard atmospheric pressure at MSL: (po)	1013.25 [hPa]
Ground level temperature at the test location: (T)	21 [°C]
	294.15 [°K]
ICAO standard temperature at MSL: (To)	15 [°C]
	288.15 [°K]
Declared maximum payload: (mdec)	90 [kg]
Corrected mass: (mcorr)	84.59 [kg]
Corrected mass with uncertainty: (mcorr)	85.49 [kg]
Time when pilot release rescue	9.12 [s]
Time when weak link broken	12.08 [s]
Calculated speed opening [s]:	3.11 [s]
Time ball touch the water:	11.12 [s]
Time pilot touch the water:	19.04 [s]
Time between ball and pilot touching water (40m)	7.77 [s]
Calculated sink rate [m/s]:	5.15 [m/s]

Sink rate test no. 2 ⁽⁶⁾

Ground level atmospheric pressure at test location: (p)	977.2 [hPa]
ICAO standard atmospheric pressure at MSL: (po)	1013.25 [hPa]
Ground level temperature at the test location: (T)	25 [°C]
	298.15 [°K]
ICAO standard temperature at MSL: (To)	15 [°C]
	288.15 [°K]
Declared maximum payload: (mdec)	90 [kg]
Corrected mass: (mcorr)	83.89 [kg]
Corrected mass with uncertainty: (mcorr)	84.79 [kg]
Time when pilot release rescue	55.76 [s]
Time when weak link broken	58.68 [s]
Calculated speed opening [s]:	3.07 [s]
Time ball touch the water:	45.56 [s]
Time pilot touch the water:	53 [s]
Time between ball and pilot touching water (40m)	7.29 [s]
Calculated sink rate [m/s]:	5.49 [m/s]

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Weak link test no. 1



Weak link test no. 2



Instrument & type no.	Validity	Manufacturer	S/N
Weak link	2020	Tost	N/A
Line 40 meter	check every 12 months	Air Turquoise SA	N/A
Geos n° 11 Skywatch		08/05/2020 JDC elec.	22

The validation of this test report is given by the signature of the test manager on inspection certificate 71.5.1

Air Turquoise SA has thoroughly tested the sample of emergency parachute mentioned above and certifies its conformity with the standards: **EN 12491:2015 chapter 5.1 to 5.3.1, 5.3.3, 5.3.4, 5.3.6 (if steerable) and LTF NFL II 91/09 chapter 6**

⁽¹⁾ If Steerable: Emergency Parachute fitted with controls for steering and landing flare. ⁽²⁾ Total weight in flight exclude weight of paraglider, also called payload - ⁽¹⁾ Weight of the emergency parachute

⁽⁴⁾ The rescue system is dropped from a paraglider in straight flight at 10 [m/s] +/- 1 [m/s] and a vertical airspeed of less than 1,5 [m/s].

The paraglider is released as the rescue system begins to open. Wink link 200 [N] is used to measure the speed opening. After a minimum of 125 m of descent, the average rate of descent is measured over 40 m of descent. The stability and glide ratio is observed. The test is carried out twice (this may be with the same parachute or with identical item).

⁽⁵⁾ The calculated value include the value minus the uncertainty / The uncertainty stated is the expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor k = 2. The value of the measured lies within the assigned range of values with a probability of 95%. The tests do not include any compatibility tests with alternative inner containers. Required time from the instant of free drop until a load of 200 [N] is sustained for EN 4 [s] and for LTF 5 [s]. The required maximum sink rate is for EN 5.5 [m/s] and for LTF 6.80 [m/s]. If steerable the maximum sink rate for EN is 4 [m/s]. The final result for EN and for LTF is the worst case of both tests.

⁽⁶⁾ Condition for the descent rate test. A. At horizontal airspeed 10 m/s (+/- 1m/s) and vertical speed 1.5 m/s B. Formula to be used for correcting the test mass of differences from ICAO standard atmosphere.

Strength test - 40 m/s opening shock

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 Country: **Austria**

Sample data

Name: **Donut SL** Size: **90**
 Steerable **No** Maximum weight [kg]: **90**
 Weight [kg] **0.88** volume packed [cm³]: **2600**
 Serial number: **XR01903CPP191001A**

Test data ⁽¹⁾

	Test no. 1	Test no. 2
Place of test	Muraz	Muraz
Date of test	05.04.2019	05.04.2019
Corrected mass [kg]	87.62	87.62
Inspector:	Alain Zoller	Alain Zoller

Atmosphere AGL

	Test no. 1	Test no. 2
[°C]	10	10
RH [%]	72	72
[hPa]	959.4	959.4
Wind [m/s]	0.1	0.1

Test results

	Test no. 1	Test no. 2
Strength test (40m/s shock)	POSITIVE	POSITIVE
Aircraft speed uncertainty K=2 [m/s] ⁽²⁾	1.7	1.7

Item / type no.	Validity	Manufacturer	S/N
Weight	2020	Air Turquoise SA	N/A
Geos n° 11	08.05.2017	JDC elec.	22
Weak link	2020	Tost	N/A



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$$m_{corr} := m_{dec} \cdot \frac{p \cdot T_0}{p_0 \cdot T}$$

Formula using to calculate corrected mass

Corrected mass for strength test no. 1

Ground level atmospheric pressure at test location: (p)	959.4 [hPa]
ICAO standard atmospheric pressure at MSL: (p ₀)	1013.25 [hPa]
Ground level temperature at the test location: (T)	10 [°C]
	283.15 [°K]
ICAO standard temperature at MSL: (T ₀)	15 [°C]
	288.15 [°K]
Declared maximum payload: (m _{dec})	90 [kg]
Corrected mass: (m _{corr})	86.72 [kg]
Corrected mass with uncertainty: (m _{corr})	87.62 [kg]

Corrected mass for strength test no. 2

Ground level atmospheric pressure at test location: (p)	959.4 [hPa]
ICAO standard atmospheric pressure at MSL: (p ₀)	1013.25 [hPa]
Ground level temperature at the test location: (T)	10 [°C]
	283.15 [°K]
ICAO standard temperature at MSL: (T ₀)	15 [°C]
	288.15 [°K]
Declared maximum payload: (m _{dec})	90 [kg]
Corrected mass: (m _{corr})	86.72 [kg]
Corrected mass with uncertainty: (m _{corr})	87.62 [kg]

The validation of this test report is given by the signature of the test manager on inspection certificate 71.5.1

Air Turquoise SA has thoroughly tested the sample of emergency parachute mentioned above and certifies its conformity with the standards: **EN 12491:2015 chapter 5.1-5.3.1, 5.3.5, 5.3.6 - LTF nFl II 91/09 chapter 6**

⁽¹⁾ The emergency parachute (in its standard inner container and packed according to the user's manual instructions) is stowed on the drop test device. The test parachute's riser (or both risers in the case of a two riser parachute) is (are) connected to the single anchor point on the drop test device using the connector(s) specified and supplied by the parachute manufacturer.

The drop test device is accelerated to a straight line velocity of 40 m/s and the parachute deployed using its handle or handle attachment point by a static line attached to a drogue chute or similar low force deployment system.

The test is carried out twice with the same parachute. In case steerable parachute, in both tests, the controls shall remain locked.

⁽²⁾ Calculated value include the value minus the uncertainty (on safe side) / The uncertainty stated is the expanded uncertainty obtained by multiplying the standard uncertainty by the coverage factor k = 2. The value of the measured lies within the assigned range of values with a probability of 95%.