**AIR TURQUOISE SA** | Route du PRE AU COMTE 8 | 1844 Villeneuve | Switzerland
Test laboratory for paragliders, paragliders harness and paragliders reserve parachutes

paragliding by air turquoise

# DECLARATION of CONFIRMITY

## PARAGLIDERS HARNESS — PH

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

European Standard **EN1651** September 1999
European Standard **EN12491** September 2001
Airworthiness requirements for hang gliders and paragliders **LTF 2009** as published in NfL 91/09

**Declaration conformity number:** PH_134.2015

## TEST SAMPLE DATA

| | |
|---|---|
| **Manufacturer name:** | SKY Paragliders a.s. |
| **Contact person:** | Martin Nemec |
| **Street:** | Okružní 39 |
| **Post code / place:** | 73911 Frýdlant nad Ostravicí |
| **Country:** | Czech Republic |
| **Harness manufacturer name:** | TWIN |
| **Harness manufacturer size:** | L |
| **Serial number of the test sample:** | 1955-33-0742 |
| **Harness type:** | ABS / Tandem pilot harness |
| **Maximum certified pilot weight (kg):** | 110 |
| **Harness protector type:** | n/a |
| **Harness weight (kg) :** | 1.7 |
| **Volume reserve parachute container (cm3)** | Min: 8000 Max: 12000 |
| **Atmosphere [°C] [Hum] [hPa]:** | 20.7; 37;1020.8 |
| **Test responsible:** | Alain Zoller |
| **Inspection place:** | Villeneuve |
| **Sample reception date:** | 17.04.2015 |
| **Place of declaration:** | Villeneuve |
| **Date of issue:** | 15.05.2015 |
| **Director management:** | Alain Zoller |
| **Signature:** | |

**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.**

Declaration conformity number: **PH_134.2015**

## A. STRUCTURAL STRENGHT TESTS

A test plan was set up in order to execute the different tests in an efficient order. The table below summarizes this test plan together with .the applicable standards and results

| Test ID | TESTED ? | Standard Ref. | | TEST setup | Anchoring | | Forces | | Min. Test duration [sec] | Result |
|---|---|---|---|---|---|---|---|---|---|---|
| | | EN 1651 | LTF | | Attach -ment points | Dummy | Req. Load in g | Min. force [N] | | |
| **R0** | ✓ | 5.3.2.1 | | Default flying position | 2 main attachment points | Hip fixated | 6g | 6000 | 10 | POSITIV |
| **R1** | | | 4.2.1.a | | | | 9g | 9000 | | n/a |
| **R2** | ✓ | 5.3.2.2 | | | | | 15g | 15000 | 5 | POSITIV |
| **R3** | | | 4.2.1.b | Default, landing position | 2 main att. points | Hip fixated, | 6g | 6000 | 10 | n/a |
| **R4** | ✓ | 5.3.2.7 | | | | landing conf. | 15g | 15000 | 5 | POSITIV |
| **R5** | | | 4.2.1.a rescue | Rescue | 2 rescue att. Pnts. | Hip fixated | 9g | 9000 | 10 | n/a |
| **R6** | | 5.3.2.4 | | | | | 15g | 15000 | 5 | n/a |
| **R7** | | | 4.2.1.b rescue | Rescue, landing | | Hip fixated, landing conf. | 6g | 6000 | 10 | n/a |
| **R8** | ✓ | 5.3.2.3 | | One riser | ONE main att. | 1 central hip fixation | 6g | 6000 | 10 | POSITIV |
| **R9** | | | 4.2.1.d | Towing | 2 main att. + 2 tow att. | None | 3g | 3000 | 10 | n/a |
| | | 5.3.2.5 | | | | | 5g | 5000 | | |
| **R10** | ✓ | 5.3.2.6 | | Default, Negatif | One main att. | Head fix. | 4.5g | 4500 | 10 | POSITIV |
| **R11** | | | 4.2.1.c | Upside down | 2 main att. downw. | Head fix. | 6g | 6000 | 10 | n/a |
| **R12** | | | 4.2.1.c rescue | Upside down rescue | 2 rescue att. downw. | | 6g | 6000 | 10 | n/a |

