Paul Vahle GmbH & Co. KG

Burger

04/23/2024, 02:16:42

Ta

Current status of the system in Burger

In Burger the Smart Collector was installed on a landing gear. The system was submitted on the trailing unit and consists of the components: /n/n - Compact Current Collector with 3D unit /n - Positioning system /n - Main-Unit /n - Industrial router /n/n Following is the diagram of the system and components at Burger.

Figure 1: The components on the (Ofenklappe)

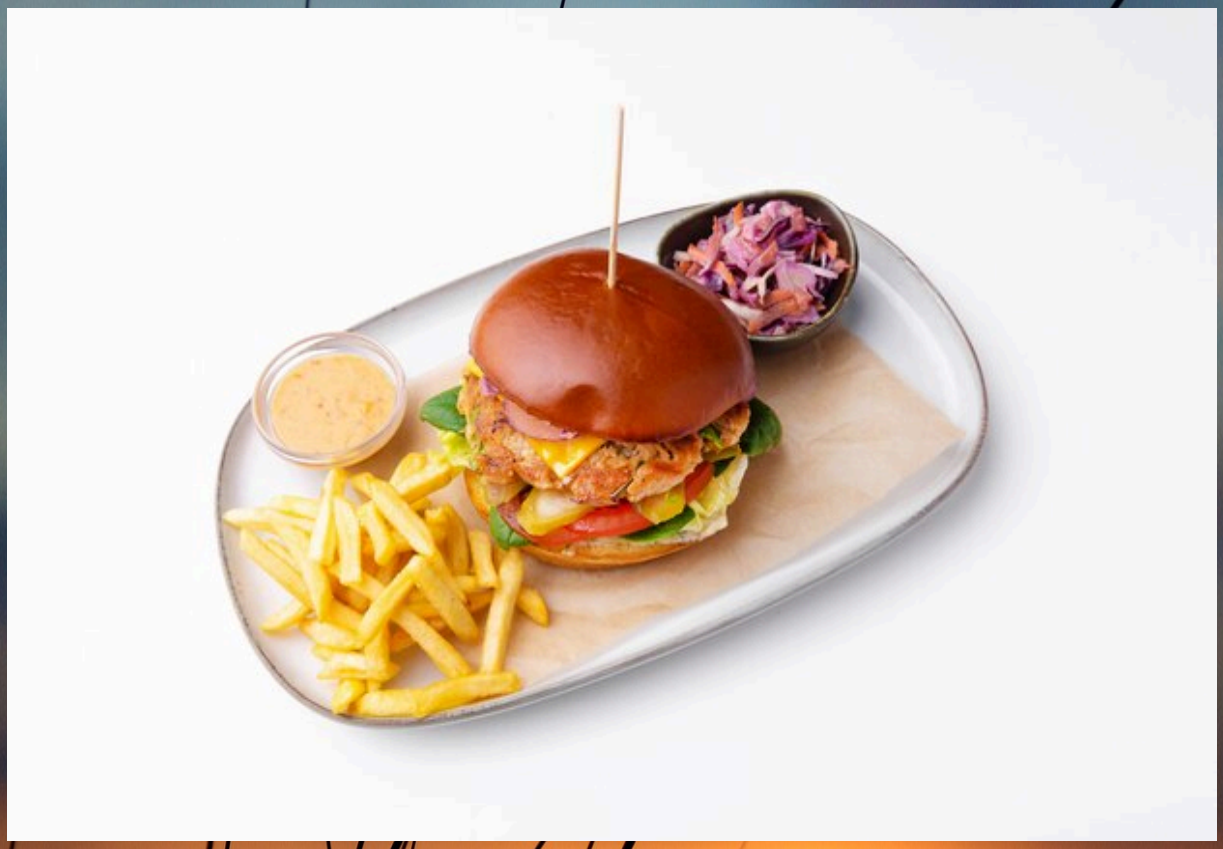


Figure 2: Current Collector KDS2/40 with 3D-Sensor

The software of the Smart Collector allows the system to be completely scanned and the movement values of the Current Collector to be assigned to the position values of the vehicle. It is also possible to store reference data and subsequently detect errors in the system by comparing the current values and the reference values.

/nOver the past few days, data of the plant was collected over several hours to first assess whether the current plant's condition of Burger is suitable for a reference run or Whether assembly or installation problems can already be identified in advance. The results are now presented on the following pages.

Results of the inspection trip Burger

Figure 3: Data of the entire Lift plant route

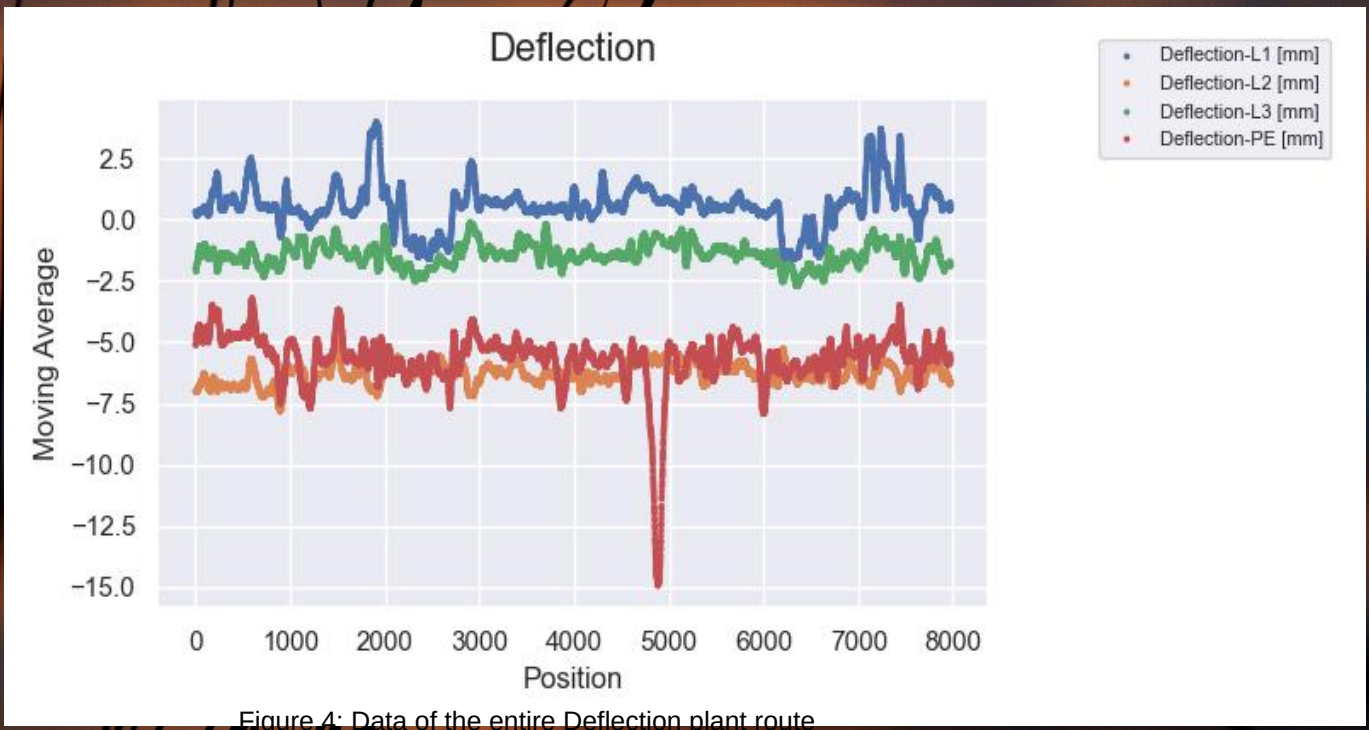


Figure 4: Data of the entire Deflection plant route

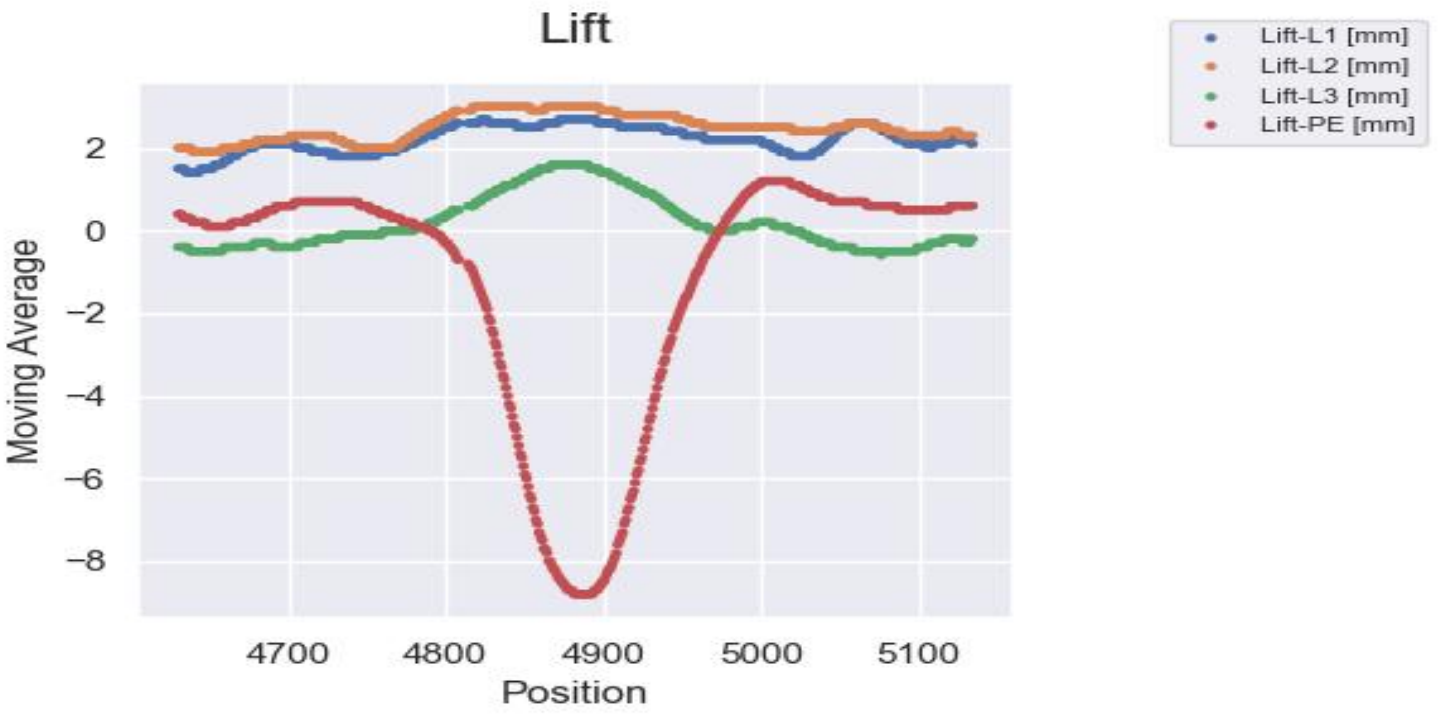
As can be seen in the above illustration, the Lift path and the Deflection path of the entire plant section of 7967 cm Length determined.

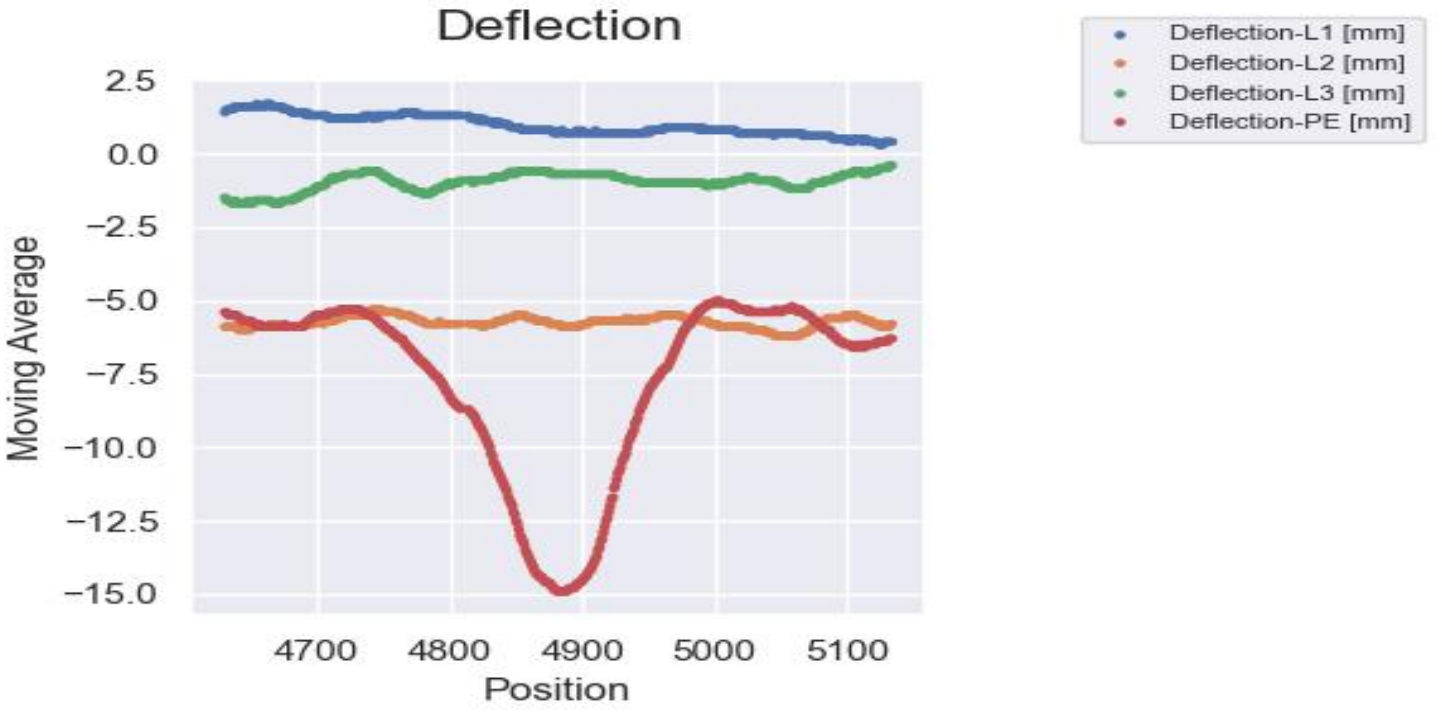
The Current Collector moves in the range of 7.8 mm to -8.8 mm in Lift and in range of 4.0 mm to -14.9 mm in Deflection and thus in its permissible range overall. The visible gaps in the display are due to the fact that the Current Collector did not travel through all the routes/areas of the system during the recording time.

