

# Harness Structural test Report - NfL

Inspection certificate number: PH\_465.2025

## Manufacturer data:

Manufacturer name: **BGD GmbH**  
 Representative: **Bruce Goldsmith**  
 Street: **Am Gewerbepark 11**  
 Post code place: **9413 St-Gertraud**  
 Country: **Austria**

## Sample data:

Name: **WRAP**  
 Type: **ABS**  
 Size: **M**  
 Serial number: **119 - 1027 - 0001**  
 Impact pad type: <sup>(1)</sup> **Airbag**  
 Clip-in weight [kg]: **120**  
 Integrated container: **Yes**

Date of test: **17.09.2019**

## Atmosphere AGL:

|        |              |
|--------|--------------|
| [C°]   | <b>23.5</b>  |
| RH [%] | <b>56</b>    |
| [hPa]  | <b>974.4</b> |

## Summary of Structural test

| Test id | - | EN 1651:1999 | Setup                          | Req. Load [g] | Req. Load [N] | Min. duration [s] | Result   |
|---------|---|--------------|--------------------------------|---------------|---------------|-------------------|----------|
| 02      | ✓ | 5.3.2.1      | Default flying position        | 6             | 7200          | 10                | POSITIVE |
| 03      | ✓ | 5.3.2.2      | Default flying position        | 15            | 18000         | 5                 | POSITIVE |
| 04      | ✓ | 5.3.2.3      | Asymmetric, one riser          | 6             | 7200          | 10                | POSITIVE |
| 07      | ✓ | 5.3.2.6      | Asymmetric, negative           | 4.5           | 5400          | 10                | POSITIVE |
| 09      | ✓ | 5.3.2.4      | Rescue attachments             | 15            | 18000         | 5                 | POSITIVE |
| 13      | ✓ | 5.3.2.7      | Flying position before landing | 15            | 18000         | 5                 | POSITIVE |
| 14      |   | 5.3.2.5      | Towing                         | 5             | 6000          | 10                | n/a      |

## Rescue deployment test

| Test id | - | NfL 2-565-20 | Setup                   | Min load [N] | Max. load [N] | Measured [N] | Result   |
|---------|---|--------------|-------------------------|--------------|---------------|--------------|----------|
| RRDT    | ✓ | 6.1.5        | Default flying position | 20           | 70            | 38.80        | POSITIVE |

## Rescue Deployment Handle strength test

| Test id | - | EN 12491 | Setup                    | Req. Load [N] | Min. duration [s] | Breaking strength [N] | Result   |
|---------|---|----------|--------------------------|---------------|-------------------|-----------------------|----------|
| RRST    | ✓ | 5.3.2    | Two end points of handle | 700           | 10                | 1226.67               | POSITIVE |

## Rescue deployment test with integrated container for rescue system

| Test id | - | NfL 2-565-20 | Setup                                      | Result |
|---------|---|--------------|--------------------------------------------|--------|
| RDIC    |   | 4.3.2-4.3.6  | Release of the container at maximum volume | n/a    |

| Manufacturer  | Instrument           | Type no            | S/N      | Validity   |
|---------------|----------------------|--------------------|----------|------------|
| HBM           | Load Sensor GE01     | 1-S9M/50KN-1       | 31314643 | 23.08.2028 |
| Burster / MTS | Load sensor 10kN SL2 | 8431-6010-N000S000 | 593507   | 23.08.2028 |
| JDC elec      | Geos n°11 Skywatch   | Geos n°11          | Unit11   | 18.06.2025 |

Air Turquoise SA, has thoroughly tested the sample mentioned above and certifies its conformity with the following standards:

NfL 2-565-20, EN12491:2015 and EN1651:1999

The validation of this test report is given by the signature of the test manager on the Inspection Certificate no 94.20a

<sup>(1)</sup> If Impact pad available, see test report no. 94.22 and inspection certificate no. 94.20a

Calculated values in tests reports 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 measurand lies within the assigned range of values with a probability of 95%.