**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.**

Declaration conformity number: **PH_134.2015**

## B. PARAGLIDER HARNESS BACK PROTECTORS

Shock impact tests have to be executed on these harnesses in order to prove the damping characteristics of it.Most paraglider harnesses .are equipped with a protection device that damps the shock on the pilot's spine during a hard landing

| Test ID | TESTED ? | Standard Ref.: LTF | TEST setup | Anchoring | | Impact | | | | Result |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Attach-ment points | Dummy | Max. tolerated peak impact in g | Max Peak impact measured | Impact duration of +38 g (if any) recorded: | Impact duration of +20 g (if any) recorded: | |
| **PRO TECT 1** | | 5.1.1 | **Default flying position** | Test dummy is attached to the harness like a pilot in flight. +20-25° | | +50g | | | | **n/a** |
| **PRO TECT 1** | | 5.1.1 | **Default flying position** | Test dummy is attached to the harness like a pilot in flight. +20-25° with rescue | | +50g | | | | **n/a** |
| **PRO TECT 1** | | 5.1.1 | **Default flying position** | Test dummy is attached to the harness like a pilot in flight. -5-10° | | +50g | | | | **n/a** |
| **PRO TECT 1** | | 5.1.1 | **Default flying position** | Test dummy is attached to the harness like a pilot in flight. -5-10° with rescue | | +50g | | | | **n/a** |

## C. RESCUE DEPLOYMENT RESISTANCE TEST

The deployment of the rescue system has to be ensured in all circumstances of flight. This test is to verify whether the force needed to deploy is in between reasonable limits

| **Test ID** | **TESTED ?** | **Standard Ref. LTF** | **TEST setup** | **Anchoring** | | **Force for single hand deployment** | | | **Result** |
|---|---|---|---|---|---|---|---|---|---|
| | | | | **Attach-ment points** | **Dummy** | **Min. force [N]** | **Max. force [N]** | **Resistance measured** [N] | |
| **RRDT** | ✓ | 6.1.5 | **Default flying position** | Test responisble is attached to the harness like a pilot in flight. (no dummy required) | | 20 N | 70 N | 50.0 | POSITIV |

## D. RESCUE DEPLOYMENT STRAP STRENGHT TEST

The connection between handgrip and inner container has to have sufficient load capacity/structural strength in any situation that may arise .during normal use. During this test is verified, whether this connection fulfill the requirements

| **Test ID** | **TESTED ?** | **Standard Ref.** | | **TEST setup** | **Minimum force [N]** | **Min. Test duratio [s]** | **Breaking resistance measured** [N] | **Result** |
|---|---|---|---|---|---|---|---|---|
| | | **LTF** | **EN 12491** | | | | | |
| **RRST** | ✓ | 6.1.8 | 5.3.2 | **Connection strap in tensile testing machine** | 700N | 10 | 1438.0 | POSITIV |

**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.**

End of declaration

# INSPECTION REPORT

PH_134.2015

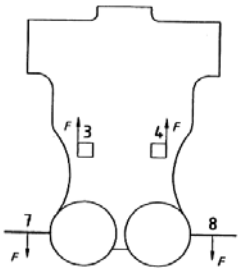
## HARNESS STRUCTURAL STRENGHT TEST — Test ID 0

**Manufacturer name:** SKY Paragliders a.s.
**Harness manufacturer name:** TWIN
**Test place & date:** Villeneuve
**Test responsible:** Alain Zoller
**Atmosphere [°C] [Hum] [hPa]:** 20.7; 37;1020.8
**Maximum certified pilot weight [kg]:** 110