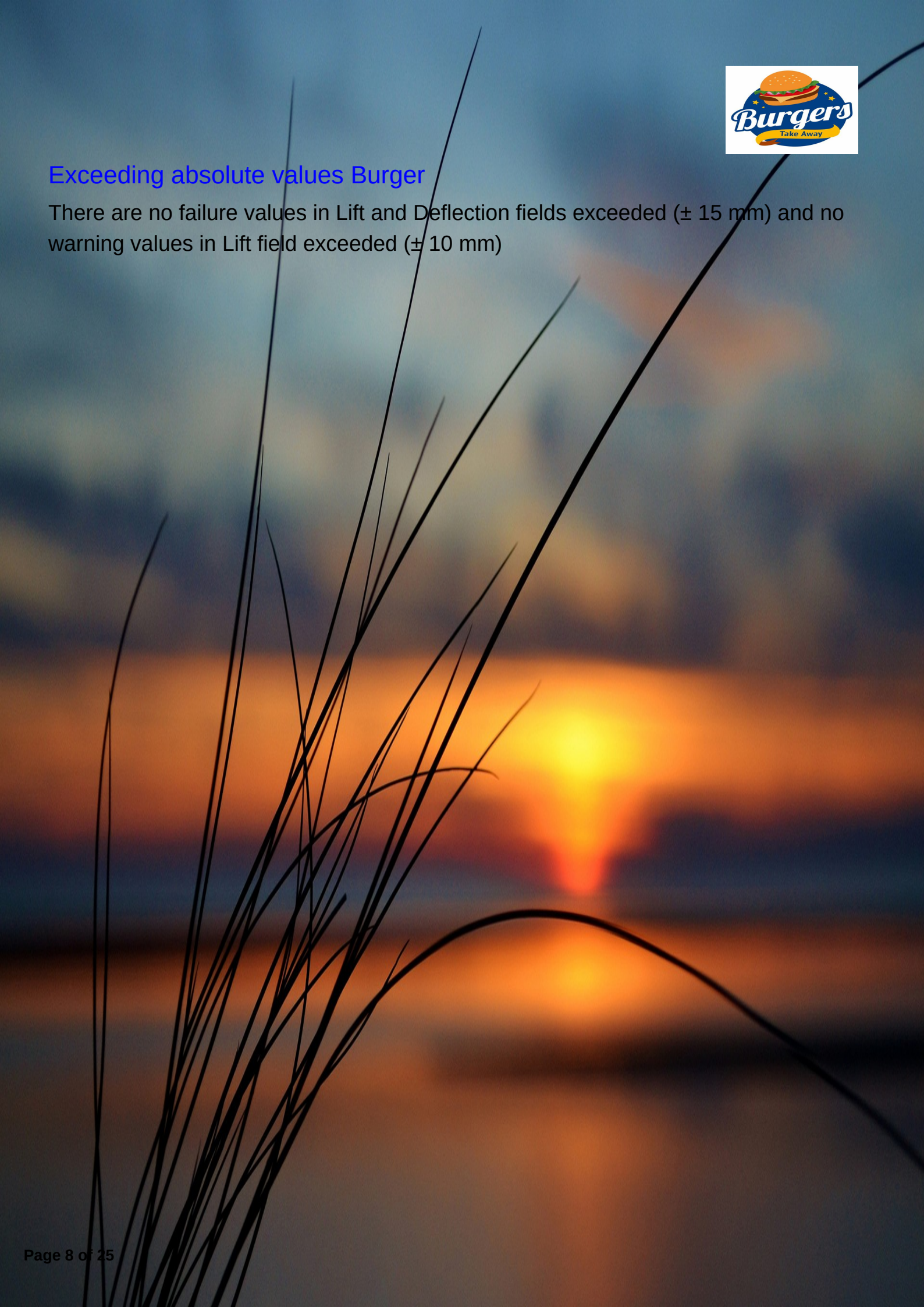
/nThe installed system as well as the tested system have the following characteristics: /n/n- 4 Arms are monitored via the 3D Unit Motion Sensor. /n/n- As the vehicle travels along the track, the Lift and Deflection values of every centimeter of the track are recorded./n/n- The average contact pressure of the collectors varies from 10.08 N to 4.27 N./n The average press preasure was measured at 6.77

Exceeding absolute values Burger

The warning values exceeded (± 10 mm) 1 in the Deflection field between positions: 4830 and 4934/n







Exceeding absolute values Burger

There are no failure values in Lift and Deflection fields exceeded (± 15 mm) and no warning values in Lift field exceeded (± 10 mm)

possible anomalies between positions: 4 and 452

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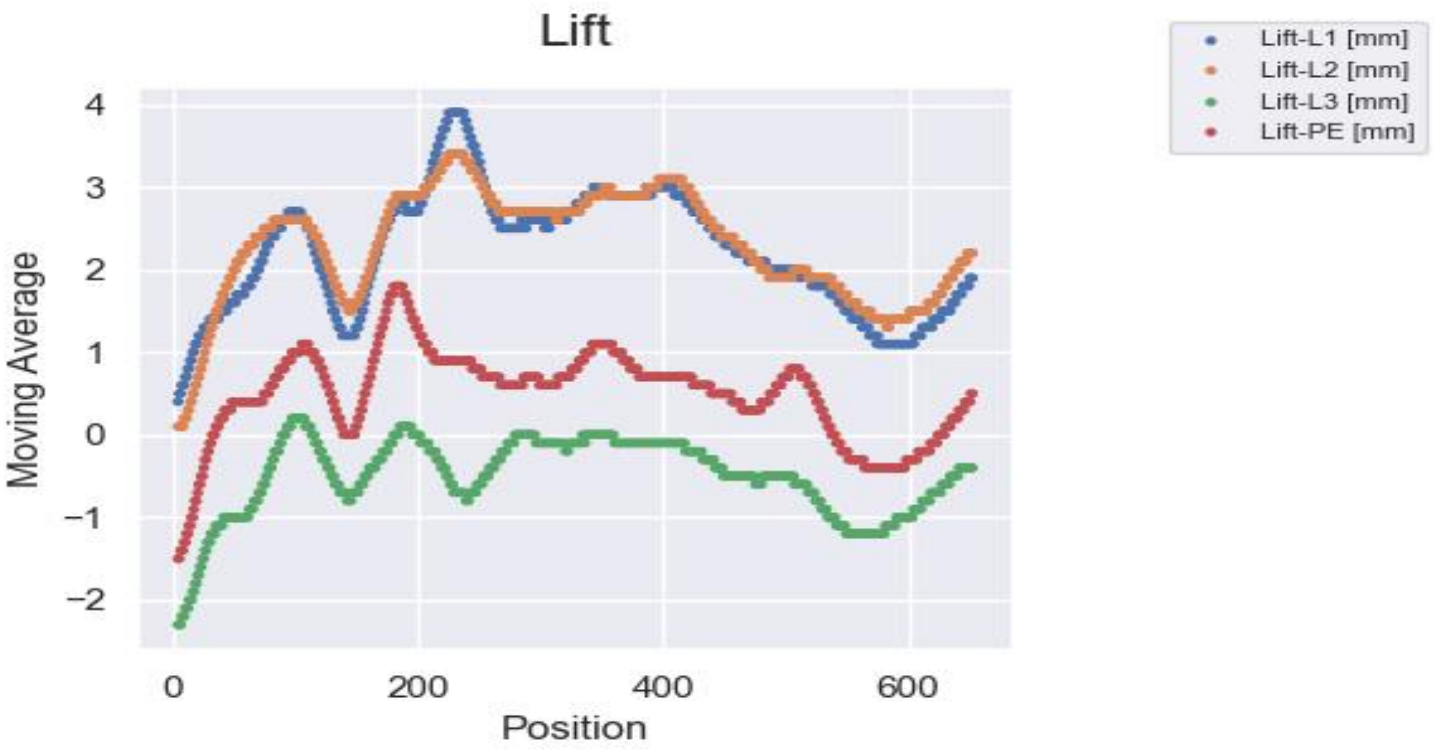

