air turquoise sa
Route du PRE AU COMTE 8 | 1844 Villeneuve | Switzerland | para-test.com
Test laboratory for paragliders, paragliders harness and paragliders reserve parachutes

ISO 9001 BUREAU VERITAS Certification

DAkkS Deutsche Akkreditierun D-IS-19457-

INSPECTION REPORT

EP

PARAGLIDERS RESCUE SYSTEMS | EMERGENCY PARACHUTE

Inspection report number: **EP_141.2015**

MANUFACTURER DATA

Manufacturer name:	**Pro-Design Hofbauer GmbH**
Representative	**Herbert Hofbauer**
Street:	**Zimmeterweg 4**
Post code / place:	**6020 Innsbruck**
Country:	**Austria**

SAMPLE DATA

Name:	**Oryon Cross**		
Size:	**1**		
Max load [kg]:	**120**		
Volume [cm3]:	**3760**		
Serial number flight:	**OC1601001**	Date of reception:	**04.11.2015**
Serial number load:	**OC1601002**	Date of reception:	**04.11.2015**

ISSUE DATA

Date of issue:	**17.03.2016**
Place of declaration:	**Villeneuve**
Director management :	**Alain Zoller**

Signature:

Air Turquoise SA, having thoroughly assessed the sample mentioned hereunder, declare it was found conform with all requirements defined by the following directives:

LTF NFL II 91/09 chapter 6 Paraglider rescue systems
LTF Ref chapter: 6.1.1 to 6.1.19, exclusion 6.1.10

Present declaration's scope only extends to the conformity of a given sample, on a given date and in a given place – as mentioned here above.

This inspection report contain the following test and is complet with the test report number EP1 to EP5
EP6 for stearable model only

TESTS	RESULTS	INSPECTORS	PLACES	DATES
1. Deployment system strength test (inner container)				
Minimum 700 N strength required during min 10 [s]	**POSITIVE**	AZ	Villeneuve	06.01.2016
2. Speed of opening, descent rate and stability test				
Sink rate EN standard	**N/A**			
Sink rate LTF standard	**POSITIVE**	CT	Villeneuve	23.11.2015
Speed opening	**POSITIVE**	CT	Villeneuve	23.11.2015
Stability	**POSITVE**	CT	Villeneuve	23.11.2015
3. Strength test opening shock				
Test 1 | 40 [m/s]	**POSITIVE**	AZ	Illarsaz	17.12.2015
Test 2 | 40 [m/s]	**POSITIVE**	AZ	Illarsaz	17.12.2015
4.Connecting strap				
Mininum load capacity of 2400 [daN]	**POSITIVE**	AZ	Villeneuve	21.12.2015
5. Measurement				
According to manufacturer user manual	**POSITIVE**	AZ	Villeneuve	11.11.2015
6. Interaction and stability test (piloted) - ref. C				
EP is deployed from a paraglider in normal straight flight	**N/A**	n/a	n/a	n/a
No action while behaviour of EP & PG are observed 200 [m]	**N/A**	n/a	n/a	n/a
Action while behaviour of EP & PG are observed 200 [m]	**N/A**	n/a	n/a	n/a
Any flight procedure and/or configuration described in the user's manual	**N/A**	n/a	n/a	n/a

Deployment system strength test

TEST REPORT EP 1

EP PARAGLIDERS RESCUE SYSTEMS

Test report number:	**EP_141.2015**

MANUFACTURER DATA

Manufacturer name:	**Pro-Design Hofbauer GmbH**
Representative	**Herbert Hofbauer**
Street:	**Zimmeterweg 4**
Post code / place:	**6020 Innsbruck**
Country:	**Austria**

SAMPLE DATA

Name:	**Oryon Cross**
Size:	**1**
Max load [kg]:	**120**
Serial number flight:	**OC1601001**
Date of reception:	**04.11.2015**

ISSUE DATA

Place of test:	**Villeneuve**
Date of test:	**06.01.2016**
Inspector:	**AZ**
Results:	POSITIVE
Directive:	**LTF 91/09** chapter 6

The deployment system is loaded at min 700 [N] during 10 secondes min. The deployment system is loaded until breaking. Each componnent is tested.