### Standard — EN 1651

**Test standard §:** 5.3.2.1 (EN)
**Test setup:** Default flying position

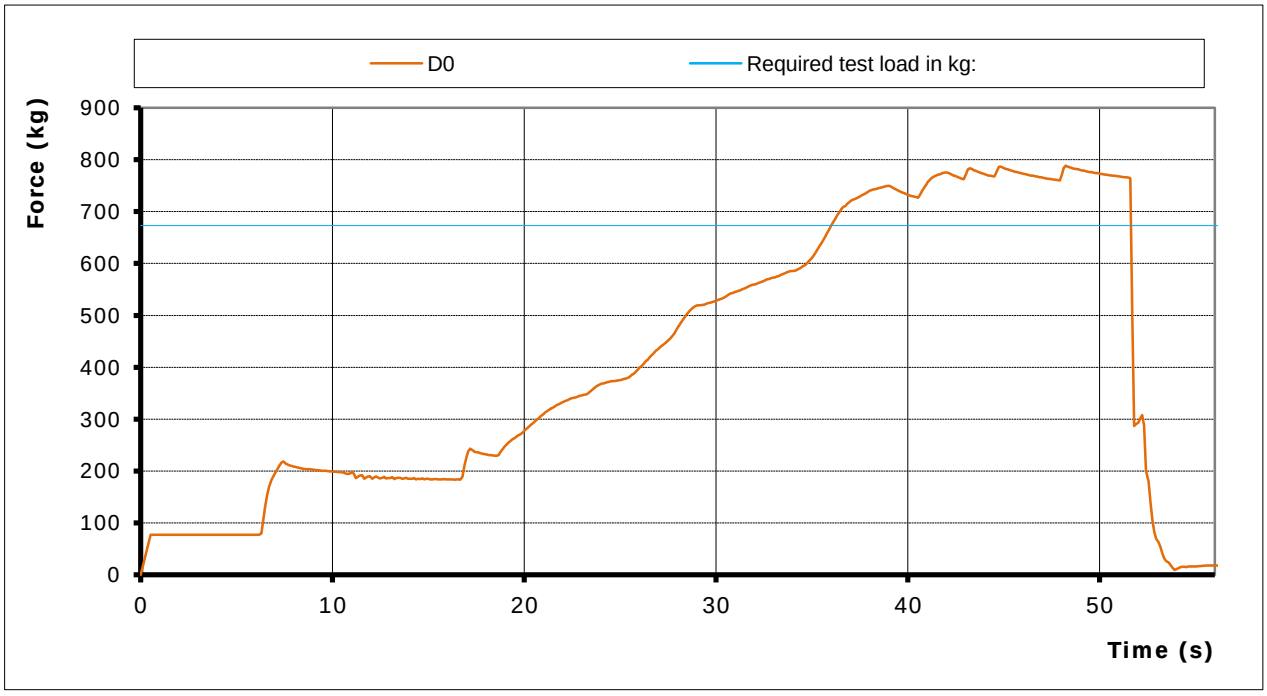
**Anchoring:**
**Attachment points:** Both main riser attachments (3, 4)
**Dummy:** Default, hip fixed (7, 8)




**Required load in g :** 6
**Minimum load [N]:** 6000
**Required test load in kg:** 673
**Min. duration [s]:** 10

### Results

**Duration of maintained min. load [s]:** 14.82
**Any signs of structural failure after this test:** No visible failure
**Test result:** POSITIV
**Graph:** D0



# INSPECTION REPORT

PH_134.2015

## HARNESS STRUCTURAL STRENGHT TEST

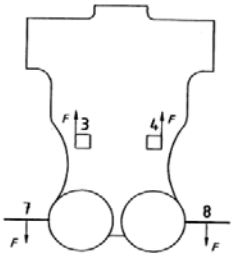
**Test ID 2**

**Manufacturer name:** SKY Paragliders a.s.
**Harness manufacturer name:** TWIN
**Test place & date:** Villeneuve
**Test responsible:** Alain Zoller
**Atmosphere [°C] [Hum] [hPa]:** 20.7; 37;1020.8
**Maximum certified pilot weight [kg]:** 110