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Inspection certificate number: **PH\_465.2025**

model: **WRAP**

## Harness Structural test

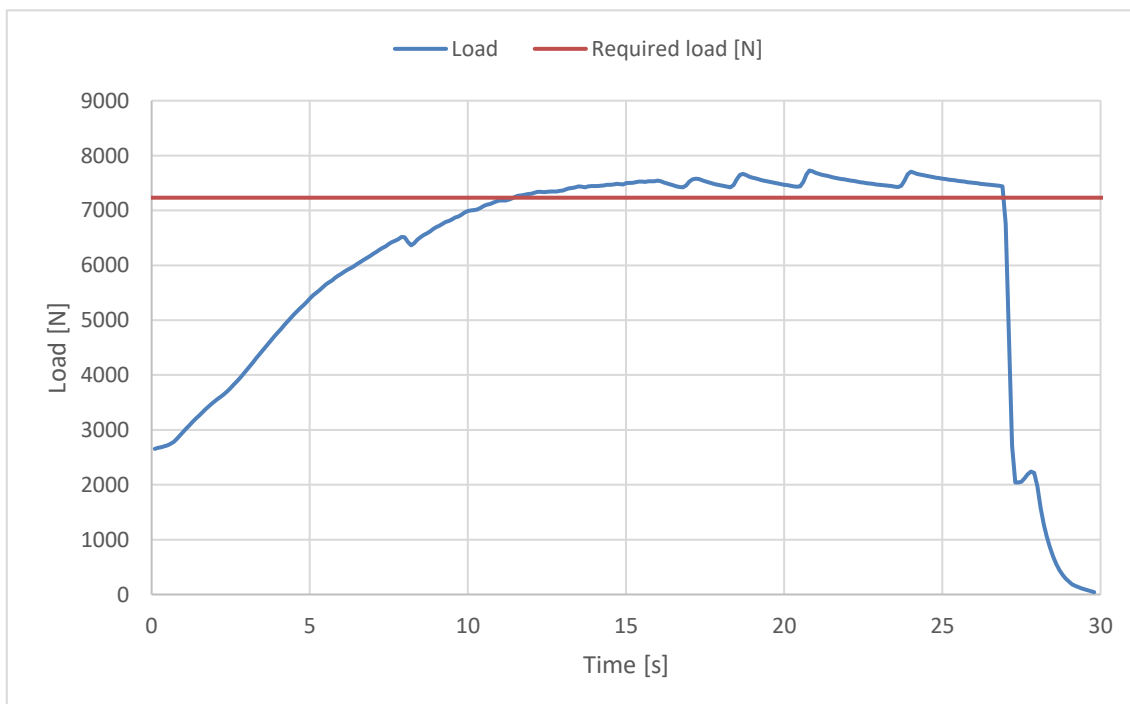
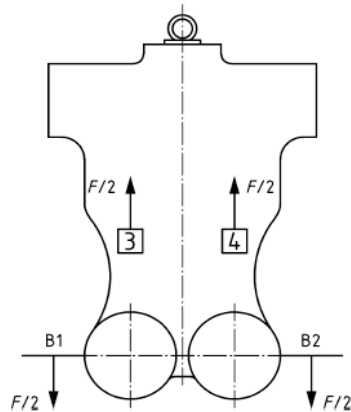
Test ID 02

Standard **EN 1651:1999**  
Reference **5.3.2.1**  
Test setup **Default flying position**  
Attachment points **Both main riser attachment (3,4)**  
Anchor points **Dummy (B1, B2)**

Required load [g] **6**  
Required load [N] **7200**  
Minimum test duration [s] **10**

## Result

Test duration [s] **15.5**  
Any signs of structural failure **No**  
Test results **POSITIVE**