ATMOSPHERE AGL

[C°]	**20.2**
RH [%]	**38**
[hPa]	**997.8**

RESULTS

Minimum strength required during min 10s:	**700 [N]**
Strength of 700 N duration each components no1 [s]: 1	**21.32**
Strength of 700 N duration each components no2 [s]: 2	**31.7**
Strength of 700 N duration each components no3 [s]: 3	**10.1**
Uncertainty K2 [N]:	**17.0**
Minimum time [s]:	**21.3**

Max strength components:	**[N]**
Max strength components no1: 1	**1304.0**
Max strength components no2: 2	**1043.0**
Max strength components no3: 3	**849.0**
Uncertainty K2:	**17.0**
Max strength:	**849.0**

Test Report generated automatically by AIR TURQUOISE SA, valid without signature

Deployment system strength

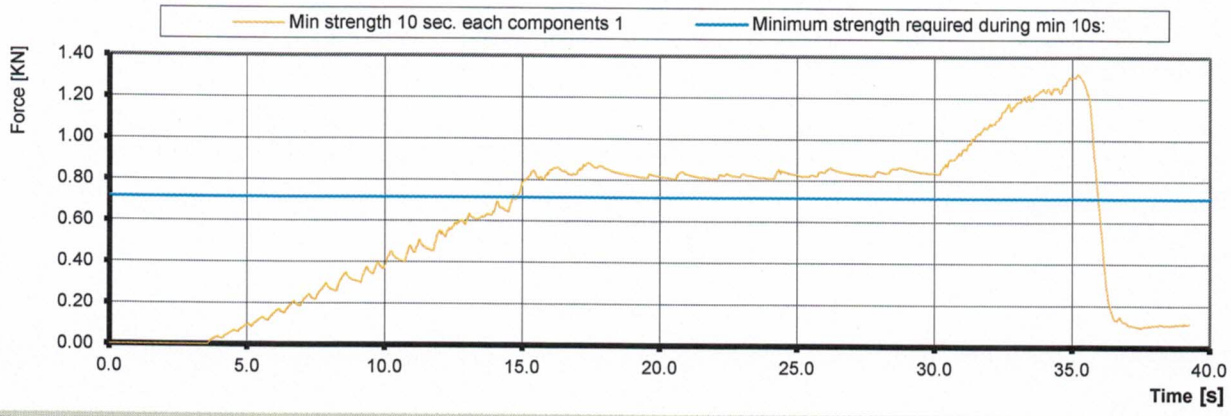
TEST REPORT EP 1

PARAGLIDERS RESCUE SYSTEMS

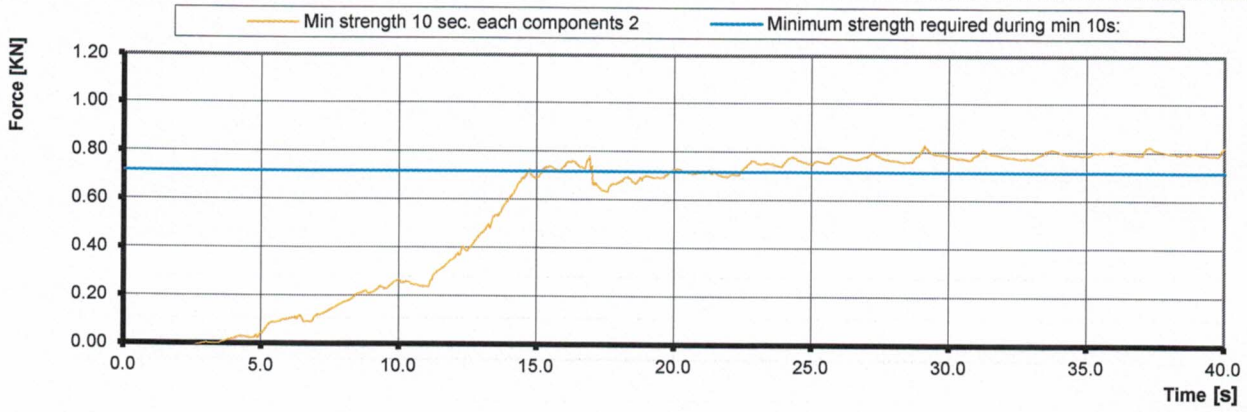
Test report number: **EP_141.2015**

GRAPHIQUE RESULTS

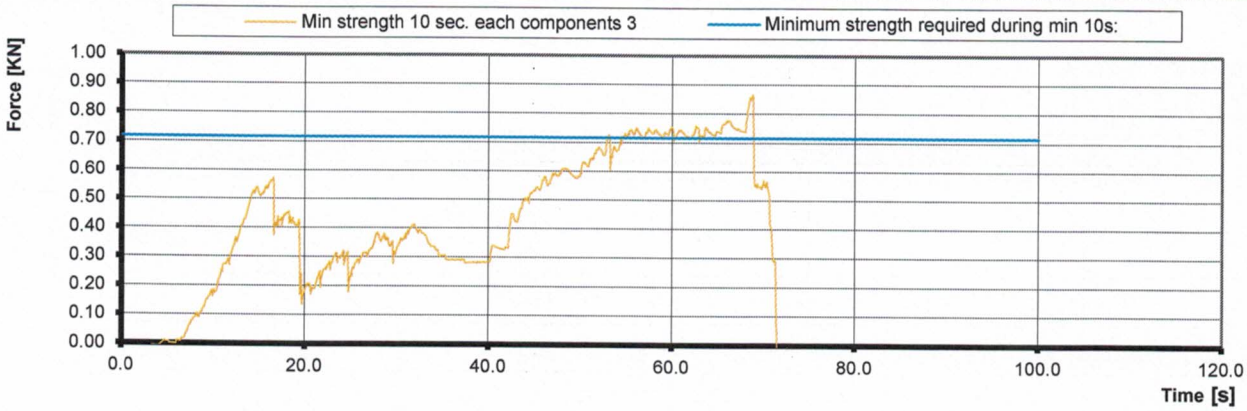
Min strength 10 sec. each components 1



Min strength 10 sec. each components 2



Min strength 10 sec. each components 3



Involved test	Item	Validity	Manufacturer	Type nr.	S/N
Deployment system strength test	Load Cell (axial)	11.06.2016	Burster / MTS	8431-10000	1185483
Deployment system strength test	Winch	15.01.2018	Arwin	300/600	n/a
