

Customer: Anemoi Labs Limited, T/A WattShop  
EFBE Test Report No.: P219247  
Date of Report: 2021-11-25

## Test Report

### Handlebar/Stem

### EFBE Sample No. 219247

#### **Customer:**

Anemoi Labs Limited, T/A WattShop, 21 Grove Road, ST150TG, Stone, Staffordshire, United Kingdom

#### **Sample Data:**

Description: Carbon Aero bar  
Brand – Model\*: Anemoi Labs Limited T/A WattShop – Basebar  
Category\*: Triathlon Cockpit  
Serial No. / ID\*: --  
Weight: Handlebar (stem integrated): 991.7 g (+/- 0.5 g)  
Handlebar / Test Width: 340 mm / 340 mm  
Steerer Tube Diameter: 28.6 mm  
Sampling Method: n/a, sample provided by customer  
Date of Receipt: 2021-11-08  
Remarks: none

#### **Sample condition as delivered:**



\* Information provided by customer

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### **Summary:**

The handlebar/stem was tested according to EFBE TRI-TEST® defined for Triathlon Cockpit with the following test stages:

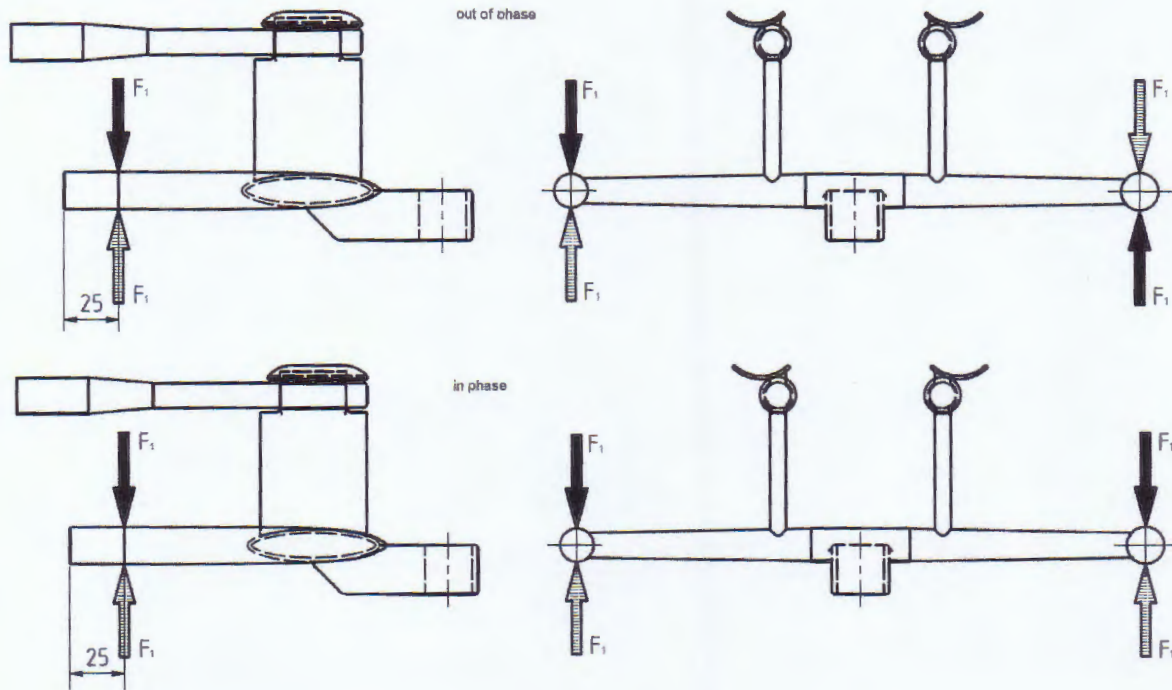
<b>Test Stage</b>	<b>Type of Test</b>	<b>Result</b>
TTAC1	Aero Cockpit – Fatigue Test – Rider Load Handlebar Loads – out-of-phase / in-phase	pass
TTHS2	Static Test Handlebar / Stem – Maximum Load single-sided	pass
TTHS3 A	Static Test Handlebar / Stem – Maximum both-sided	pass
TTHS3 B	Static Test Handlebar / Stem – Overload both-sided	pass

The requirements for Triathlon Cockpit were met.