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model: **WRAP**

### Harness Structural test

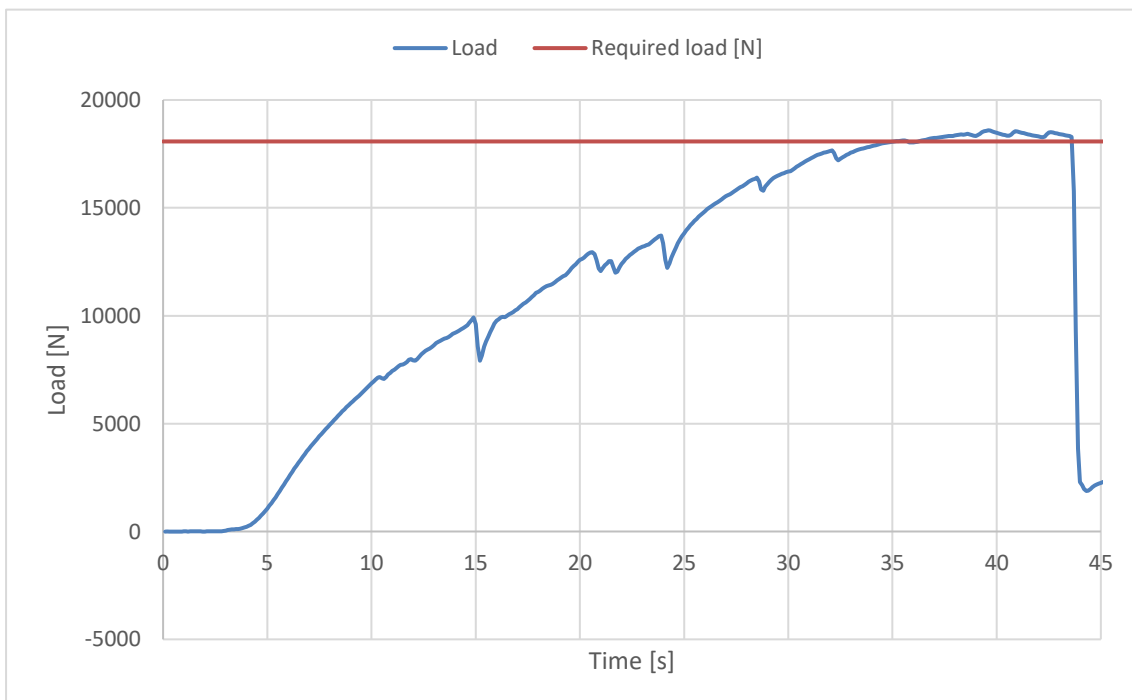
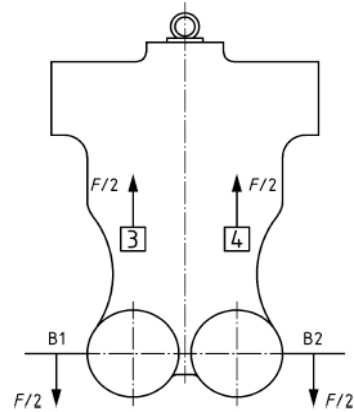
Test ID 03

Standard **EN 1651:1999**  
Reference **5.3.2.2**  
Test setup **Default flying position**  
Attachment points **Both main riser attachment (3,4)**  
Anchor points **Dummy (B1, B2)**

Required load [g] **15**  
Required load [N] **18000**  
Minimum test duration [s] **5**

### Result

Test duration [s] **7.4**  
Any signs of structural failure **No**  
Test results **POSITIVE**