Weather	Geos n° 11 Skywatc	08.05.2017	JDC elec.	Geos n° 11	22

Test Report generated automatically by AIR TURQUOISE SA, valid without signature

Speed of opening, descent rate and stability test

TEST REPORT EP 2

EP PARAGLIDERS RESCUE SYSTEMS

Test report number:	**EP_141.2015**

MANUFACTURER DATA

Manufacturer name:	**Pro-Design Hofbauer GmbH**
Representative	**Herbert Hofbauer**
Street:	**Zimmeterweg 4**
Post code / place:	**6020 Innsbruck**
Country:	**Austria**

SAMPLE DATA

Rescue systems manufacturers name:	**Oryon Cross**
Rescue systems manufacturers Size:	**1**
Rescue systems manufacturers max load (kg):	**120**
Manufacturers serial number flight :	**3760**
Date of sample received:	**04.11.2015**

ISSUE DATA

Place of test:	**Villeneuve**
Date of test: 1 I 2	**23.11.2015**
Inspector:	**CT**

ATMOSPHERE AGL	Test no1	ATMOSPHERE AGL	Test no2
[C°]	6	[C°]	n/a
RH [%]	62	RH [%]	n/a
[hPa]	976.1	[hPa]	n/a
Wind [m/s]	0.1	Wind [m/s]	n/a

Directive: **LTF 91/09** chapter 6

The rescue system is droped from a paraglider in straight flight at 8 [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 100 m of descent, the average rate of descent is measured over 30 m of descent.
The test is carried out twice.