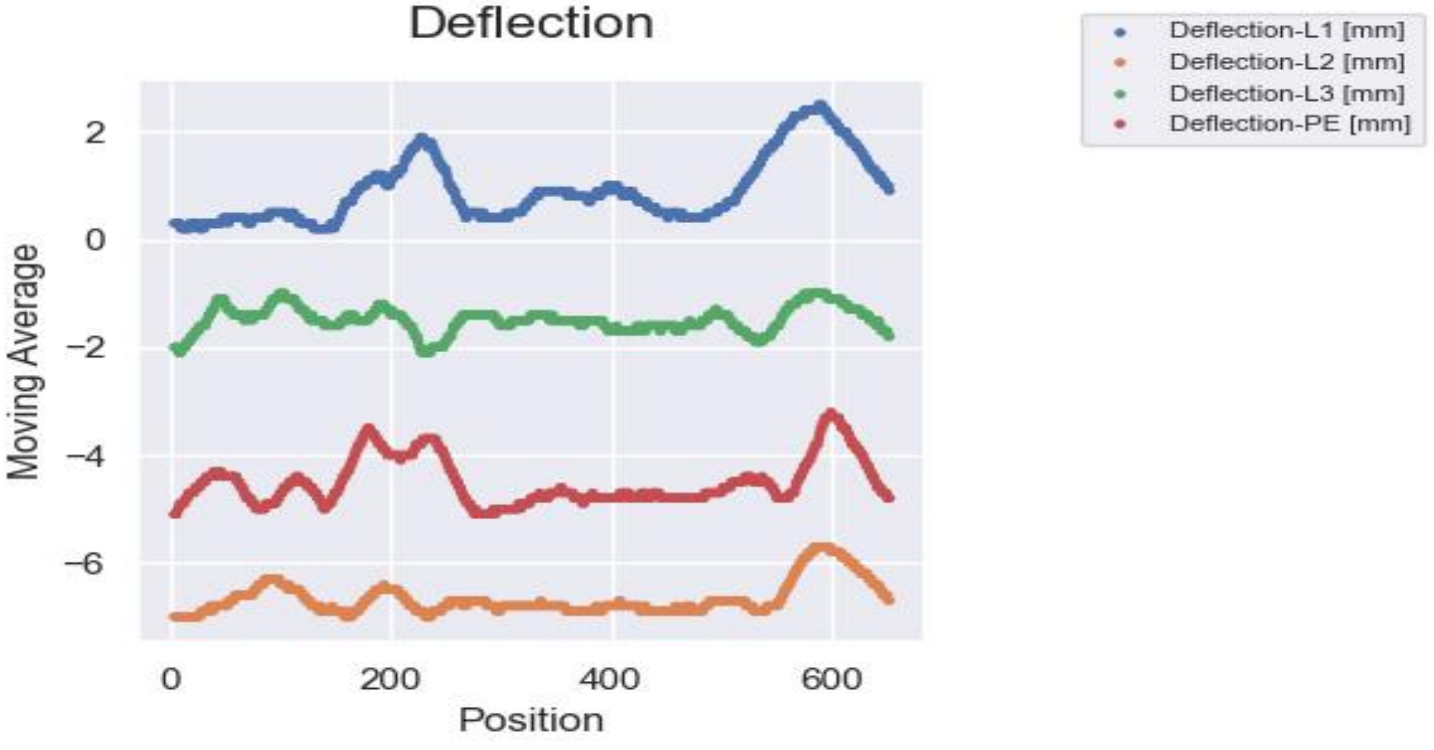

possible anomalies between positions: 614 and 789

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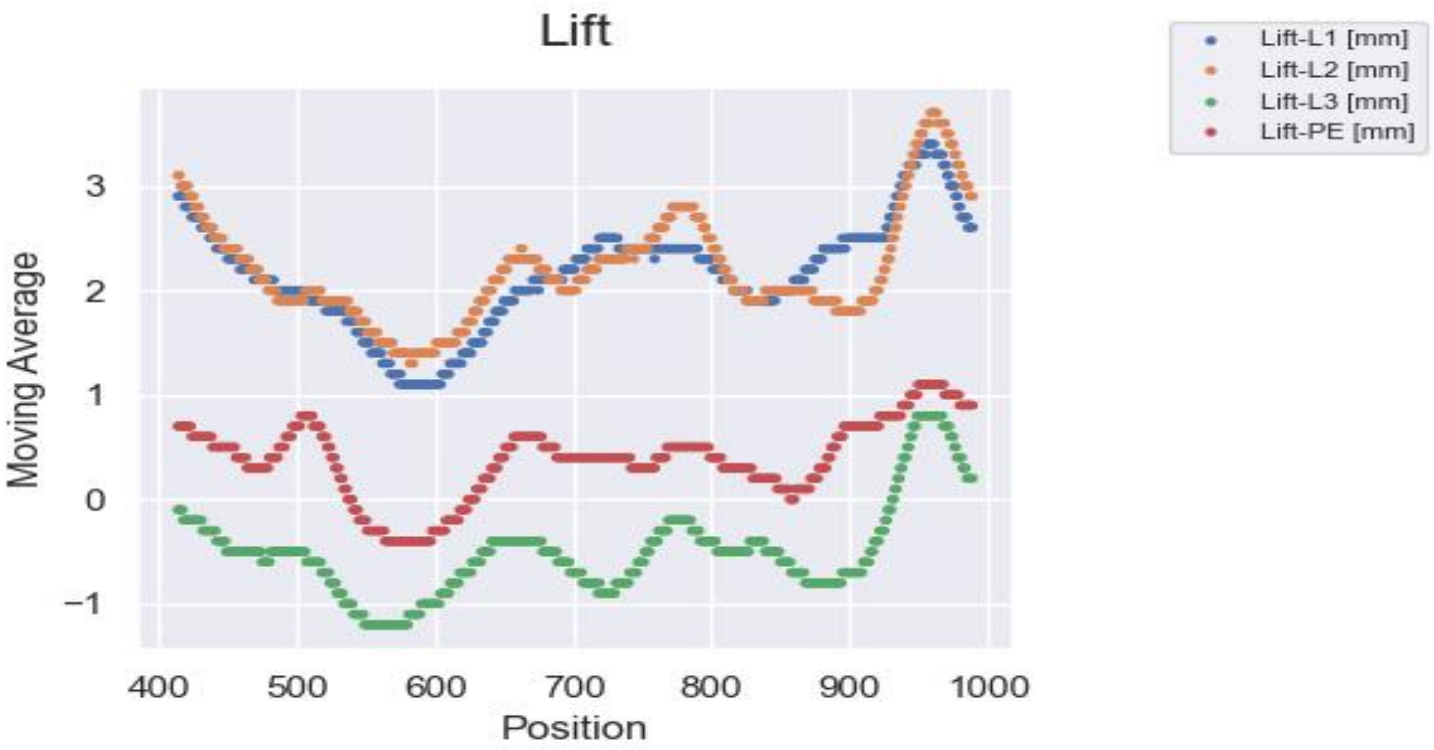

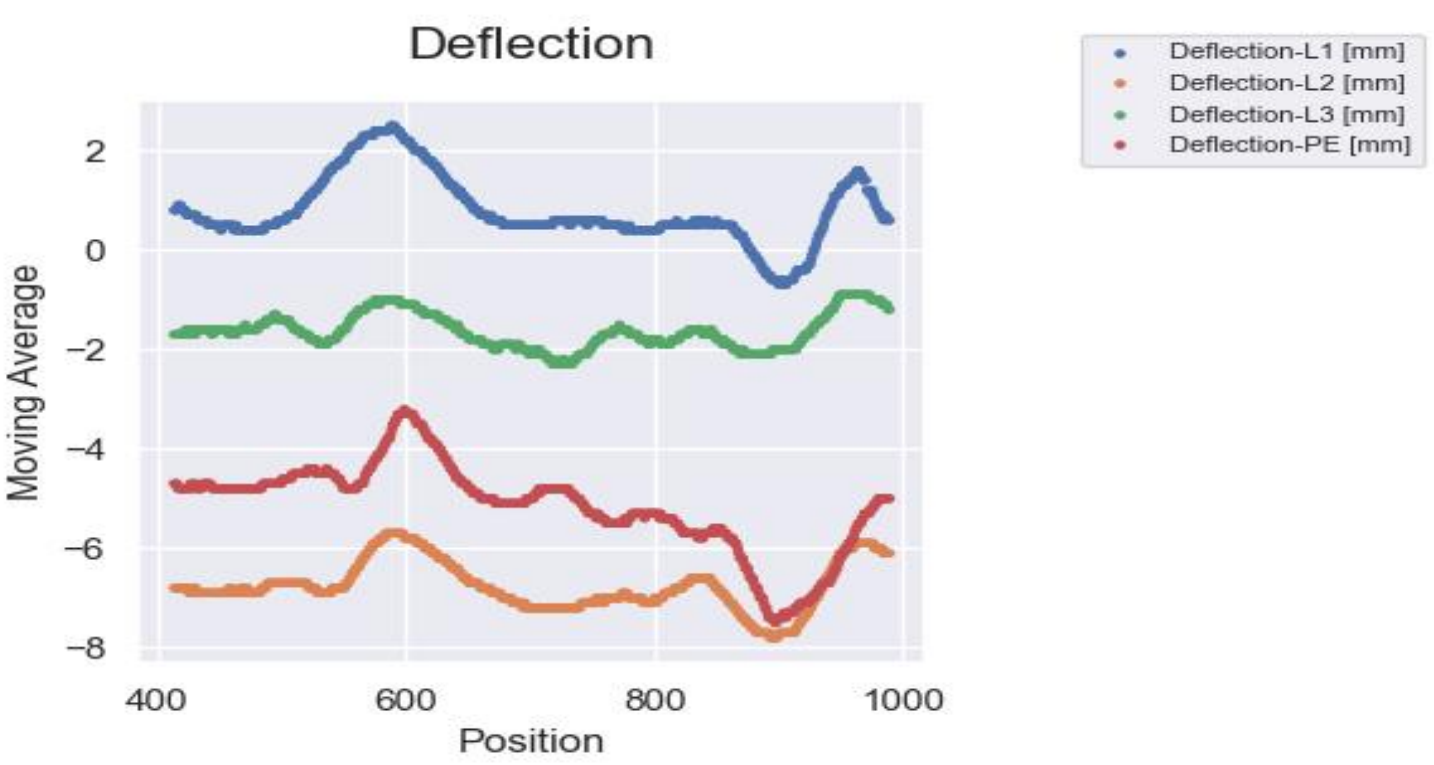

possible anomalies between positions: 1246 and 1377

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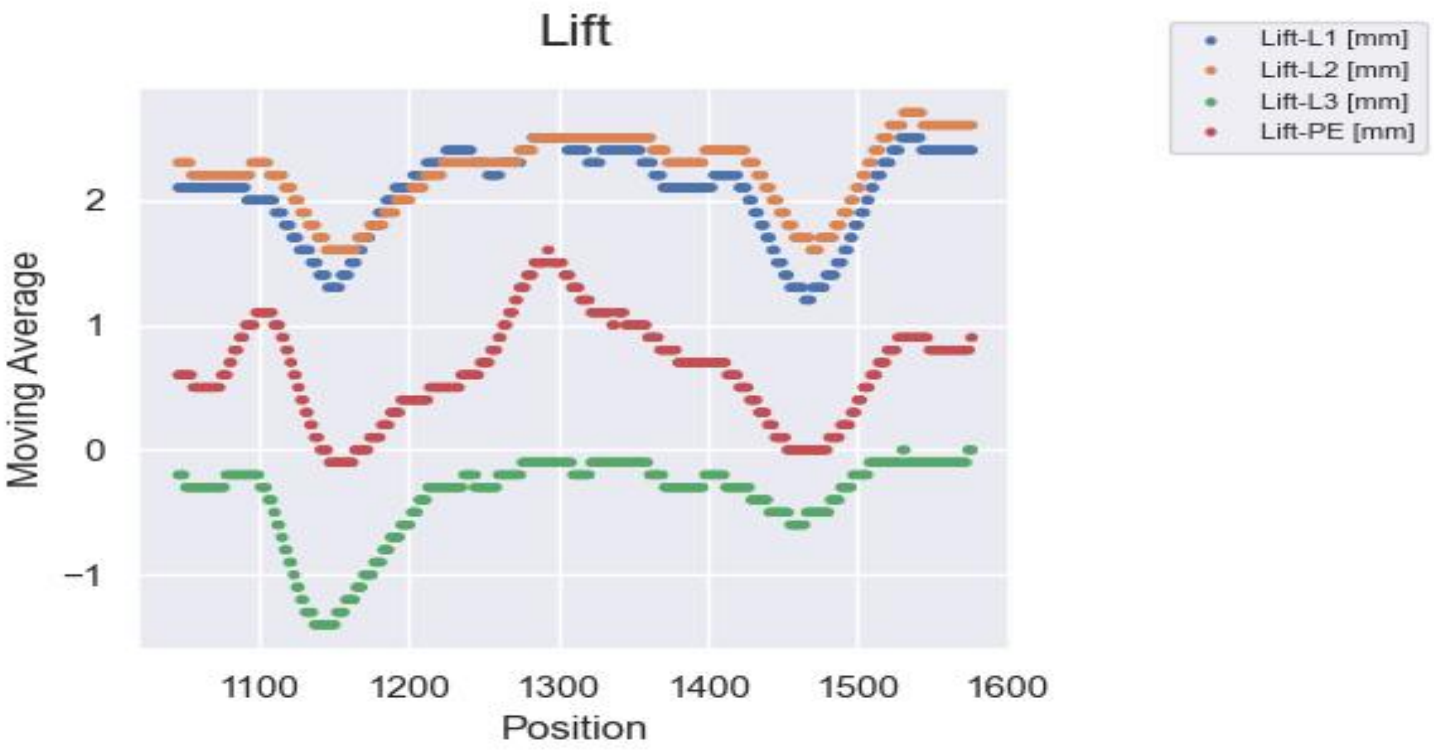