**The test was passed.**

### **Test sequence in detail:**

**TTAC1 – Aero Cockpit – Fatigue Test – Rider Load**  
**Handlebar Loads – out-of-phase / in-phase**



- |                                |                     |                        |
|--------------------------------|---------------------|------------------------|
| 1. Out-of-Phase test forces F: | $\pm 325 \text{ N}$ | No. of cycles: 100 000 |
| 2. In-Phase test forces F:     | $\pm 400 \text{ N}$ | No. of cycles: 100 000 |

Standard deviation of test forces < 10 N, mean value +/- 5 N. Frequency < 10 Hz.

The requirements for TTAC1 were those of ISO 4210-2:2015,4.7.7. The test method was in accordance with ISO 4210-5:2014, 4.9 with the following modifications:

The alignment of the base bar was carried out according to ISO, handlebar grip plane perpendicular to steering axis; screws tightened and lubricated. The test forces were introduced into the base bar 25 mm from free end of HB, parallel to steerer axis. The test was divided into 2 blocks with adapted in-phase and out-of-phase test forces.

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(Fig. 1 – Sample during TTAC1)

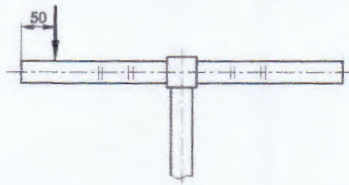
**Result:**

After completion of the test sequence, no visible crack or fracture was observed.

**The test was passed.**

Date of test execution: 2021-11-11

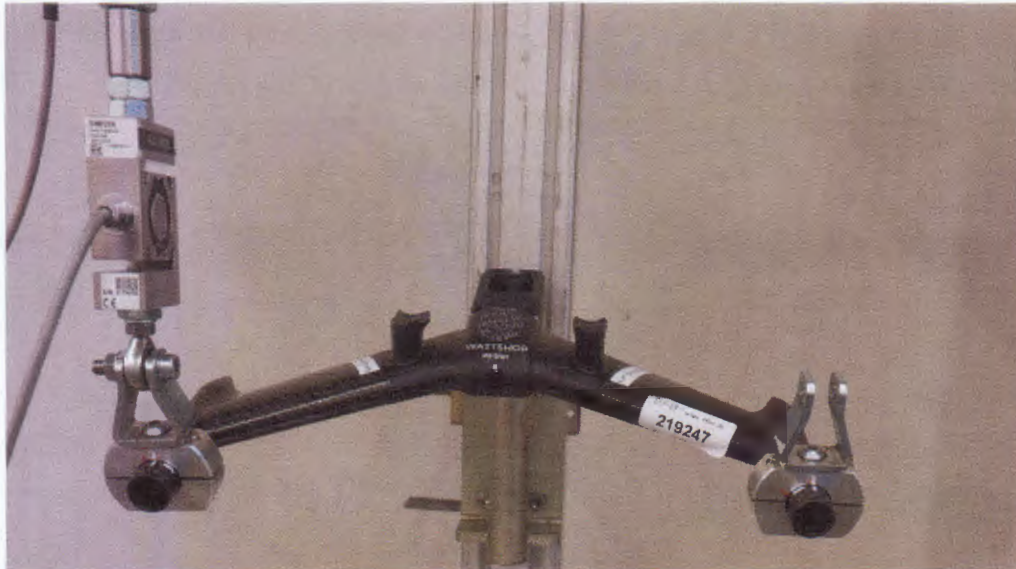
## TTHS2 – Static Test Handlebar / Stem – Maximum Load single-sided



Maximum Load – static test force F: 1 100 N

Measurement uncertainty of the test force +/- 3 %.

The test set-up was identical to TTSH1, with the static test force being applied to one side of the handlebar only.



(Fig. 2 – Sample during TTSH2)

The requirements for the maximum load test were no visible crack or fracture, no permanent deformation at the point of force application greater than 10 mm.