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### Harness Structural test

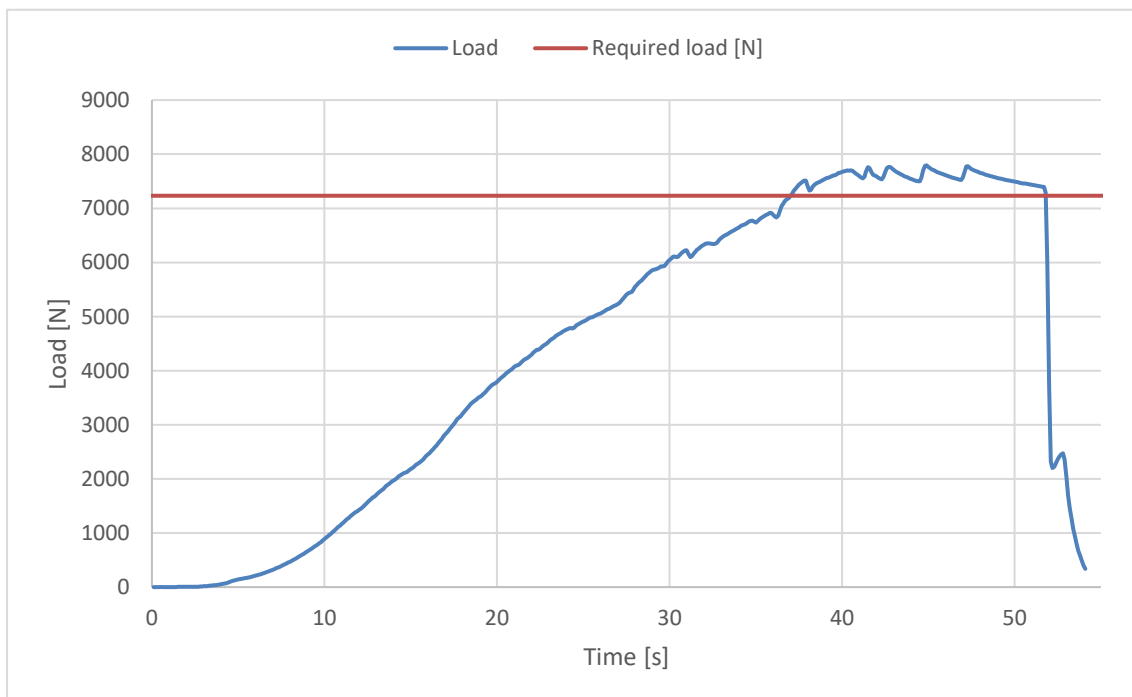
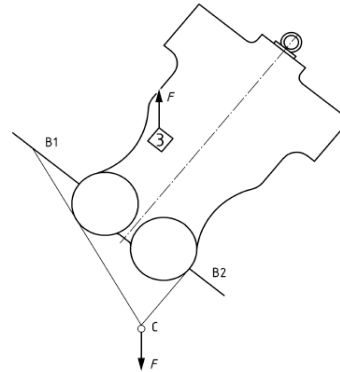
Test ID 04

Standard **EN 1651:1999**  
Reference **5.3.2.3**  
Test setup **Asymmetric, one riser**  
Attachment points **One main riser attachment (3)**  
Anchor points **Dummy (B1,B2)**

Required load [g] **6**  
Required load [N] **7200**  
Minimum test duration [s] **10**

### Result

Test duration [s] **14.8**  
Any signs of structural failure **No**  
Test results **POSITIVE**