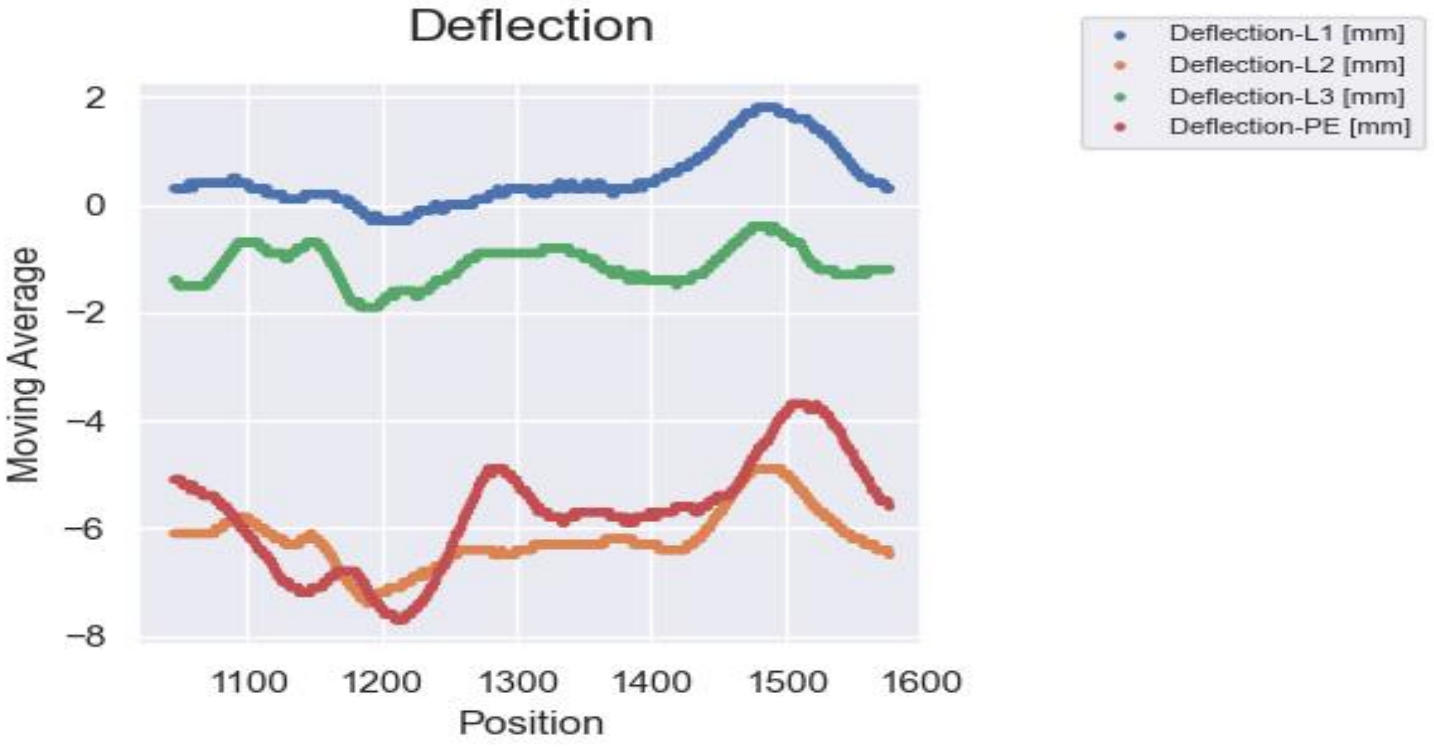

possible anomalies between positions: 1538 and 1729

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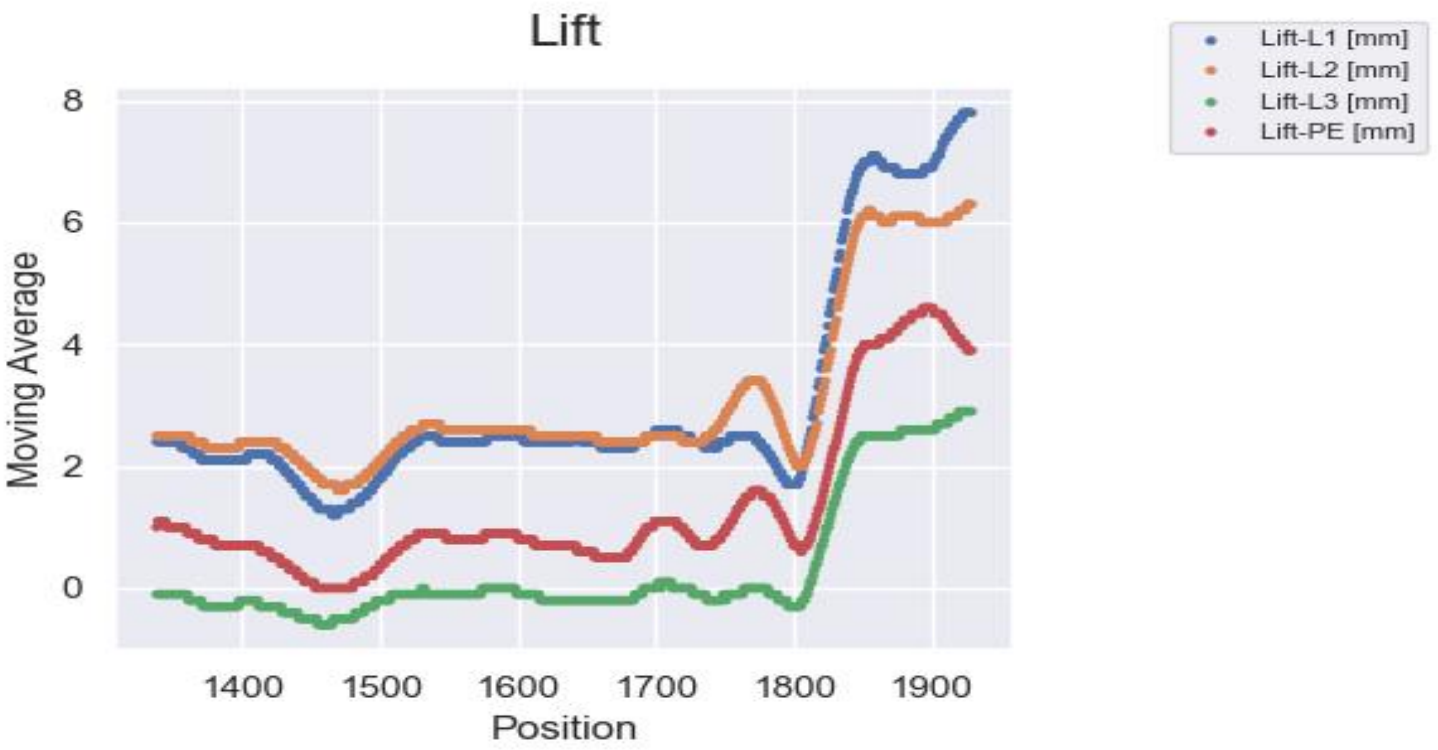

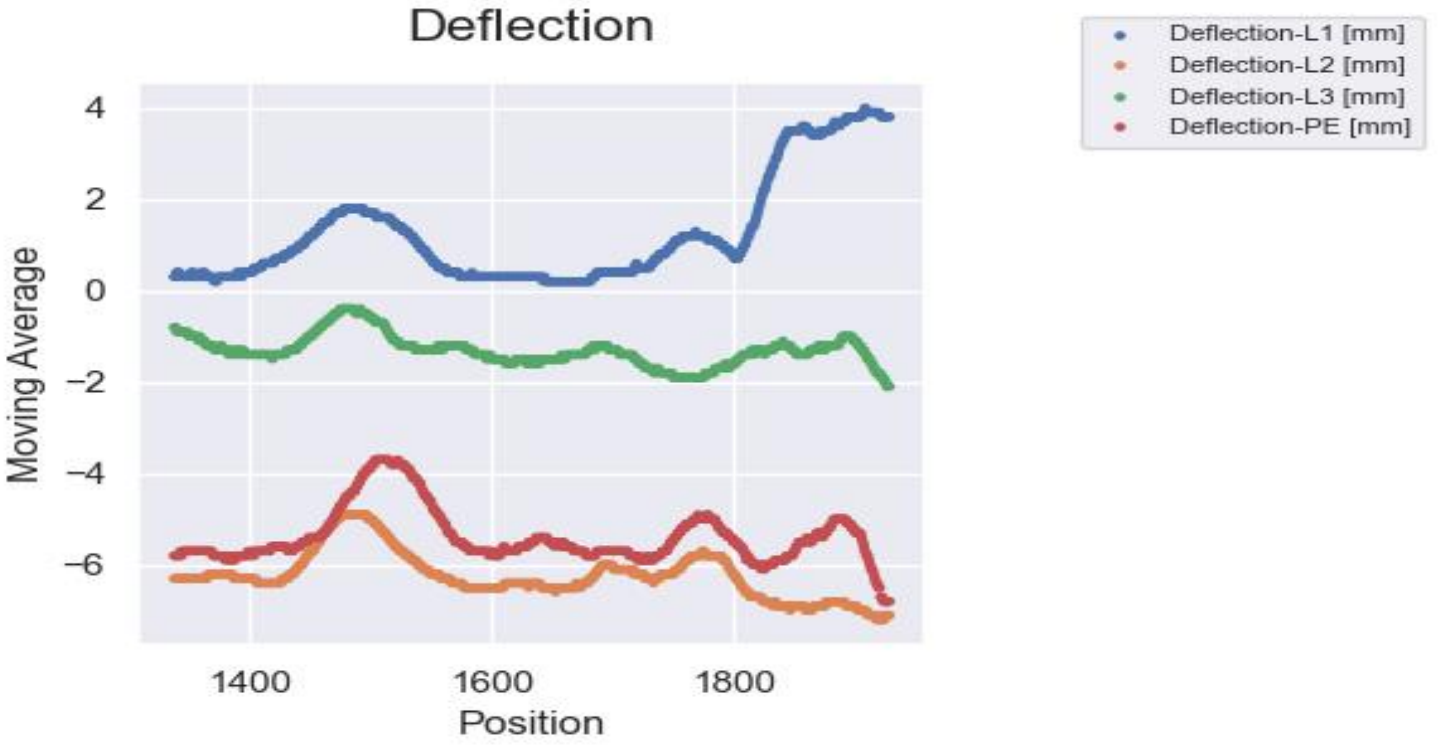

possible anomalies between positions: 2071 and 2197

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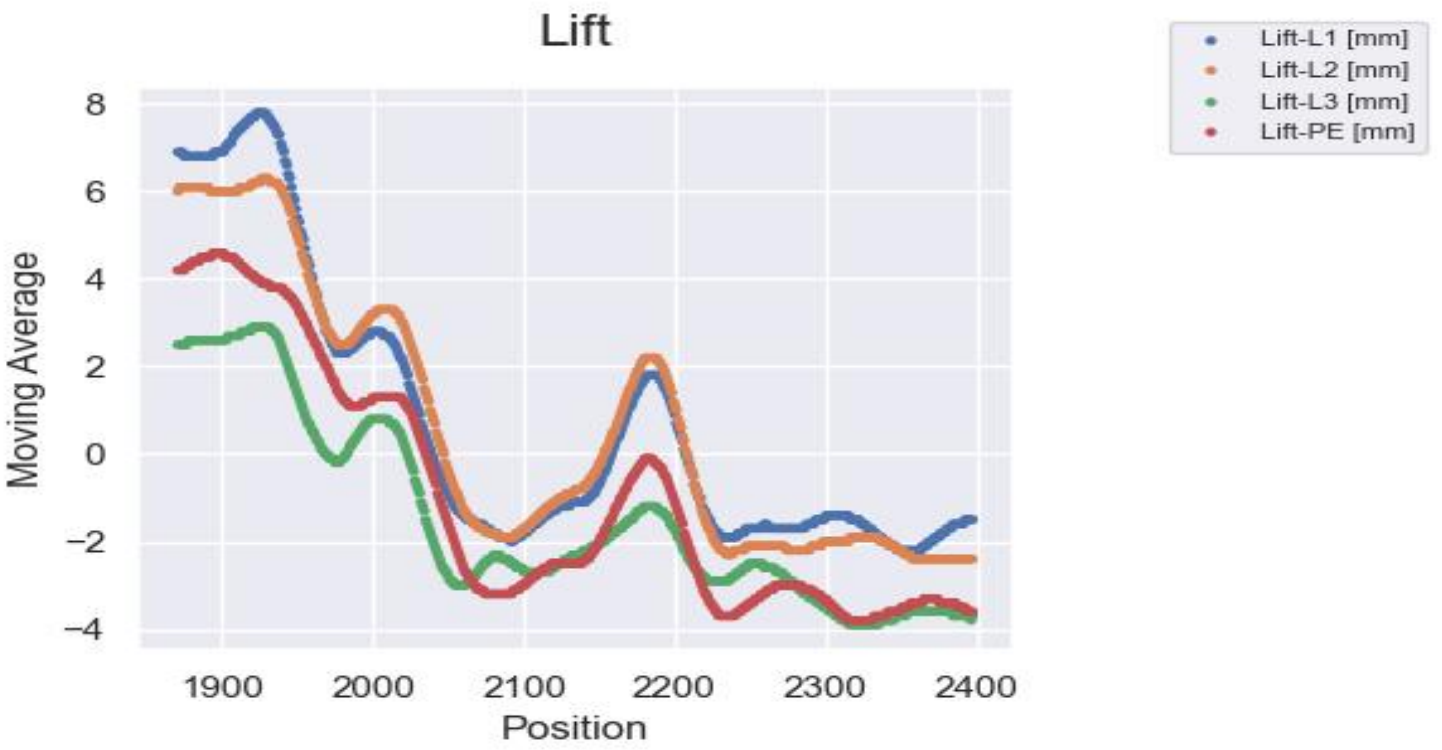