### Standard

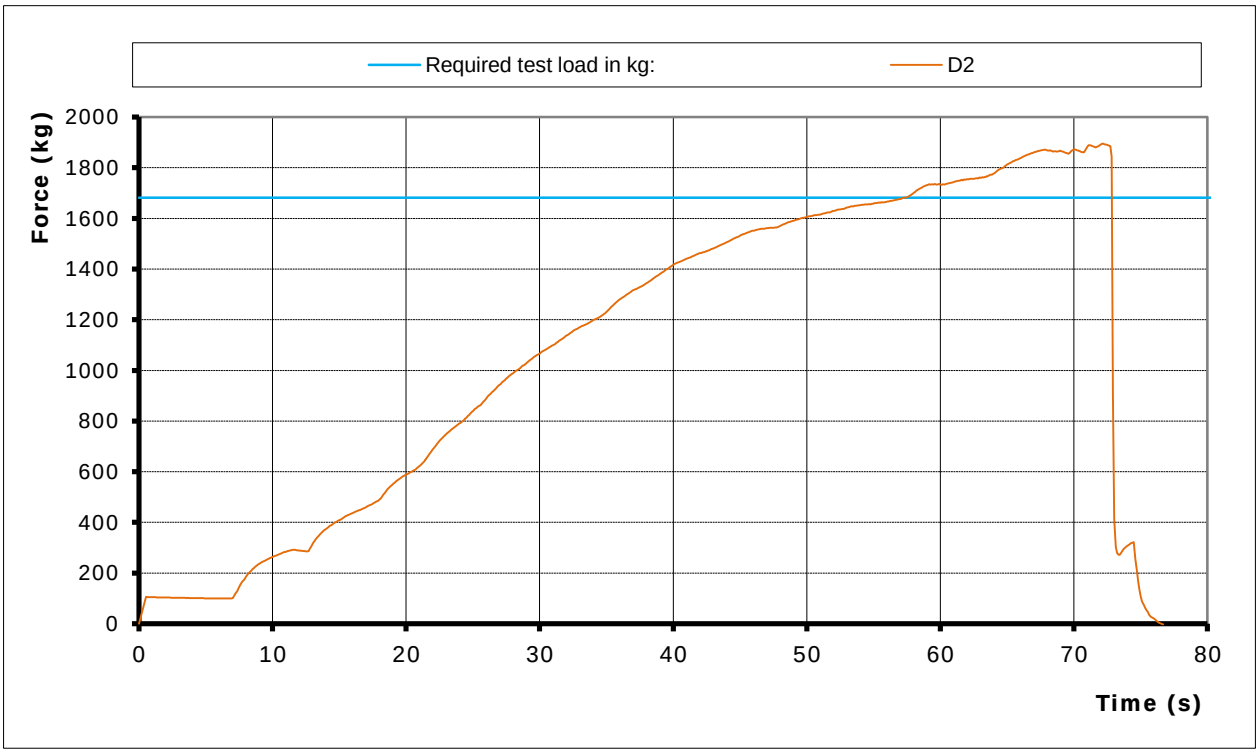
EN 1651

**Test standard §:** 5.3.2.2
**Test setup:** Default flying position
**Anchoring:** **Attachment points:** Both main riser attachments (3, 4)
**Dummy:** Default, hip fixed (7, 8)
**Required load in g:** 15
**Min load [N]:** 15 000
**Required test load in kg:** 1682
**Min. duration [s]:** 5




### Results

**Duration of maintained min. load [s]:** 14.19
**Any signs of structural failure after this test:** No visible failure
**Test result:** POSITIV
**Graph:** D2



# INSPECTION REPORT

PH_134.2015

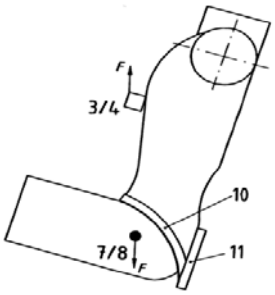
## HARNESS STRUCTURAL STRENGHT TEST — Test ID 4

**Manufacturer name:** SKY Paragliders a.s.
**Harness manufacturer name:** TWIN
**Test place & date:** Villeneuve
**Test responsible:** Alain Zoller
**Atmosphere [°C] [Hum] [hPa]:** 20.7; 37;1020.8
**Maximum certified pilot weight [kg]:** 110