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### Harness Structural test

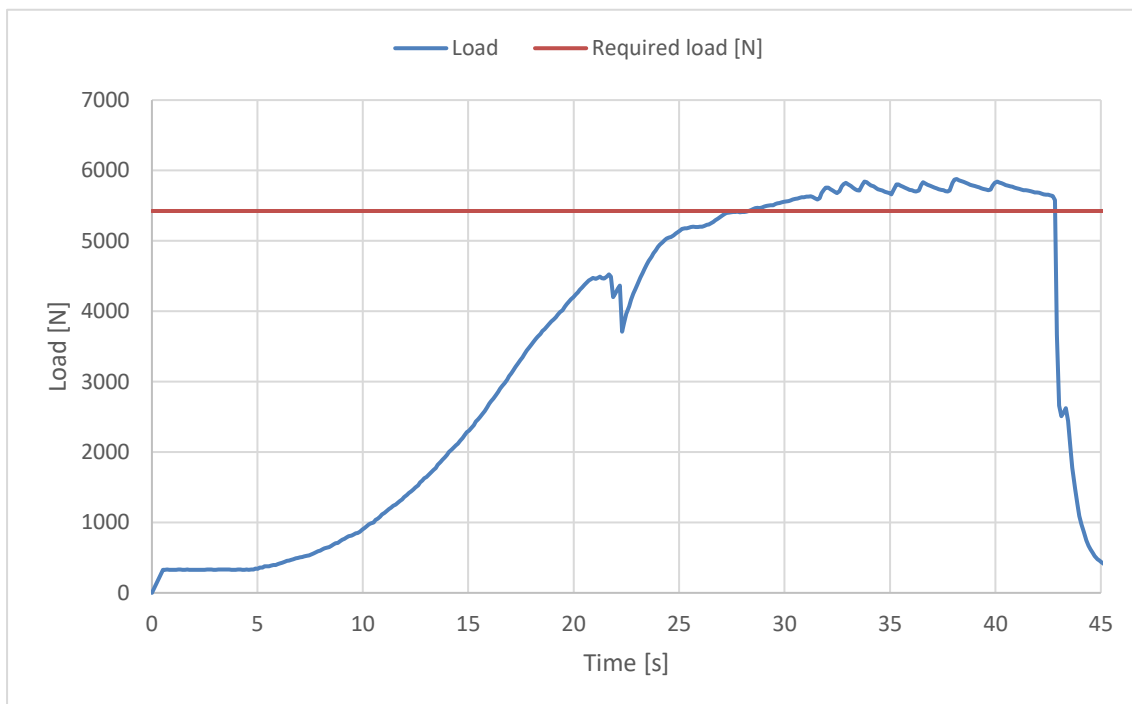
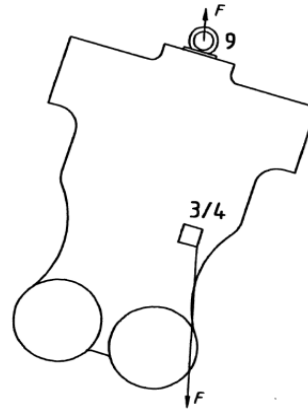
Test ID 07

Standard **EN 1651:1999**  
Reference **5.3.2.6**  
Test setup **Asymmetric, negative**  
Attachment points **One main riser attachment (3 or 4) downwards**  
Anchor points **Dummy (9)**

Required load [g] **4.5**  
Required load [N] **5400**  
Minimum test duration [s] **10**

### Result

Test duration [s] **13.7**  
Any signs of structural failure **No**  
Test results **POSITIVE**