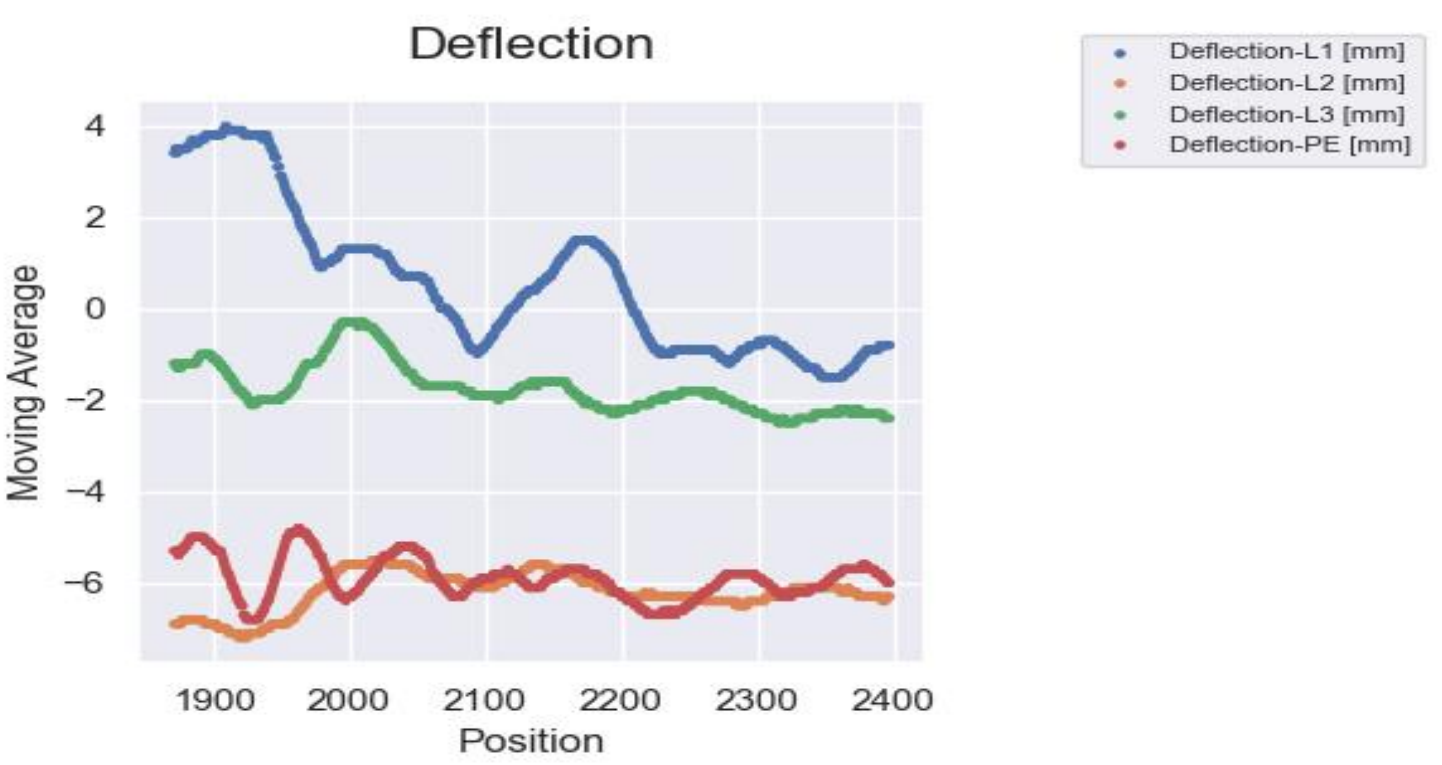

possible anomalies between positions: 2441 and 2586

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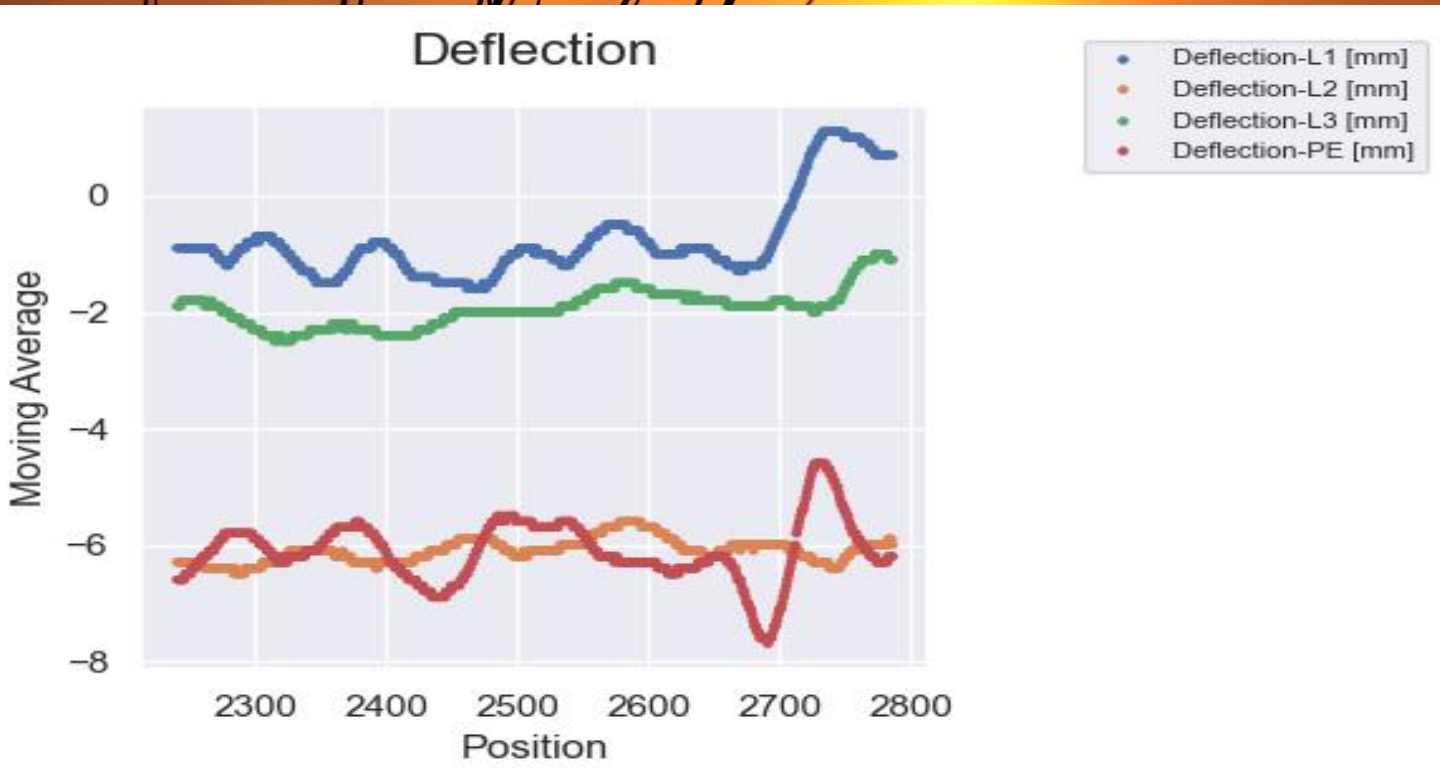

possible anomalies between positions: 3013 and 3595

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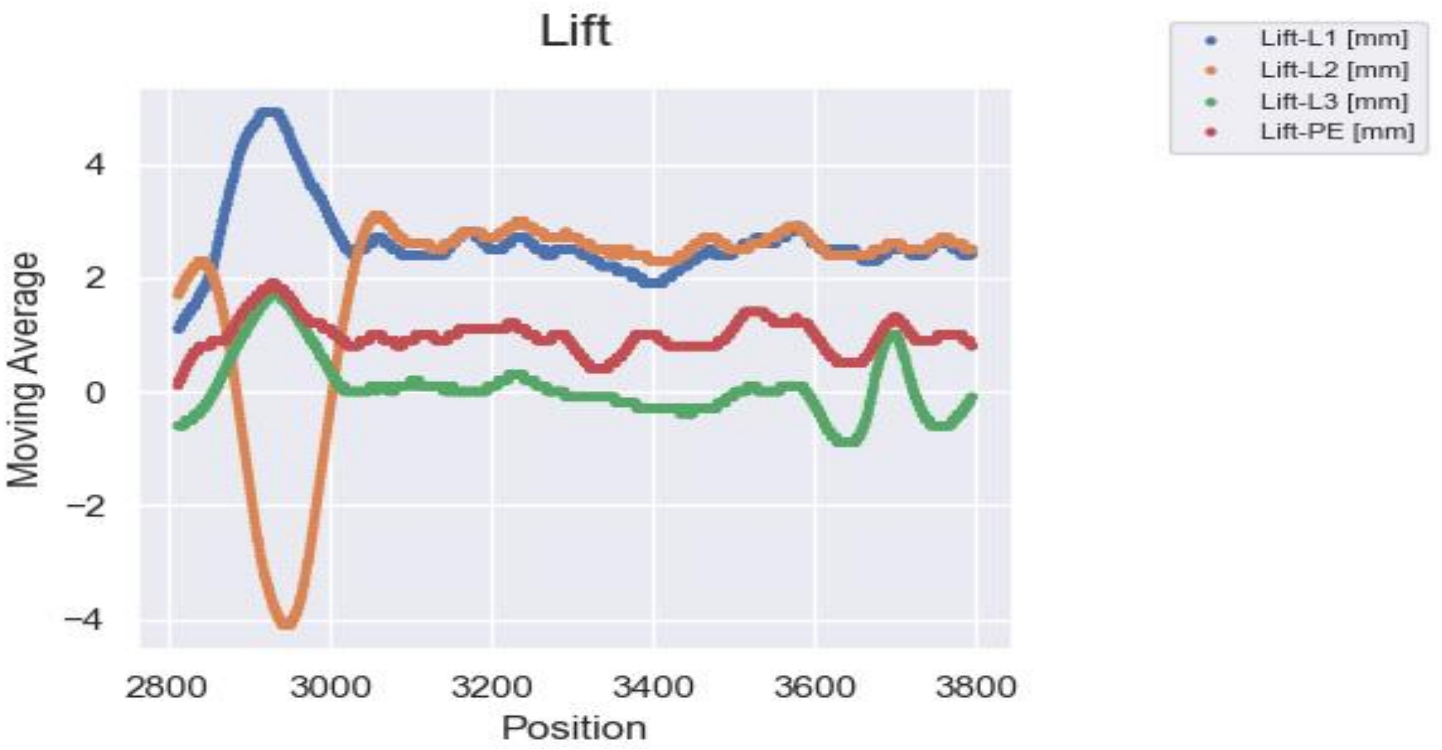

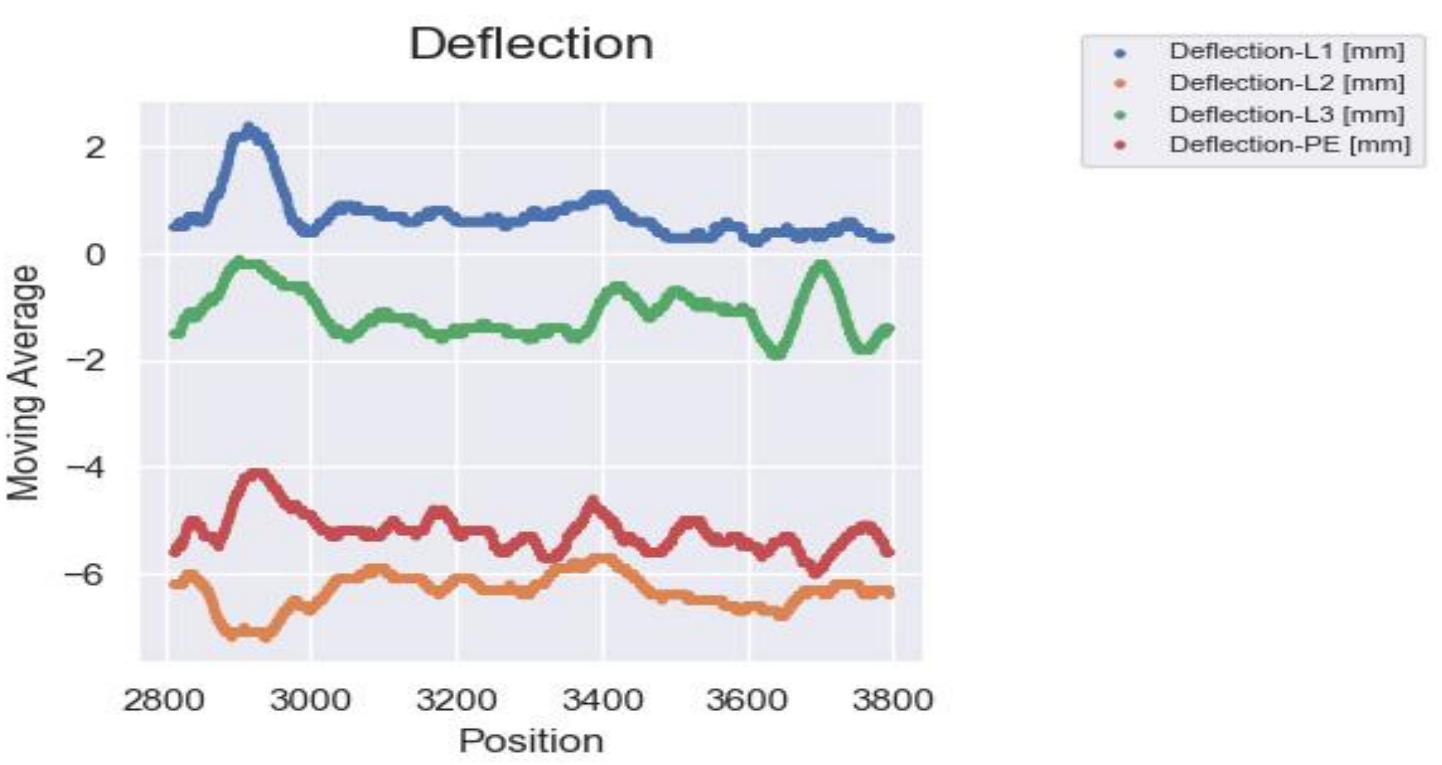

possible anomalies between positions: 3927 and 4193

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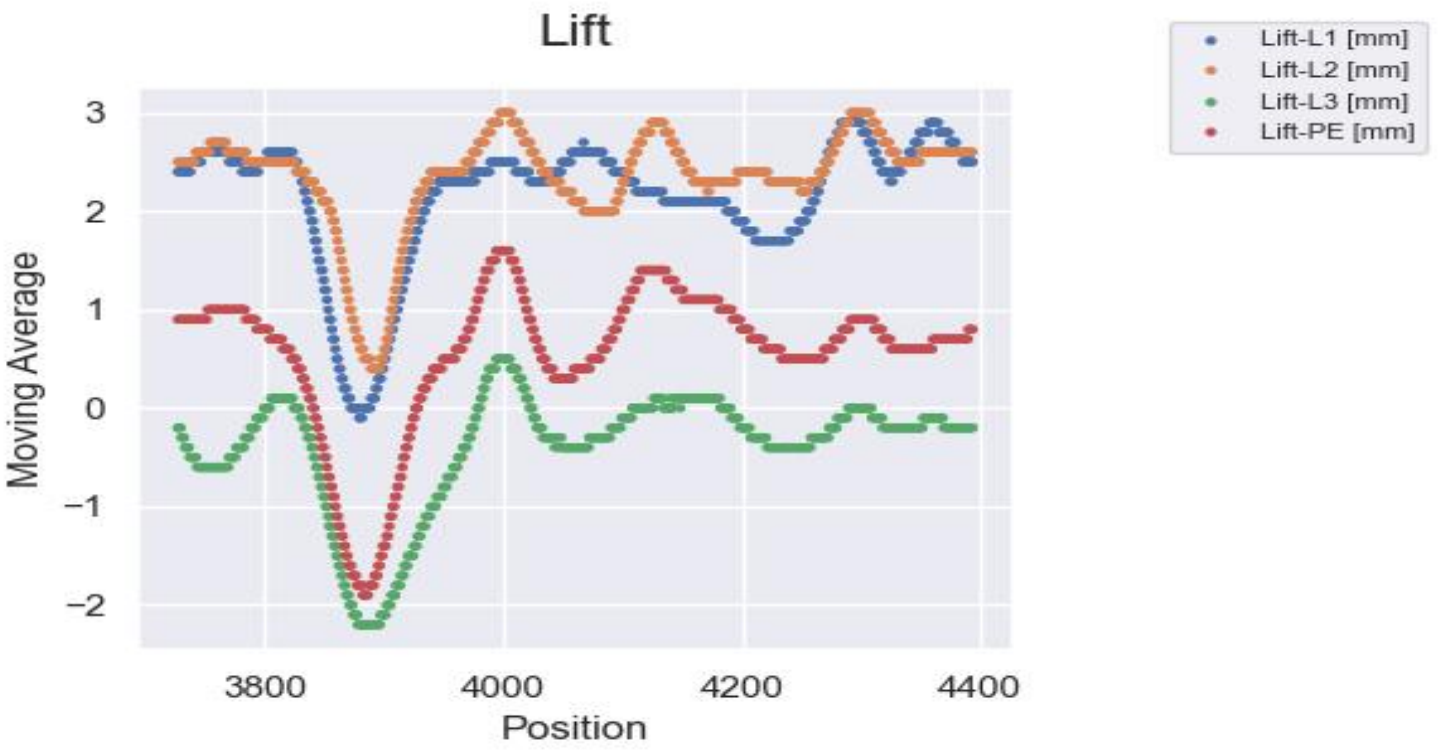