### Standard EN 1651

**Test standard §:** EN 5.3.2.7

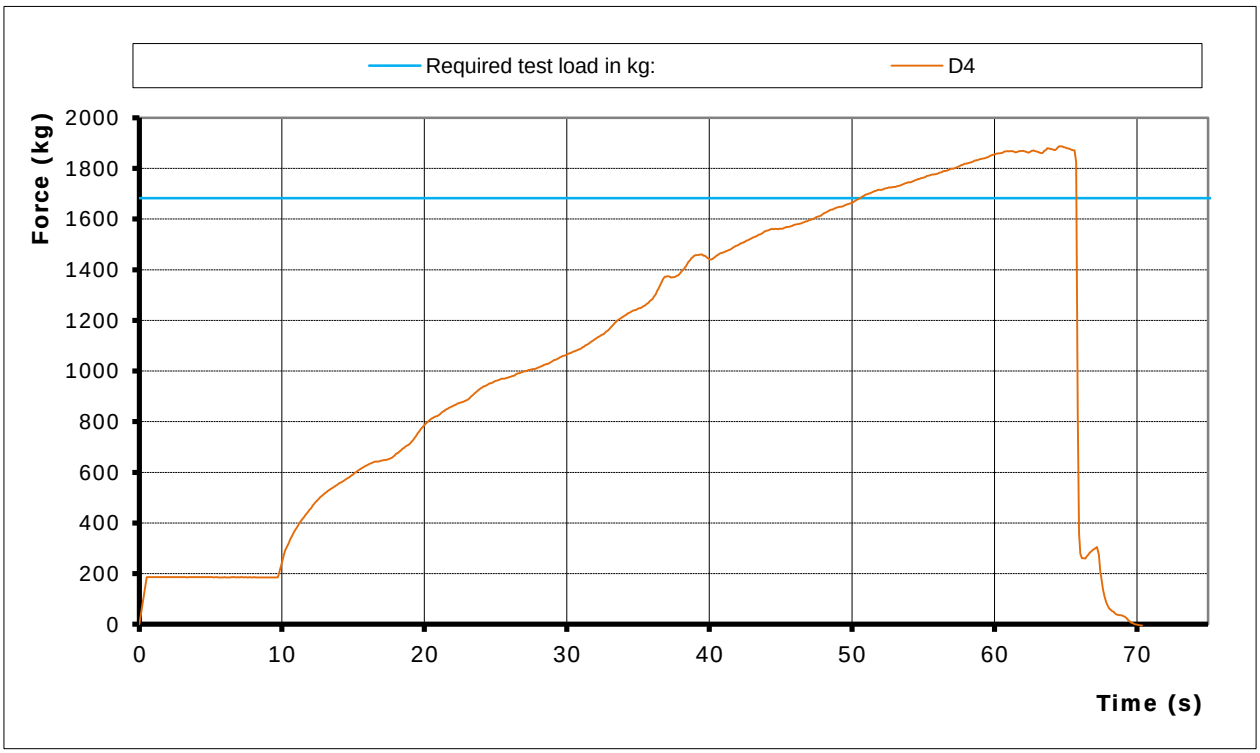
**Anchoring:**
**Test setup:** Flying position before landing: seat board (11) in landing position, leg straps (10) closed.
**Attachment points:** Both of the main riser attachments attached (3 and 4);




**Dummy:** Default, hip fixed (7, 8)
**Required load in g:** 15
**Min load [N]:** 15000
**Required test load in kg:** 1682
**Min. duration [s]:** 5

### Results

**Duration of maintained min. load [s]:** 13.28
**Any signs of structural failure after this test:** No visible failure
**Test result:** POSITIV
**Graph:** D4



# INSPECTION REPORT

PH_134.2015

## HARNESS STRUCTURAL STRENGHT TEST

## Test ID 8

**Manufacturer name:** SKY Paragliders a.s.
**Harness manufacturer name:** TWIN
**Test place & date:** Villeneuve
**Test responsible:** Alain Zoller
**Atmosphere [°C] [Hum] [hPa]:** 20.7; 37;1020.8
**Maximum certified pilot weight [kg]:** 110

