

Corso di Laurea Magistrale in Ingegneria Civile

TESI DI LAUREA MAGISTRALE

ALLEGATO 1: APPENDICE DEI GRAFICI - PARTE 3-A

**Prove su tavola vibrante di un silo metallico a fondo piano:  
identificazione dinamica mediante accelerometri**

Candidato:

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Matricola 0000812334

Relatore:

**Chiar.mo Prof. Ing. Stefano Silvestri**

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# A

## APPENDICE DEI GRAFICI: PARTE 3-A

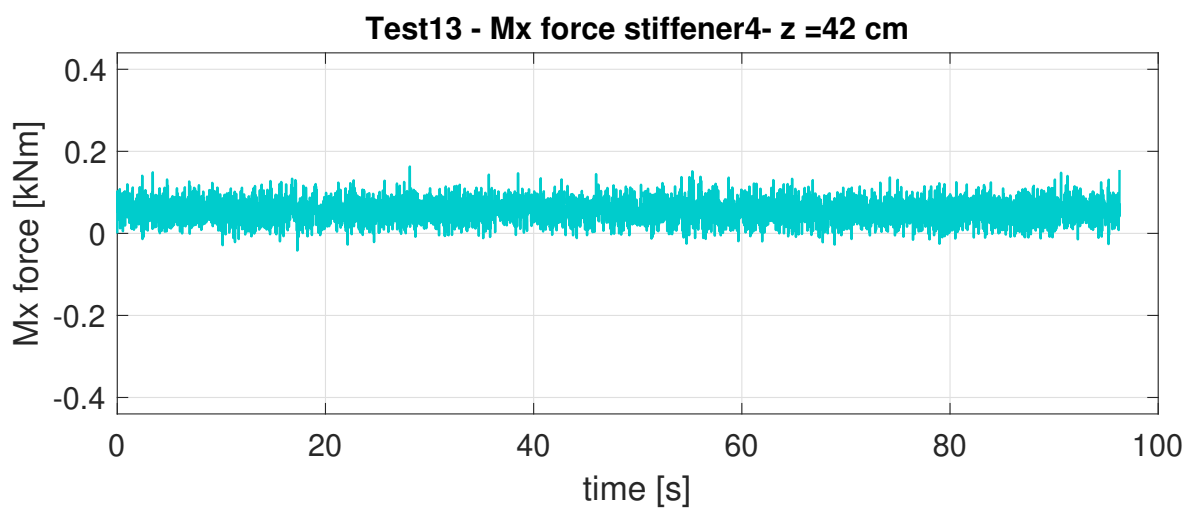
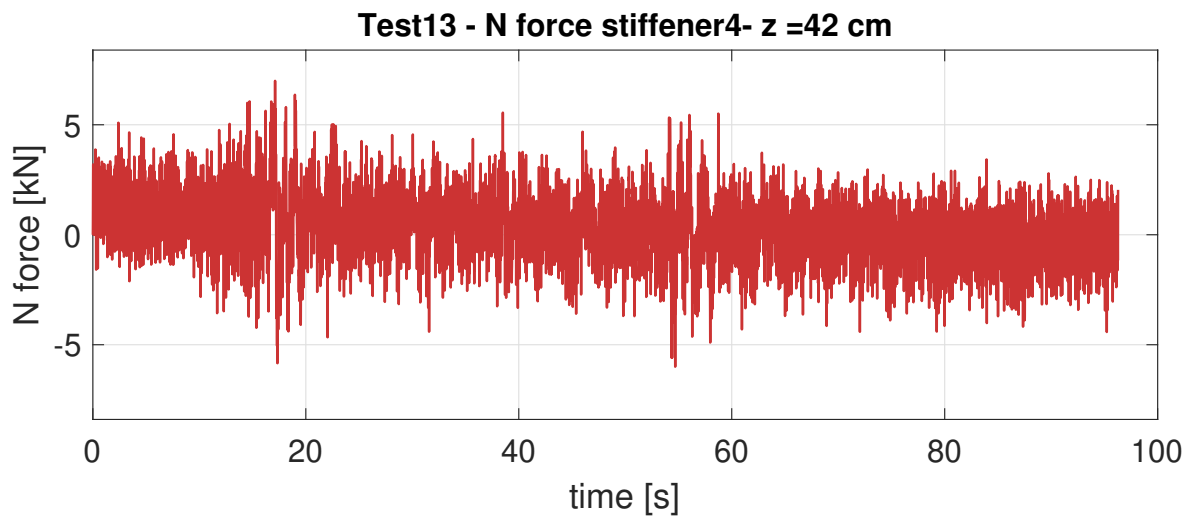
### TESTS IN CONFIGURAZIONE A BASE FISSA