RESULTS	EN	LTF
Sink rate results:	N/A	POSITIVE
Stability results:		POSITIVE
Speed opening results:		POSITVE
Max sink rate test requirements [m/s]		6.80
Sink rate test 1 [m/s] 1		6.46
Sink rate test 2 [m/s] 2		n/a
Behavior during descent		
Stability test 1 1		Stable
Stability test 2 2		
Requirement time from the instant of free drop until a load of 200 [N] is sustained [s]		5.00
Speed opening test 1 [s]		3.99
Speed opening test 2 [s]		n/a

Test Report generated automatically by AIR TURQUOISE SA, valid without signature

air turquoise sa
Route du PRE AU COMTE 8 | 1844 Villeneuve | Switzerland | para-test.com
Test laboratory for paragliders, paragliders harness and paragliders reserve parachutes

ISO 9001 BUREAU VERITAS Certification

DAkkS Deutsche Akkreditierungsstelle D-IS-19457-01-00

Speed of opening, descent rate and stability test - ref. A and B

TEST REPORT EP 2

EP PARAGLIDERS RESCUE SYSTEMS

Test report number: **EP_141.2015**

A. At horizontal airspeed 8 m/s and vertical speed 1.5 m/s

B. Formula to be used for correcting the test mass ofr differences from ICAO standard atmosphere

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

Sink rate test 1

Ground level atmospheric pressure at test location: (p)	**976.1**	[hPa]	RH [%]	**62**
ICAO standard atmospheric pressure at MSL: (po)	**1013.25**	[hPa]	Wind [m/s]	**0.1**
Ground level température at the test location: (T)	**6**	[C°]		
	279.15	[°K]		
ICAO standard temperature at MSL: (To)	**15**	[C°]		
	288.15	[°K]		
Total weight in flight: (mdec)	**120**	[kg]		
Corrected mass: (mcorr)	119.33	[kg]		
Corrected mass with uncertainty: (mcorr)	120.23	[kg]		
Time when pilot release rescue	**17.04**			
Time when weak link broke	**20.88**			
Speed opening (sec.):	**3.99**	[s]		
Time boil touch	**3.32**			
Time pilot touch	**8.12**			
Time between boil touch and pilot touch (30m)	**4.65**	[s]		
Sink rate:	**6.4581**	[m/s]		
Behaviour:	**Stable**			
Inspector:	**CT**			
Date of test :	**23.11.2015**			

Sink rate test 2 N/A

Ground level atmospheric pressure at the test location: (p)		[hPa]	RH [%]	
ICAO standard atmospheric pressure at MSL: (po)		[hPa]	Wind [m/s]	
Ground level température at the test location: (T)		[C°]		
		[°K]		
ICAO standard temperature at MSL: (To)		[C°]		
		[°K]		
Total weight in flight: (mdec)		[kg]		
Corrected mass: (mcorr)		[kg]		
Corrected mass with uncertainty: (mcorr)		[kg]		
Time when pilot release rescue				
Time when weak link broke				
Speed opening (sec.):		[s]		
Time boil touch				
Time pilot touch				
Time between boil touch and pilot touch (30m)		[s]		
Sink rate:		[m/s]		
Behaviour:				
Inspector:				
Date of test :				

Test Report generated automatically by AIR TURQUOISE SA, valid without signature

Descent rate and stability test - ref. A and B

TEST REPORT EP 2

PARAGLIDERS RESCUE SYSTEMS

Test report number: **EP_141.2015**

WEAK LINKS 1

WEAK LINKS 2

N/A

Involved test		Item	Validity	Manufacturer		Type nr.	S/N
Deployment system strength test		Weak links	2030	Tost		n/a	n/a
Descent rate and stability test		Line 30 meters	2020	Air Turquoise		n/a	n/a
Descent rate and stability test		Camecorder	2020	CANON		Legria HF G10	463440300907
Weather		Geos n° 11 Skywatch	08.05.2017	JDC elec.		Geos n° 11	22