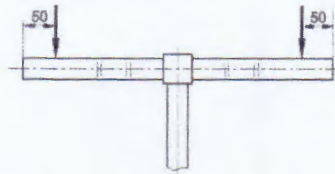
### Result:

The maximum load did cause no permanent deformation greater than 10 mm (**6.2 mm**) or any visible crack or fracture.

### The test was passed.

Date of test execution: 2021-11-15

### TTHS3 – Static Test Handlebar / Stem – Maximum / Overload both-sided

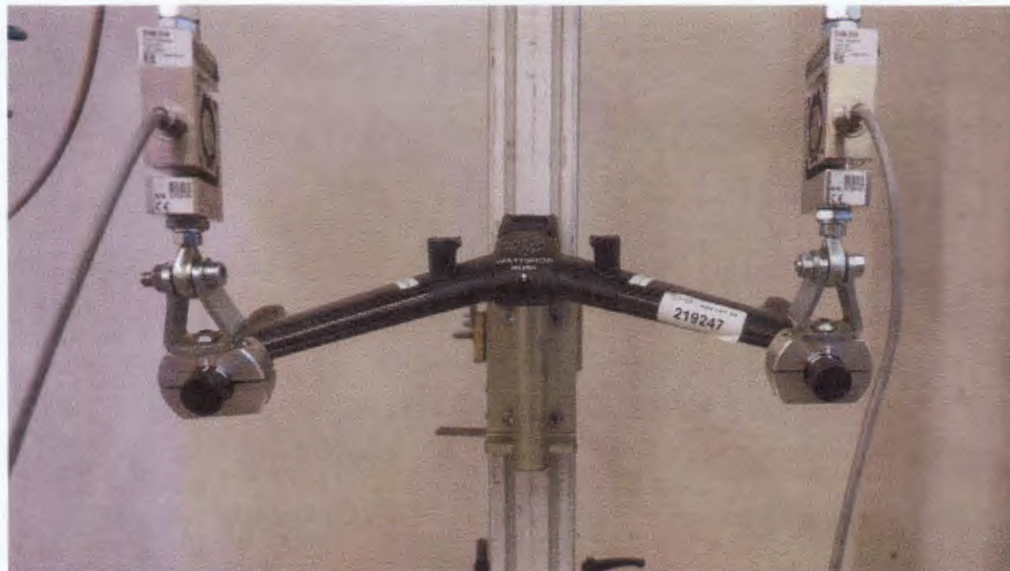


Maximum Load – static test force F: 1 200 N

Overload – static test force F: 1 450 N

Measurement uncertainty of test force +/- 3 %.

The test set-up and method of applying the static test force were identical with the one defined for TTHS1.



(Fig. 3 – Sample during TTHS3)

The requirements for the maximum load test were no visible crack or fracture, no permanent deformation at the point of force application greater than 10 mm.

The overload test requirements were no brittle fracture and a residual strength withstanding a test force of at least 500 N after the test.

#### Result maximum load:

The maximum load did cause no permanent deformation greater than 10 mm (**3.5 mm**) or any visible crack or fracture. **The maximum load test was passed.**

#### Result overload:

The overload caused no brittle fracture. The sample retained sufficient residual strength, withstanding a test force of 500 N. **The overload test was passed.**

Date of test execution: 2021-11-15

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**Remarks:**

- none -

**Equipment Used:**

EFBE test stand, serial no. 09.1, last calibration 2021-03-08  
Lab scale 440-49N; serial no. WD140025122, 0 - 4 000 g; not calibrated  
Torque wrench Tohnichi DB 12 N, +/- 12 N serial no. 316089Q, not calibrated  
Digital caliper Horex, serial no. 412811150 H1115082, 0 - 160 mm, not calibrated  
Digital level Mitutoyo Pro 360, serial no. 950-315, 360°, not calibrated  
Folding rule Wiha Long plus Life composite; 0 - 2 m, not calibrated

**Ambient Conditions During Testing:**

Temperature: 23° C ± 5°  
Relative humidity: 40 ... 60 %

Test Engineer: Jens Geisler

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Waltrop, 2021-11-25

2<sup>nd</sup> Visual Inspection and Approval: Siggie Kotzur

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Waltrop, 2021-11-25