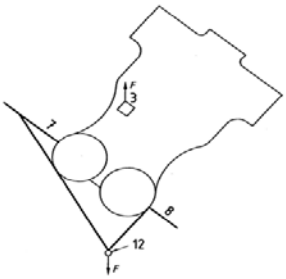
### Standard EN 1651

**Test standard §:** 5.3.2.3

**Test setup:** Only one riser attached

**Anchoring:**
**Attachment points:** One main riser attachments (3)

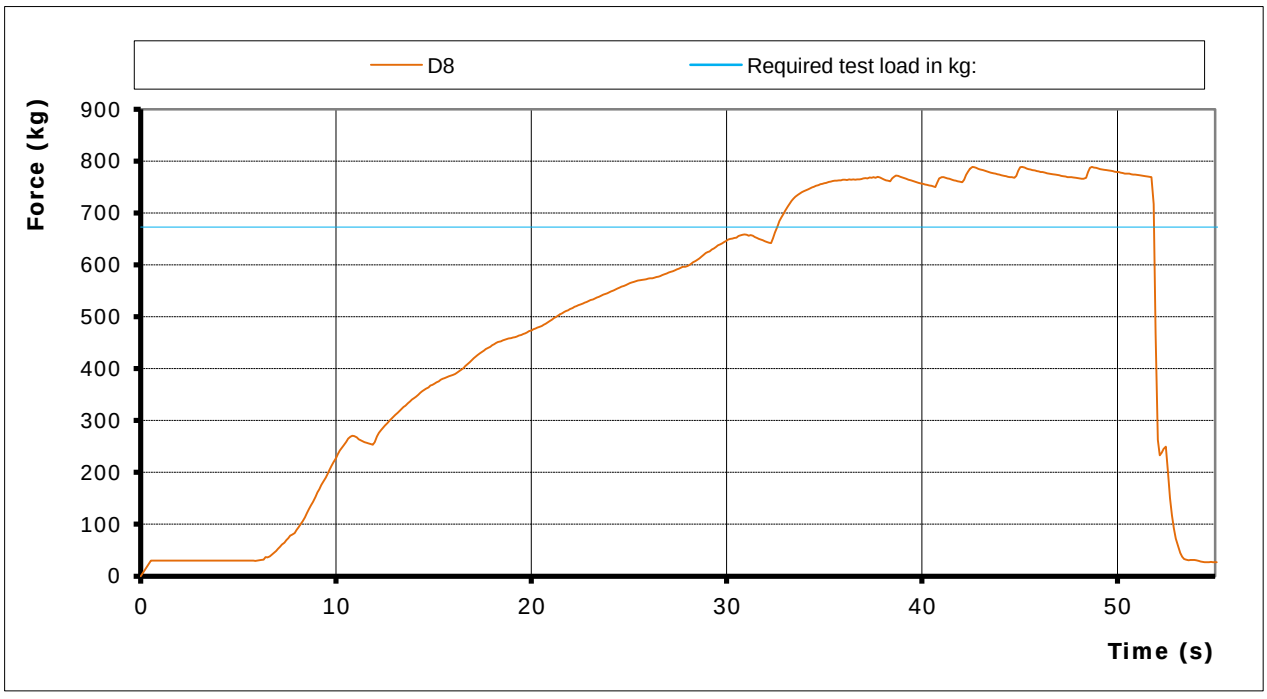
**Dummy:** Hip fixed (7, 8 -> 12)




**Required load in g:** 6
**Min load [N]:** 6000
**Required test load in kg:** 673
**Min. duration [s]:** 10

### Results

**Duration of maintained min. load [s]:** 18.72
**Any signs of structural failure after this test:** No visible failure
**Test result:** POSITIV
**Graph:** D8



# INSPECTION REPORT

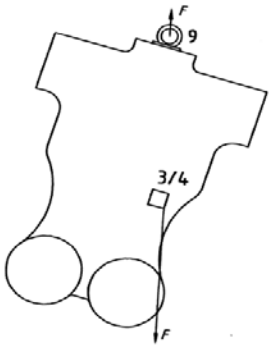
PH_134.2015

## HARNESS STRUCTURAL STRENGHT TEST — Test ID 10

**Manufacturer name:** SKY Paragliders a.s.
**Harness manufacturer name:** TWIN
**Test place & date:** Villeneuve
**Test responsible:** Alain Zoller
**Atmosphere [°C] [Hum] [hPa]:** 20.7; 37;1020.8
**Maximum certified pilot weight [kg]:** 110