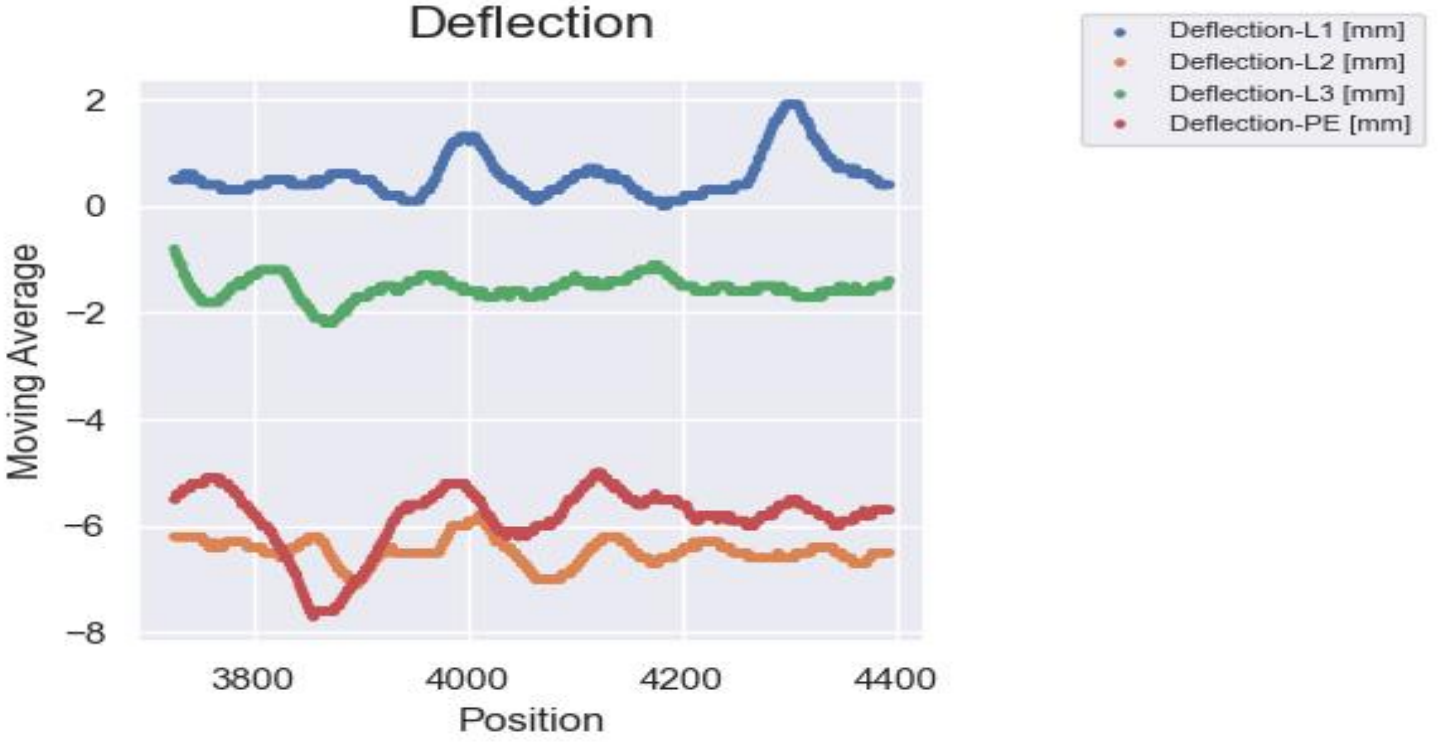

possible anomalies between positions: 4303 and 4958

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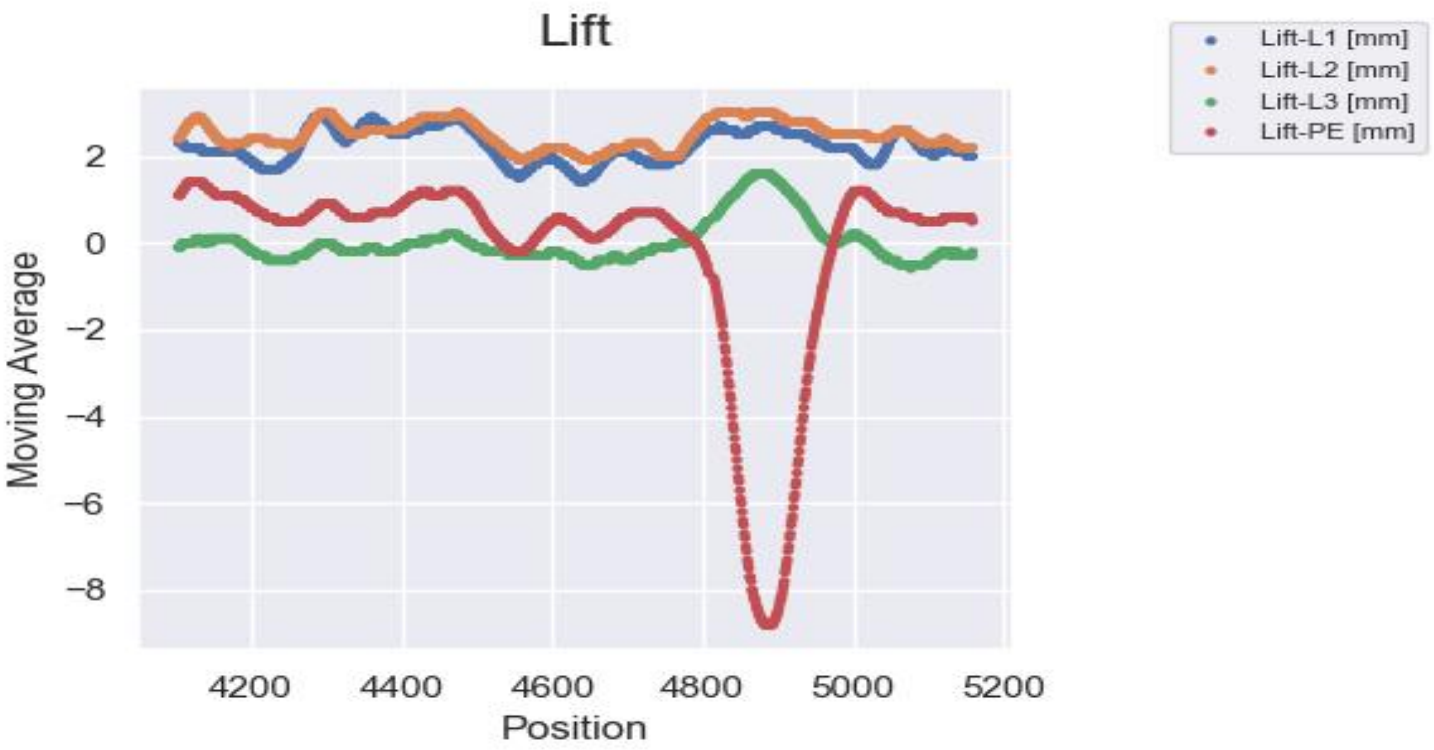

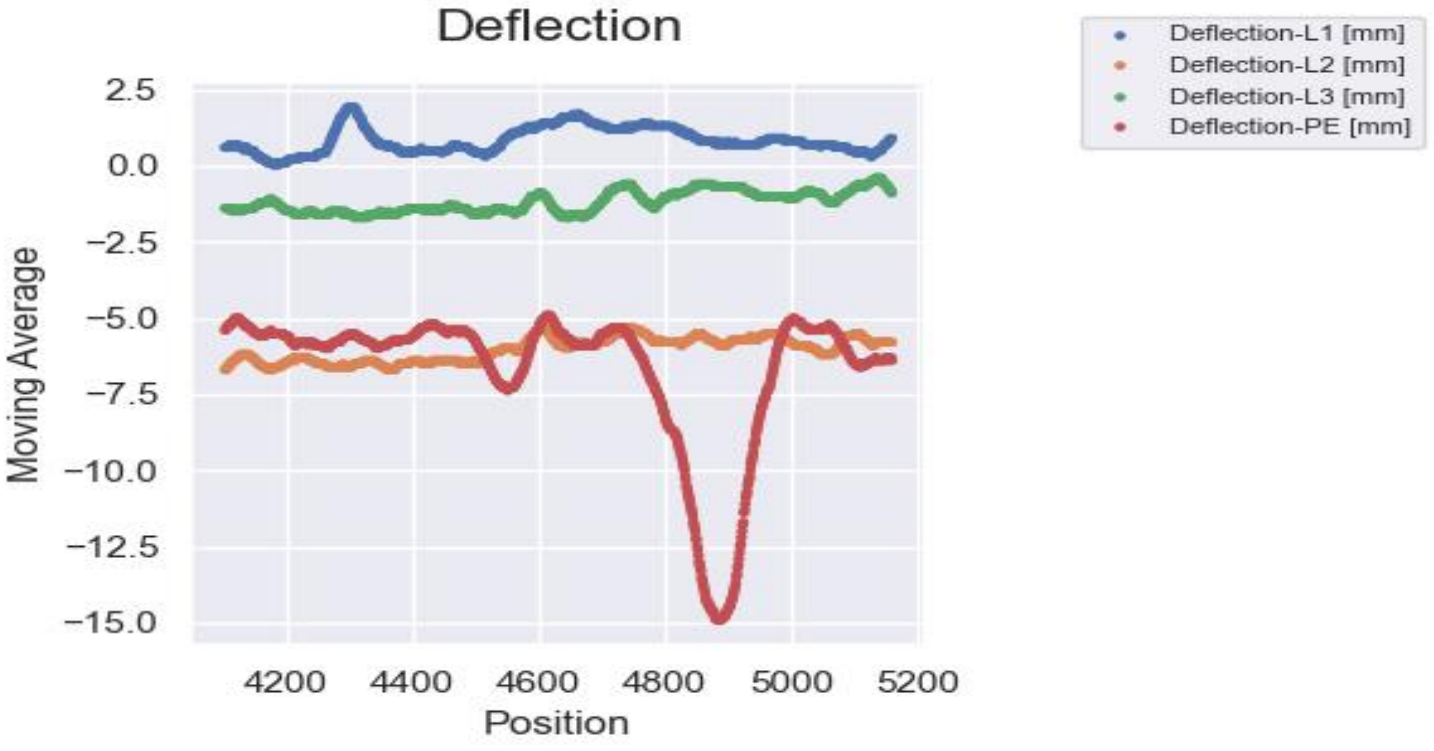

possible anomalies between positions: 5179 and 5331

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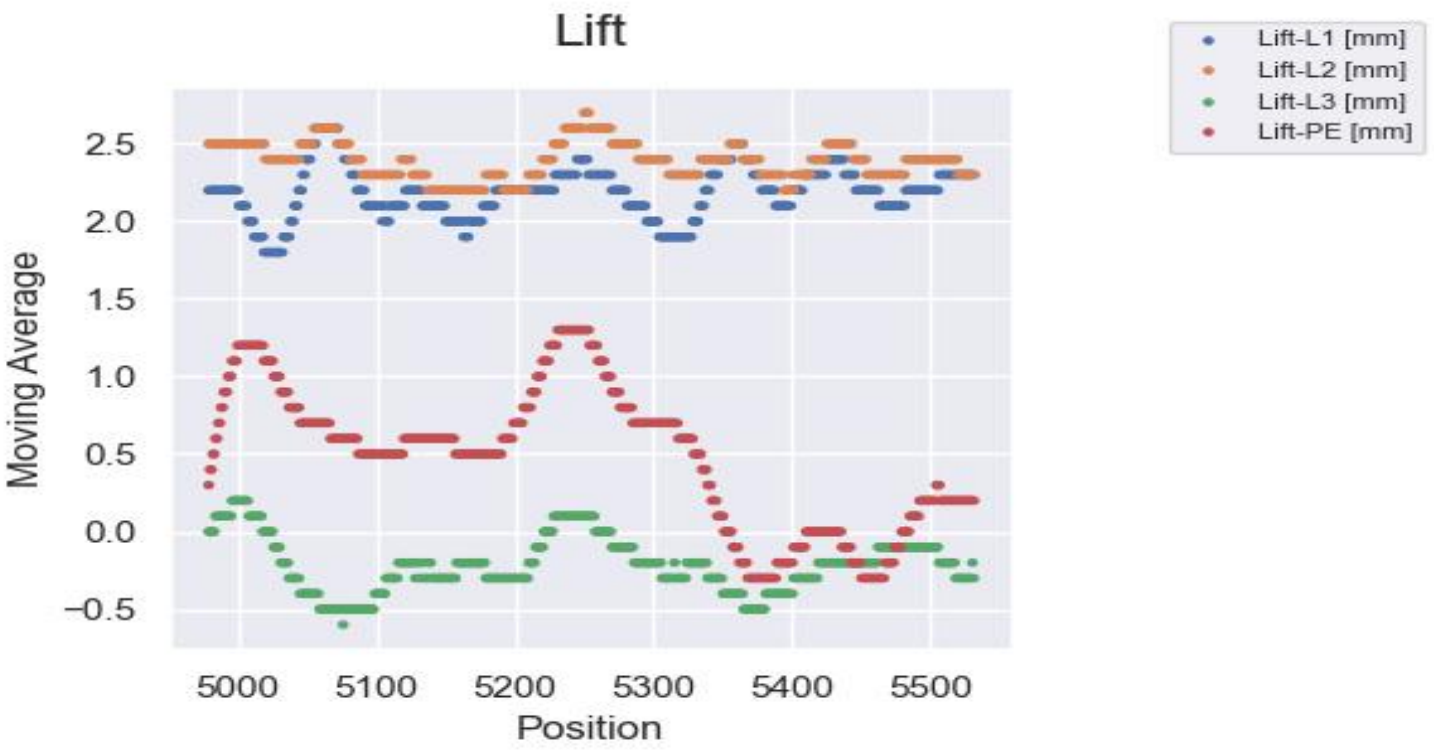