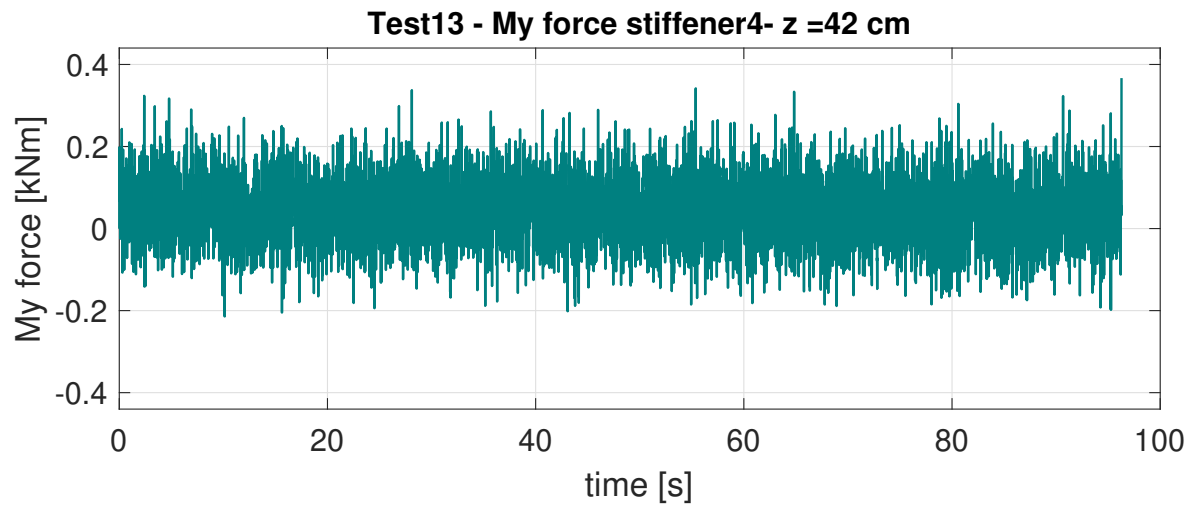
#### A.4.5 Sforzi nei montanti

- Terremoto RS1 0.1 g

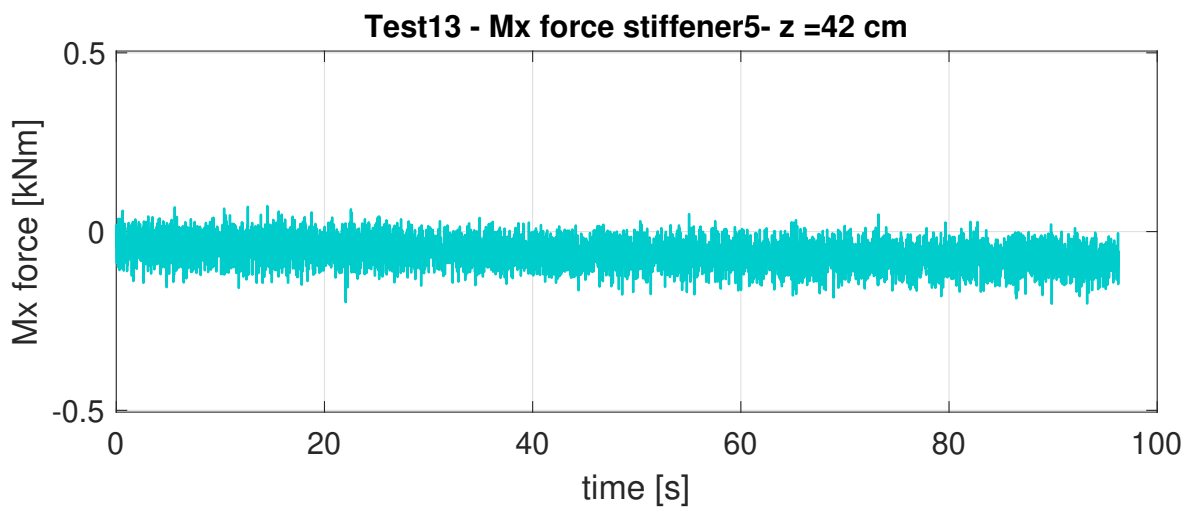