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### Harness Structural test

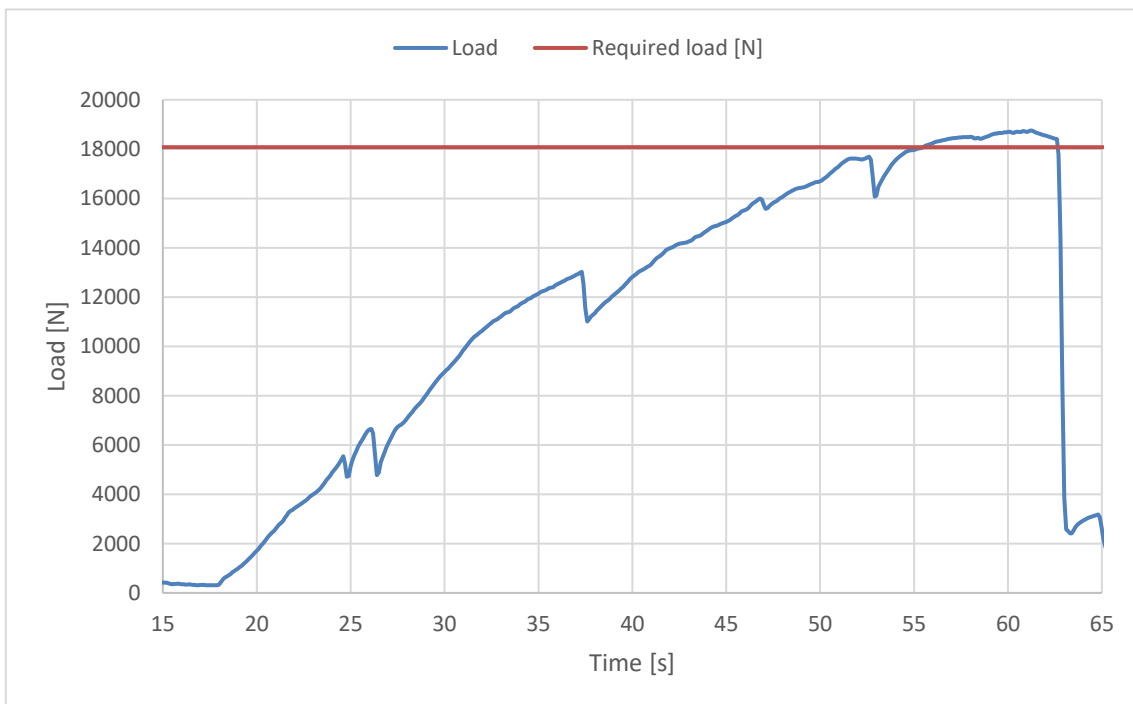
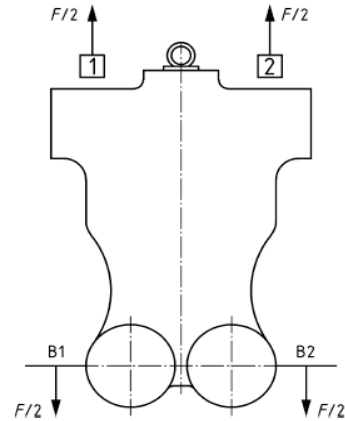
Test ID 09

Standard **EN 1651:1999**  
Reference **5.3.2.4**  
Test setup **Rescue attachments**  
Attachment points **Rescue riser attachment (1,2)**  
Anchor points **Dummy (B1,B2)**

Required load [g] **15**  
Required load [N] **18000**  
Minimum test duration [s] **5**

### Result

Test duration [s] **7.2**  
Any signs of structural failure **No**  
Test results **POSITIVE**



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## Harness Structural test

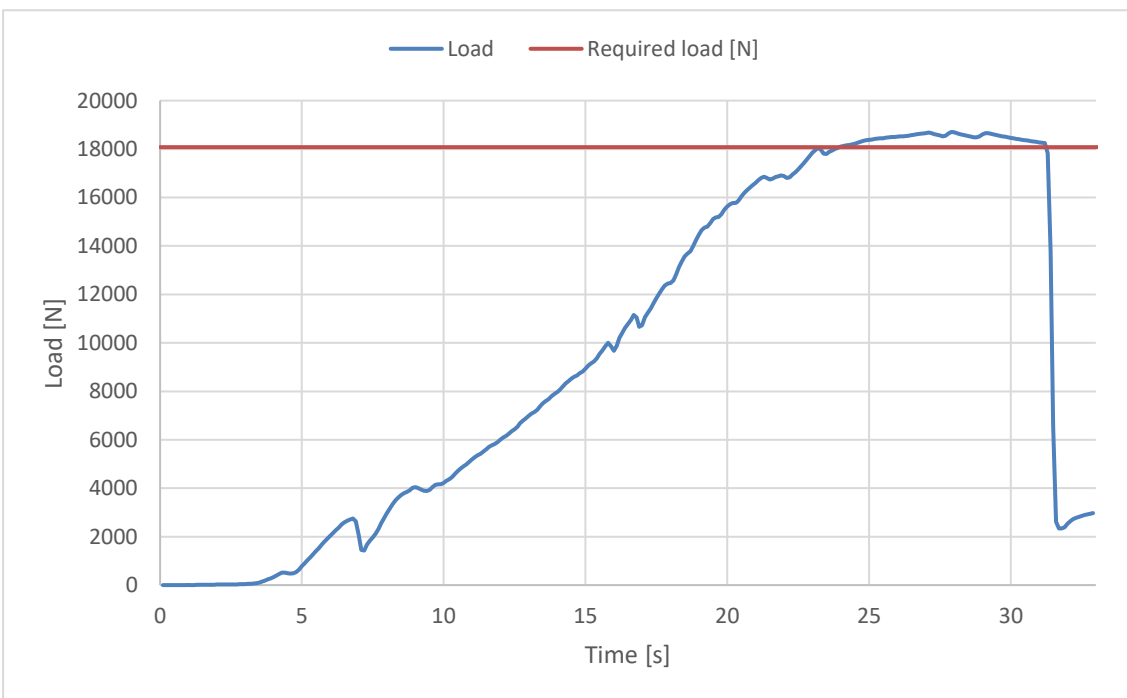
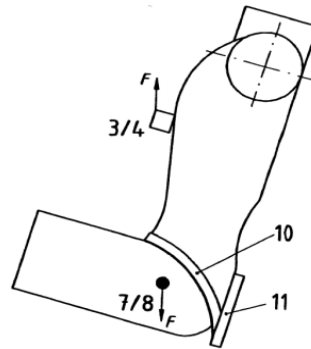
Test ID 13