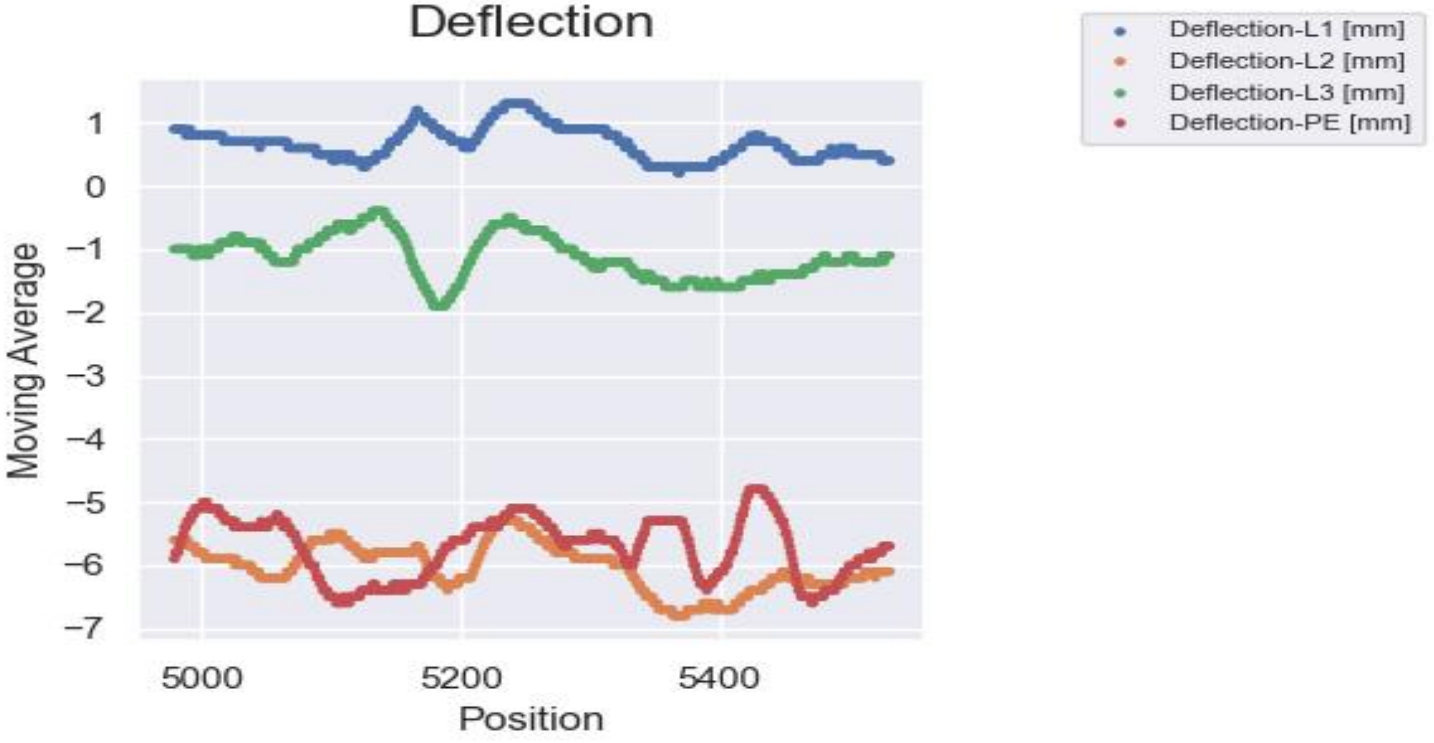

possible anomalies between positions: 5561 and 6515

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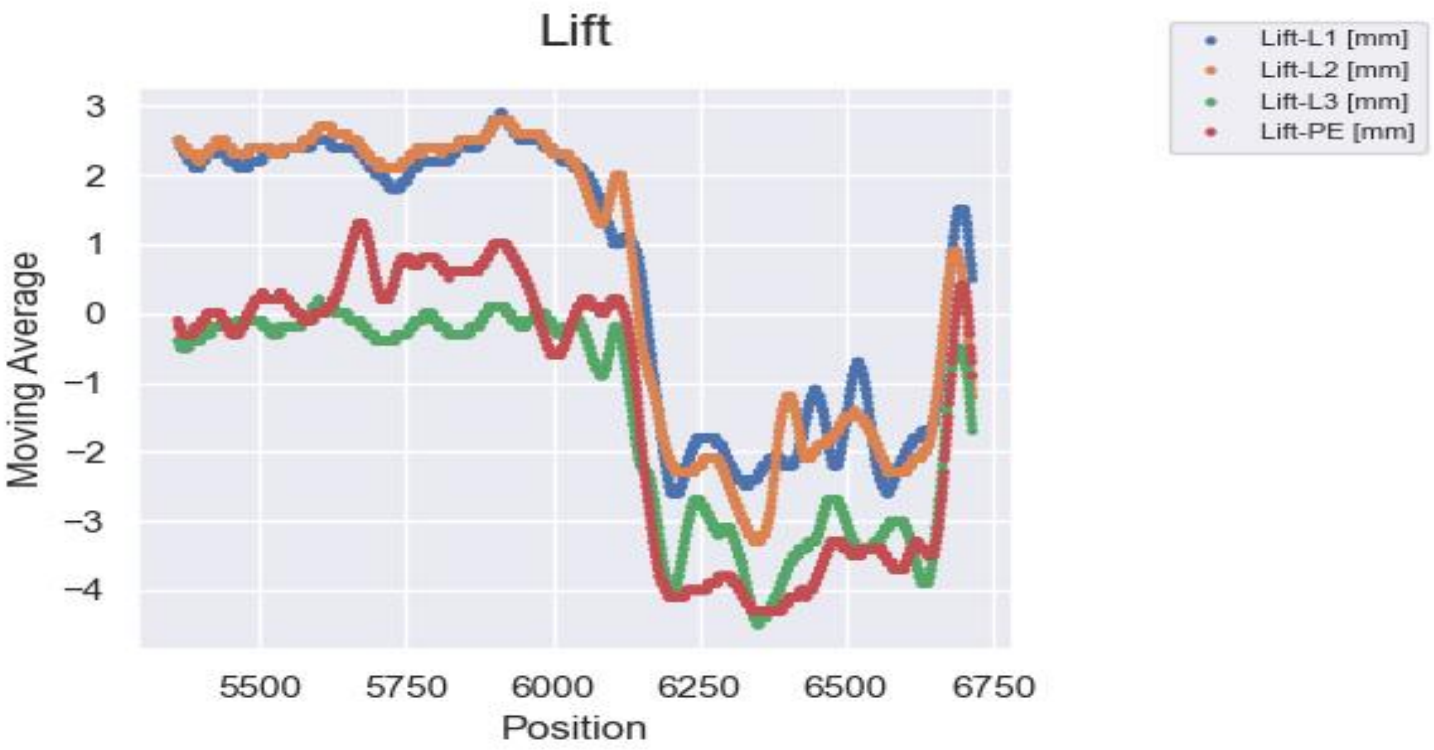