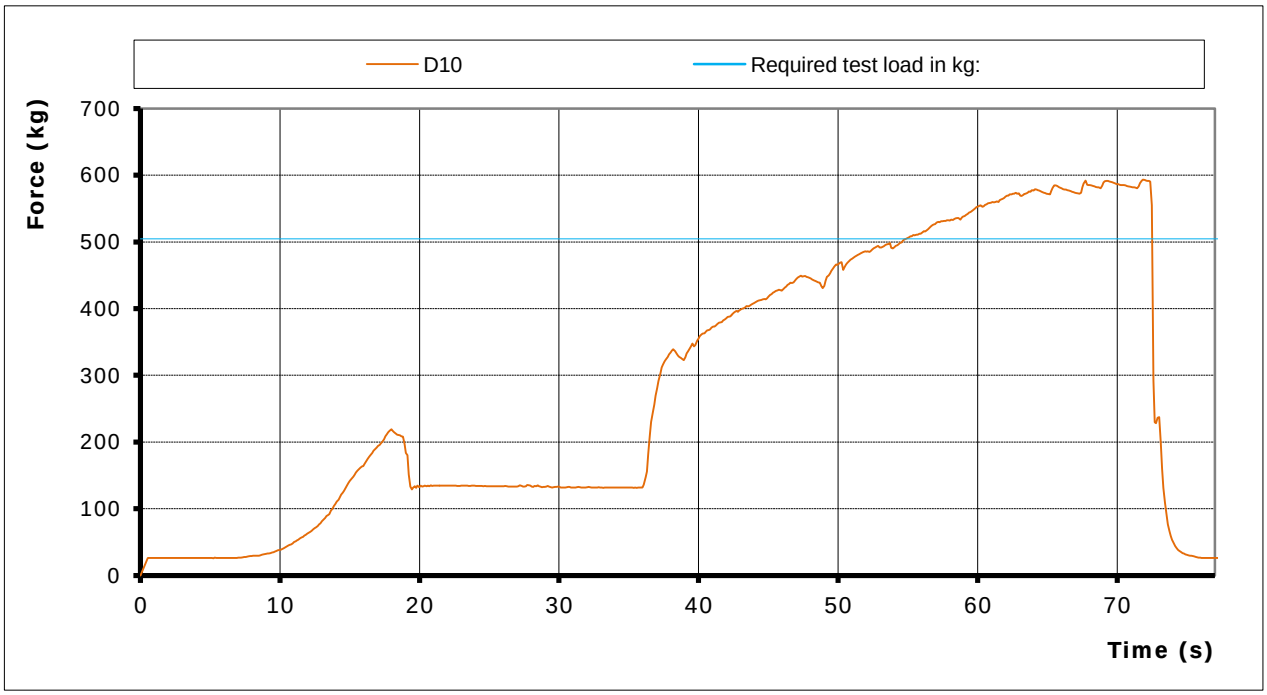
### Standard — EN 1651

**Test standard §:** 5.3.2.6
**Test setup:** Normal flying position in NEGATIF
**Anchoring:**
**Attachment points:** ONE of the main riser attachments attached downwards(3 or 4);
**Dummy:** Dummy anchored at the head position (9)
**Required load in g:** 4.5
**Min load [N]:** 4500
**Required test load in kg:** 505
**Min. duration [s]:** 10




### Results

**Duration of maintained min. load [s]:** 13.00
**Any signs of structural failure after this test:** No visible failure
**Test result:** POSITIV
**Graph:** D10



# INSPECTION REPORT

PH_134.2015

## Rescue deployment resistance test

## Test ID resc depl

**Manufacturer name:** SKY Paragliders a.s.

**Harness manufacturer name:** TWIN

**Test place & date:** Villeneuve

**Test responsible:** Alain Zoller

**Atmosphere [°C] [Hum] [hPa]:** 20.7; 37;1020.8

**Maximum certified pilot weight [kg]:** 110

**Standard** Nfl II 91 / 09

**Test standard §:** 6.1.5

The deployment of the rescue system has to be ensured in all circumstances, especially with a damaged glider.

The pilot has to be able to deploy the rescue chute with a single pull out of the outer container, single handed and in an anatomical favorable direction.

In order to simulate this, the test responsible deploys the rescue seated in the harness. In a similar way as in real flight. The deployment resistance is approximately measured by the load cell, which is placed between the hand of the test responsible and the rescue hand grip.

On the other hand inadvertent deployment has to be fairly remote. Therefore a shear link has to withstand a minimum load.