Standard **EN 1651:1999**  
Reference **5.3.2.7**  
Test setup **Flying position before landing**  
Attachment points **Both main riser attachment (3,4)**  
Anchor points **Dummy (7,8)**

Required load [g] **15**  
Required load [N] **18000**  
Minimum test duration [s] **5**

## Result

Test duration [s] **7.3**  
Any signs of structural failure **No**  
Test results **POSITIVE**

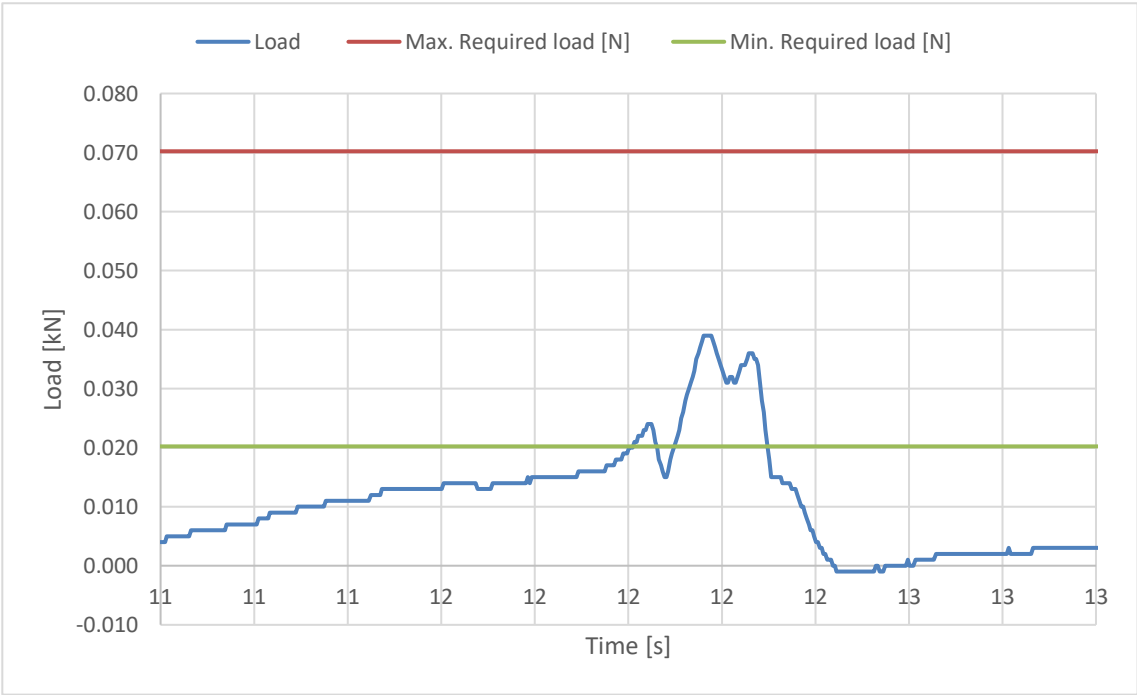


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**Rescue Deployment Test** Test ID RRDT