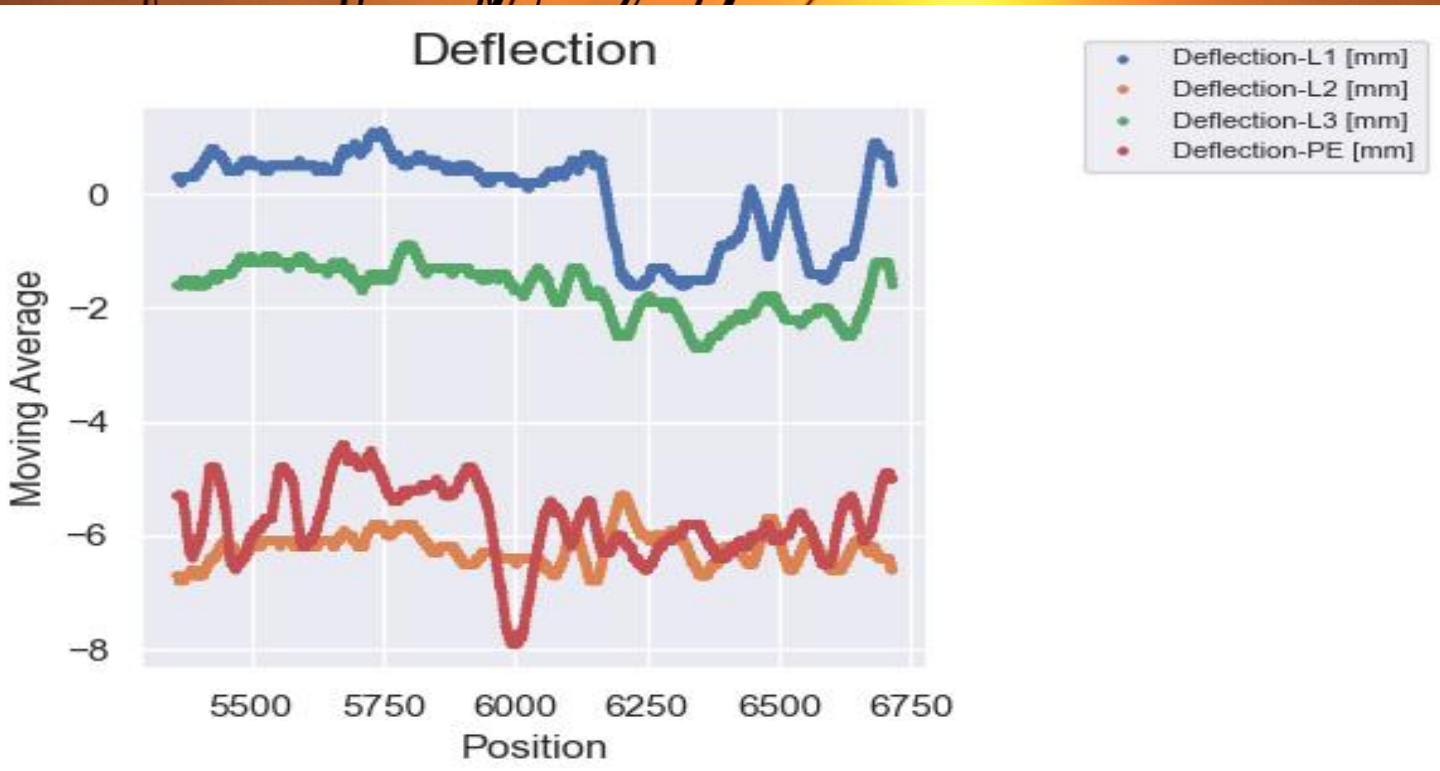

possible anomalies between positions: 6657 and 6763

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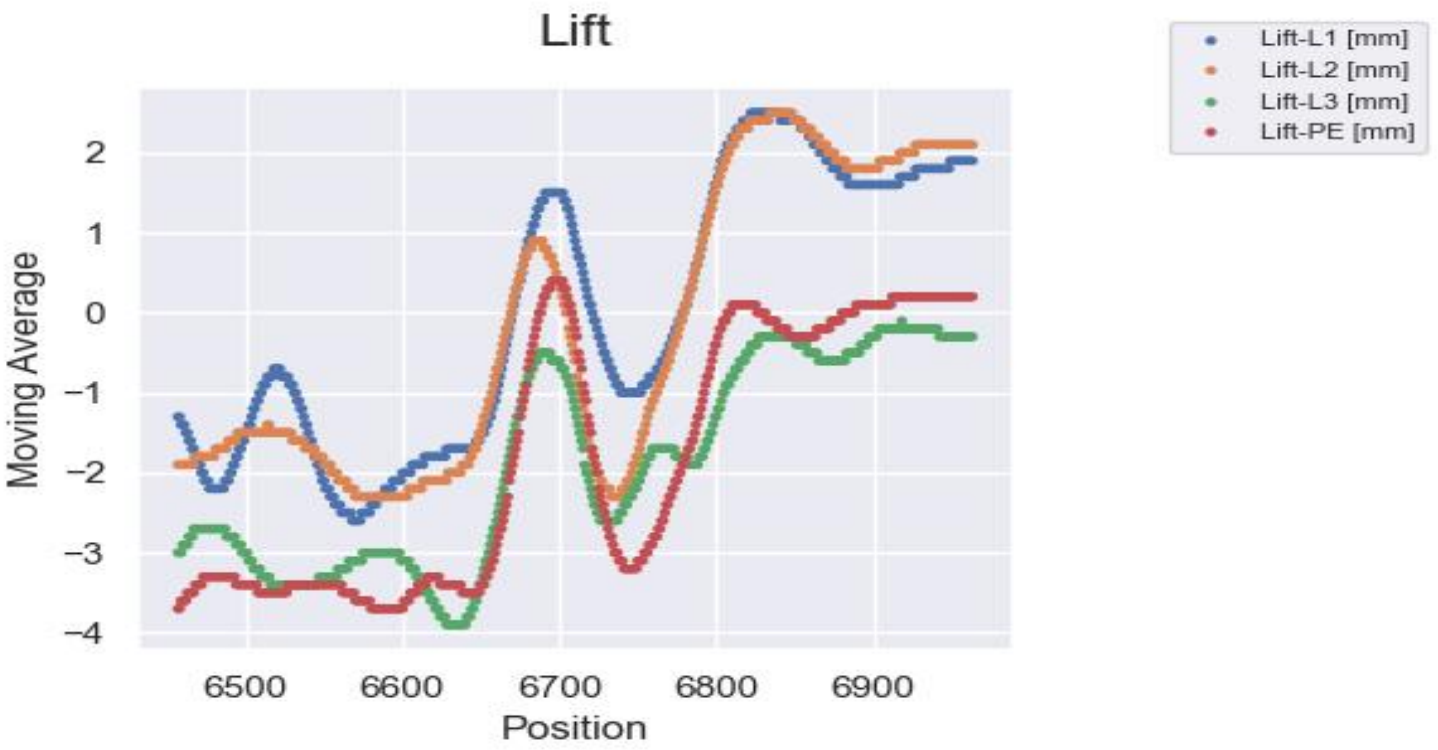

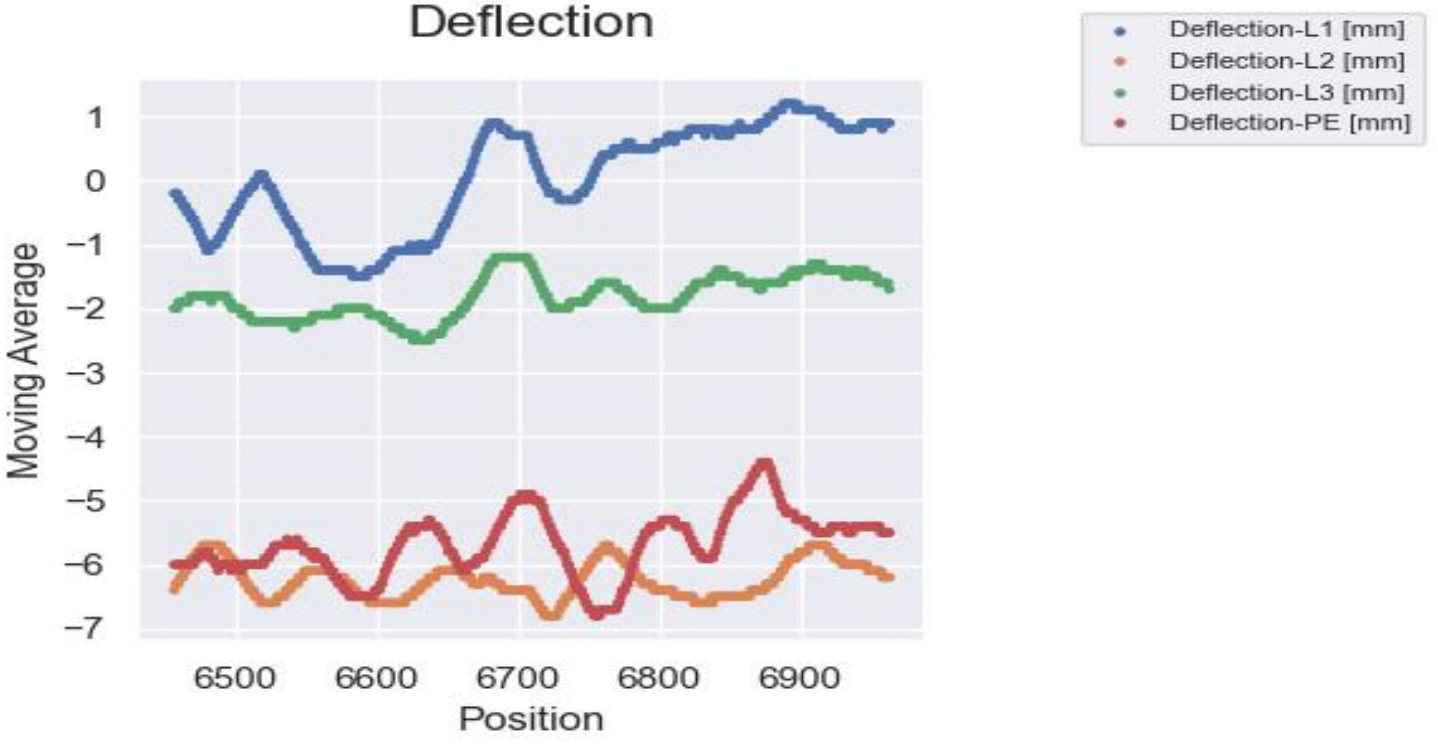

possible anomalies between positions: 7480 and 7841

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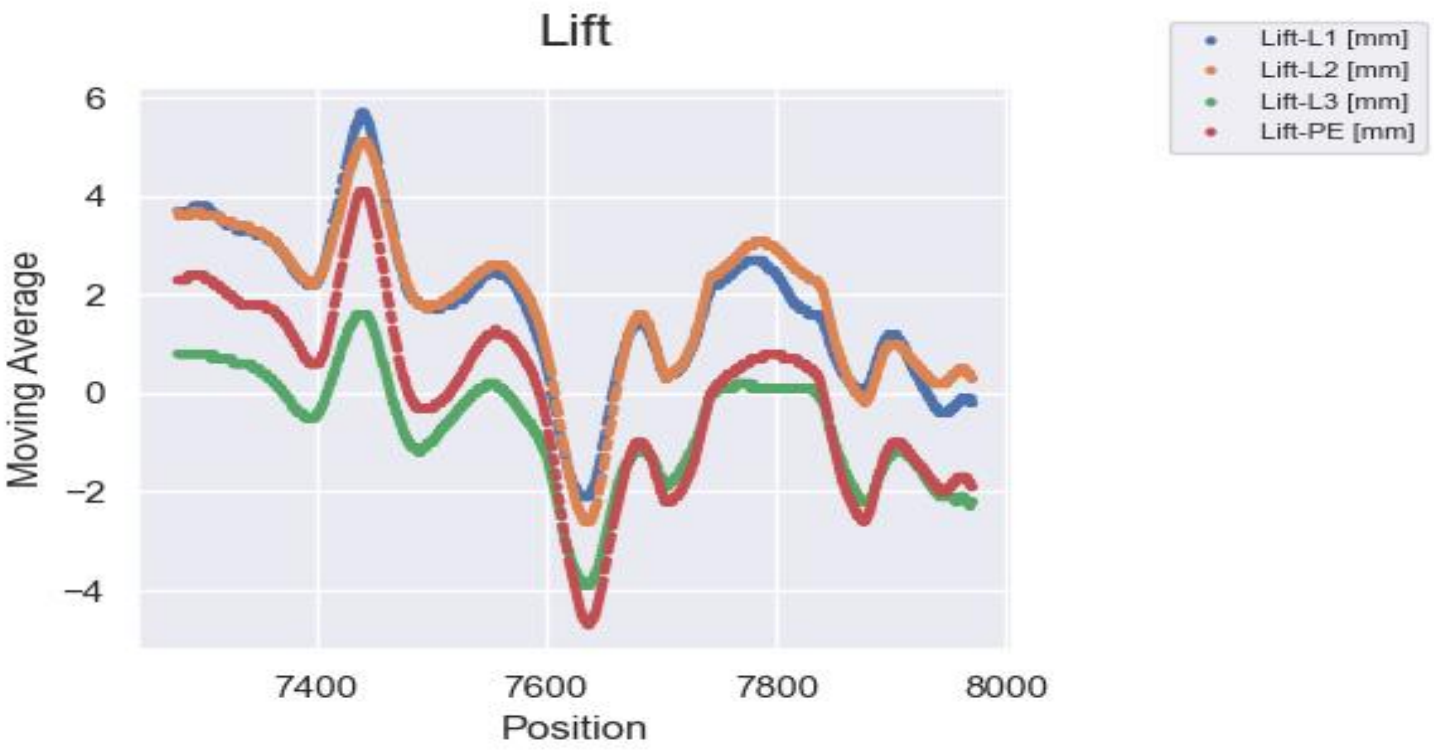

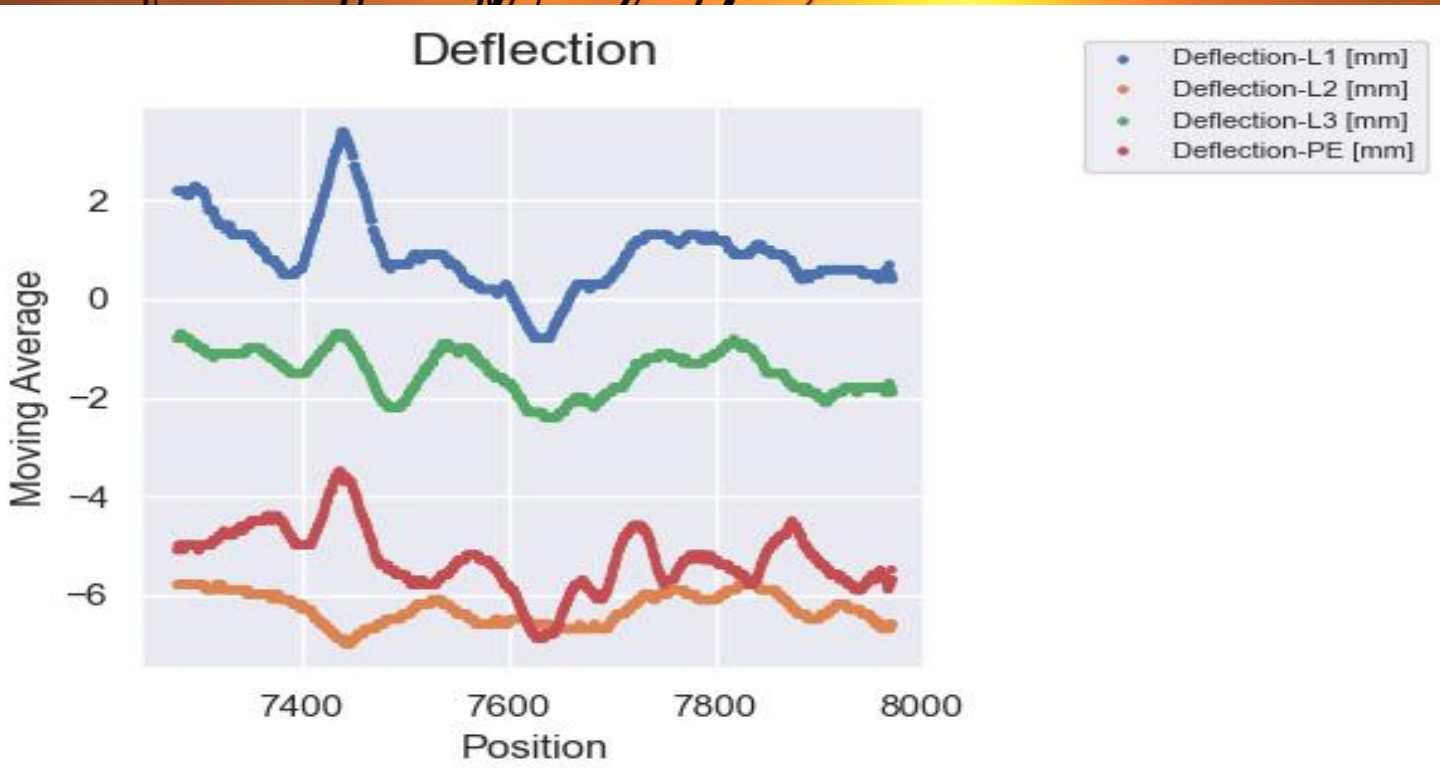

Entrance to Dashboard

Possible recognizable error cases

The Smart Collector is able to detect a considerable number of possible faults on the Electric rail as well as on the Current Collector ./nThe defects mentioned below were simulated in the Vahle EHB test facility as part of a test and the results were analyzed and processed.

Error in the plant

Copper too short in separation point

Fixed point not screwed on correctly

Cable between rail and carrier

bent up rail

Rail not clipped into holder

Rail compressed

Separation point Offset

Switch transition Offset

A missing coal brush

In addition, the Smart Collector can detect anomalies such as vibrations and mechanical abnormalities.