**Requirements [kN]:** 0.07

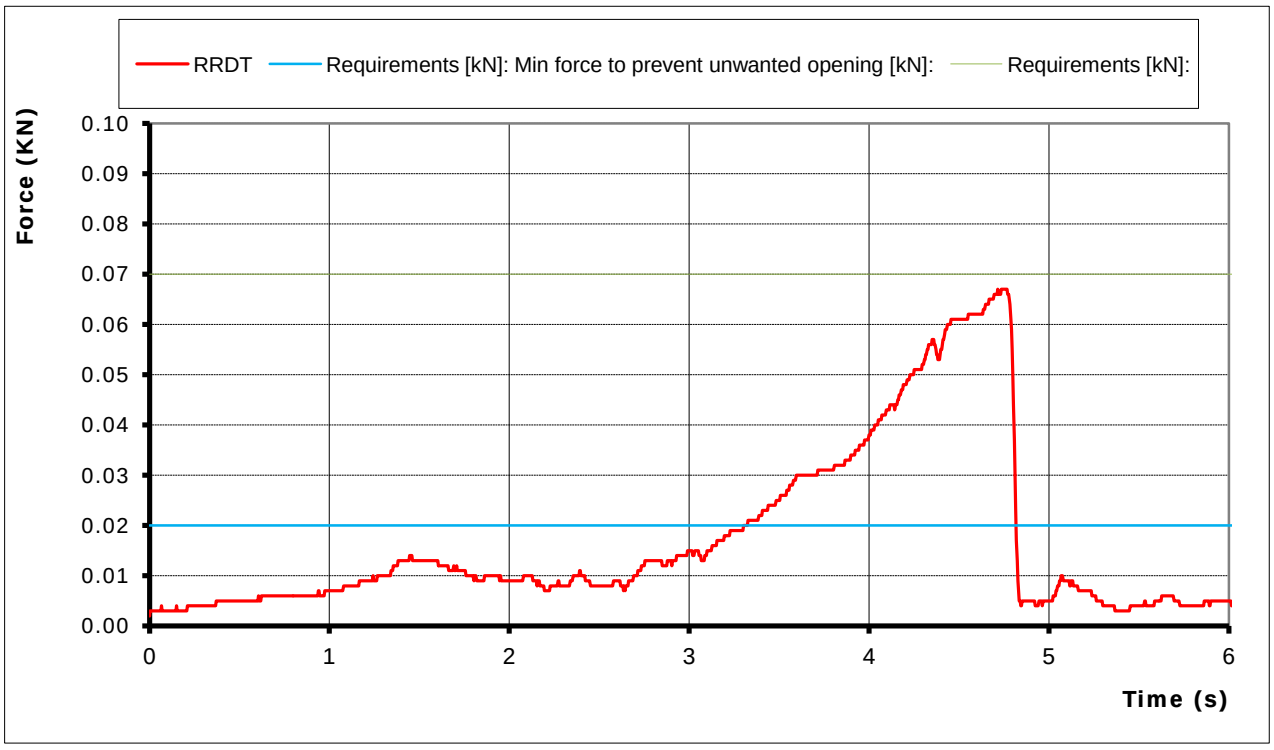
**Min force to prevent unwanted opening [kN]:** 0.02

**Measured peak to peak required force for deployment [kN]:**

**Test result 20 N:** POSITIV

**Test result 70 N:** POSITIV

**Graph:** RRDT



# INSPECTION REPORT

PH_134.2015

## Rescue deployment strap strength test

## Test ID resc strap

**Manufacturer name:** SKY Paragliders a.s.

**Harness manufacturer name:** TWIN

**Test place & date:** Villeneuve

**Test responsible:** Alain Zoller

**Atmosphere [°C] [Hum] [hPa]:** 20.7; 37;1020.8

**Maximum certified pilot weight [kg]:** 110

**Standard** EN 12491 & Nfl II 91 / 09

**Test standard §:** 5.3.2 (EN 12491) & 6.1.8 (LTF)

**Test setup:** The handgrip of the outer container has to be connected to the inner container with a removable loop in a way that it is possible to use the inner container with different types of outer containers.

The connection between handgrip and inner container has to have sufficient load capacity/structural strength in any situation that may arise during normal operation.

In order to verify this, the connection is tested on its tensile strength by a default tensile testing setup.

In addition to this the breaking resistance will also be measured.

**Requirements[kN]:** 0.7

**Requirements[s]:** 10

### Results

**Duration of maintained load [s]:** 1544.12

**Breaking resistance [KN]:** 1.44

**Test result:** POSITIV

**Graph:** RRST