Test Report generated automatically by AIR TURQUOISE SA, valid without signature

Strength test / opening shock

TEST REPORT EP 3

PARAGLIDERS RESCUE SYSTEMS

Test report number: **EP_141.2015**

MANUFACTURER DATA

Manufacturer name:	**Pro-Design Hofbauer GmbH**
Representative	**Herbert Hofbauer**
Street:	**Zimmeterweg 4**
Post code / place:	**6020 Innsbruck**
Country:	**Austria**

SAMPLE DATA

Name:	**Oryon Cross**
Size:	**1**
Max load [kg]:	**120**
Serial number flight:	**3760**
Date of reception:	**04.11.2015**

ISSUE DATA

Place of test:	**Illarsaz**	
Date of test: 1 I 2	**17.12.2015**	**17.12.2015**
Inspector:	**AZ**	
Results:	**POSITIVE**	

ATMOSPHERE AGL	Test no1	Test no2
[C°]	7.2	8.4
RH [%]	64	77
[hPa]	984.6	983.3
Wind [m/s]	0.6	1

Directive: **LTF 91/09** chapter 6

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.
Speed of opening must be less than 5 seconds and shock not exceeded 15g.

TEST RESULTS

Speed of opening in max 5 secondes	
Speed of opening test 1 [s]	**POSITIVE**
Speed of opening test 2 [s]	**POSITIVE**
Uncertainty K2 [s]	**0.15**
Sample statut after shock	
Strength test 40 m/s opening shock 1	**POSITIVE**
Strength test 40 m/s opening shock 2	**POSITIVE**
Uncertainty K2 [m/s]	**1.73**
Wink link statut after shock	
Wink link test 1	**POSITIVE**
Wink link test 2	**POSITIVE**
Uncertainty K2 [%]	**10**

Involved test	Item	Validity	Manufacturer	Type nr.	S/N
Strength test 40 m/s opening shock	Helicopter	Air-Glacier	Air-Glacier	Air-Glacier	Air-Glacier
Strength test 40 m/s opening shock	Weight	2020	Air Turquoise	n/a	n/a
Strength test 410m/s opening shock	Camecorder	2018	CANON	Legria HF G10	463440300907
Weather	Geos n° 11 Skywatch	08.05.2017	JDC elec.	Geos n° 11	22
Strength test 41 m/s opening shock	Wink links	2020	Tost	n/a	n/a

Test Report generated automatically by AIR TURQUOISE SA, valid without signature

Connecting strap

TEST REPORT EP 4

EP PARAGLIDERS RESCUE SYSTEMS

Test report number: **EP_141.2015**

MANUFACTURER DATA

Manufacturer name:	**Pro-Design Hofbauer GmbH**
Representative	**Herbert Hofbauer**
Street:	**Zimmeterweg 4**
Post code / place:	**6020 Innsbruck**
Country:	**Austria**

SAMPLE DATA

Name:	**Oryon Cross**
Size:	**1**
Max load [kg]:	**120**
Serial number flight:	**3760**
Date of reception:	**04.11.2015**

ISSUE DATA

Place of test:	**Illarsaz**
Date of test:	**21.12.2015**
Inspector:	**AZ**
Results:	**POSITIVE**