|                                                                                        |                                                         |
|----------------------------------------------------------------------------------------|---------------------------------------------------------|
| Standard                                                                               | NfL 2-565-20                                            |
| Reference                                                                              | 6.1.5                                                   |
| Test setup                                                                             | Default flying position                                 |
| Attachment points                                                                      | Sensor connect to handle, and pull in opening direction |
| The test is to simulate the load required to open the emergency parachute(1st action). |                                                         |
| Min. Required load [N]                                                                 | 20                                                      |
| Max. Required load [N]                                                                 | 70                                                      |
| <b>Result</b>                                                                          |                                                         |
| Load for first action [N]                                                              | 38.80                                                   |
| Test results                                                                           | POSITIVE                                                |



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model: **WRAP**

### Rescue Deployment Handle strength test

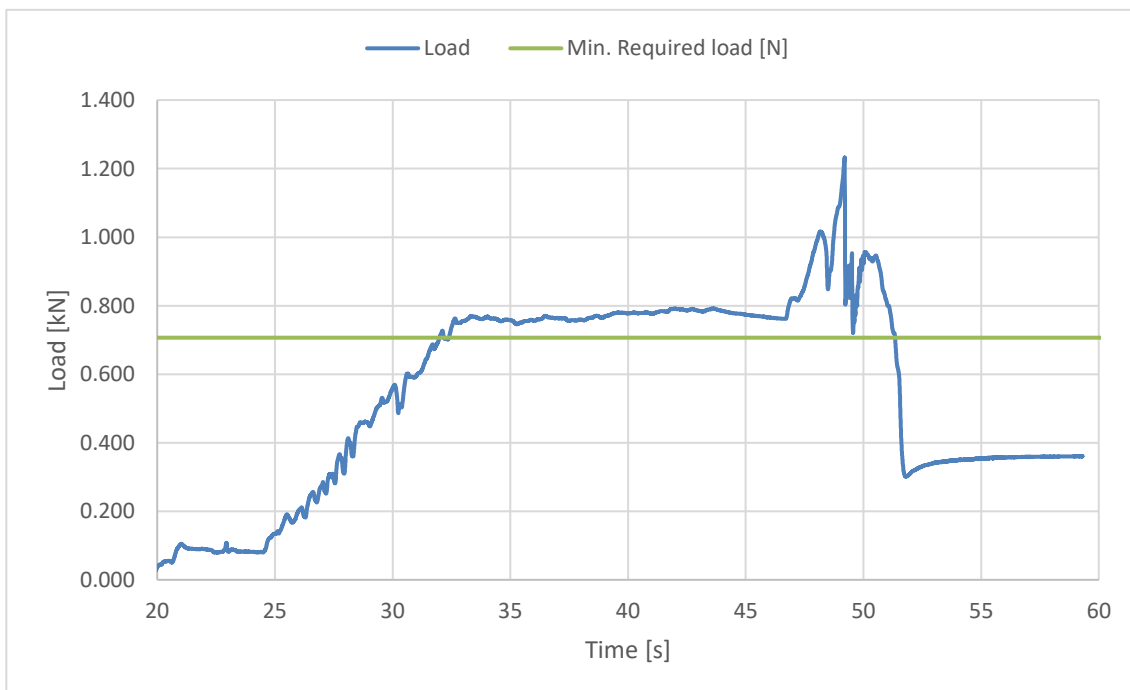
Test ID RRST

Standard **EN 12491**  
Reference in standard **5.3.2**  
Test setup **Two end points of handle**  
Attachment points **Sensor connect to end of handle, pull on the other side**  
The handle must support min 700 N for 10 s, after measure breaking strength

Min. Required load [N] **700**  
Minimum test duration [s] **10**

### Result

Test duration [s]: **11.8**  
Breaking strength [N] **1226.67**  
Test results **POSITIVE**



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