ATMOSPHERE AGL

[C°]	**21.8**
RH [%]	**42**
[hPa]	**1033.4**

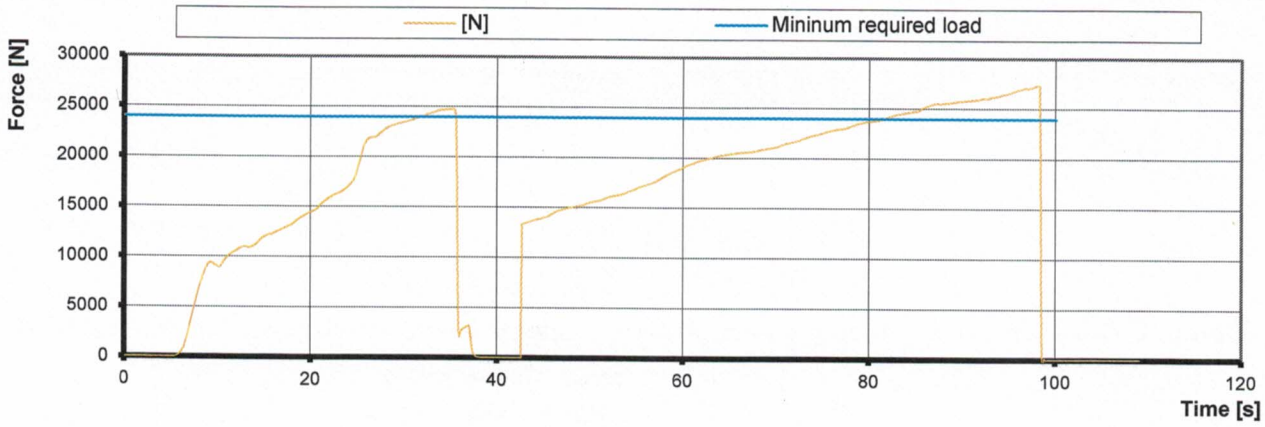
Directive: **LTF 91/09** chapter 6.1.4

The connecting strap is loaded at min 24000 [N] and must not break.

RESULTS [N]

Mininum required load	24000
Load capacity 1	27380
Uncertainty k2	116
Max STRENGTH	**27264**

GRAPHIQUE RESULTS [N]



Instruments	Manufacturer	Type nr.	Validity	S/N
Load sensor	HBM	1-S9M/50KN-1	14.10.2017	31314652
Geos n°11 Skywatch	JDC	Geos n° 11	07.04.2017	0022

Test Report generated automatically by AIR TURQUOISE SA, valid without signature

air turquoise sa
Route du PRE AU COMTE 8 | 1844 Villeneuve | Switzerland | para-test.com
Test laboratory for paragliders, paragliders harness and paragliders reserve parachutes

ISO 9001 BUREAU VERITAS Certification

DAkkS Deutsche Akkreditierungsstelle D-IS-19457-01-00

Measurement 50 [N]

MEASUREMENT REPORT EP 5

EP PARAGLIDERS RESCUE SYSTEMS

Test report number: **EP_141.2015**

MANUFACTURER DATA

Manufacturer name:	**Pro-Design Hofbauer GmbH**
Representative	**Herbert Hofbauer**
Street:	**Zimmeterweg 4**
Post code / place:	**6020 Innsbruck**
Country:	**Austria**

SAMPLE DATA

Name:	**Oryon Cross**
Size:	**1**
Max load [kg]:	**120**
Serial number flight:	**3760**
Date of reception:	**04.11.2015**

ISSUE DATA

Place of test:	**Illarsaz**
Date of test:	**11.11.2015**
Inspector:	**AZ**
According to manufacturer user manual	**POSITIVE**
Directive:	**n/a**

The rescue system lines are measured with 50[N] of tension. Center line and all types of mains lines are measured from attach point base until end of riser. Canopy dimensions are not measured. The rescue system is weighed with pod.
Dimentions are compare with users manual.

RESULTS

Center Line (average) [mm]	**5315**
Main Line (average of 5 pcs) 1 [mm]	**4903**
Main Line (average of 5 pcs) 2 [mm]	**4720**
Tolerance [mm]	**25**
Number of center lines:	**2**
Number of lines:	**20**
Weight [grame]	**1605**

Involved test	Item	Validity	Manufacturer	Type nr.	S/N
Line length measurements	laser distance meter	07.04.2017	Leica	DISTO D3a BT	911110352
Atmosphere	Geos n° 11 Skywatch	08.05.2017	JDC elec.	Geos n° 11	22

Test Report generated automatically by AIR TURQUOISE SA, valid without signature