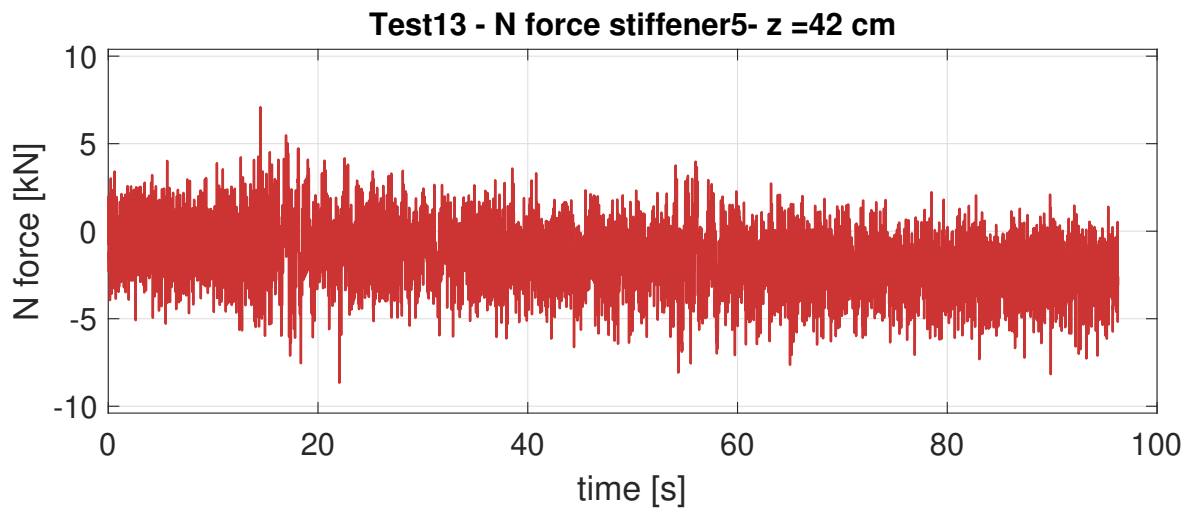
Quota z = 42 cm

- Montante numero 4

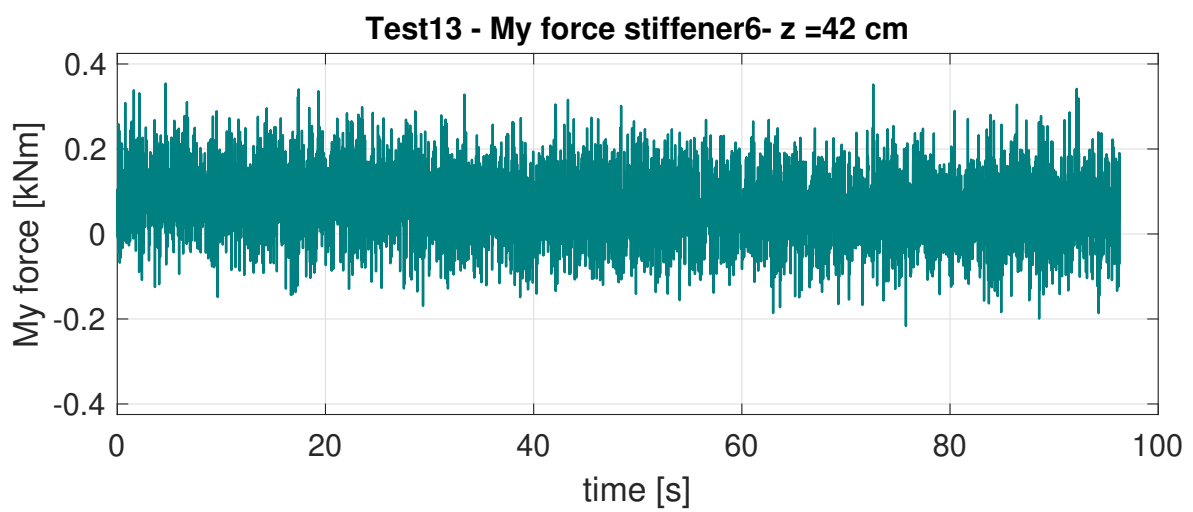
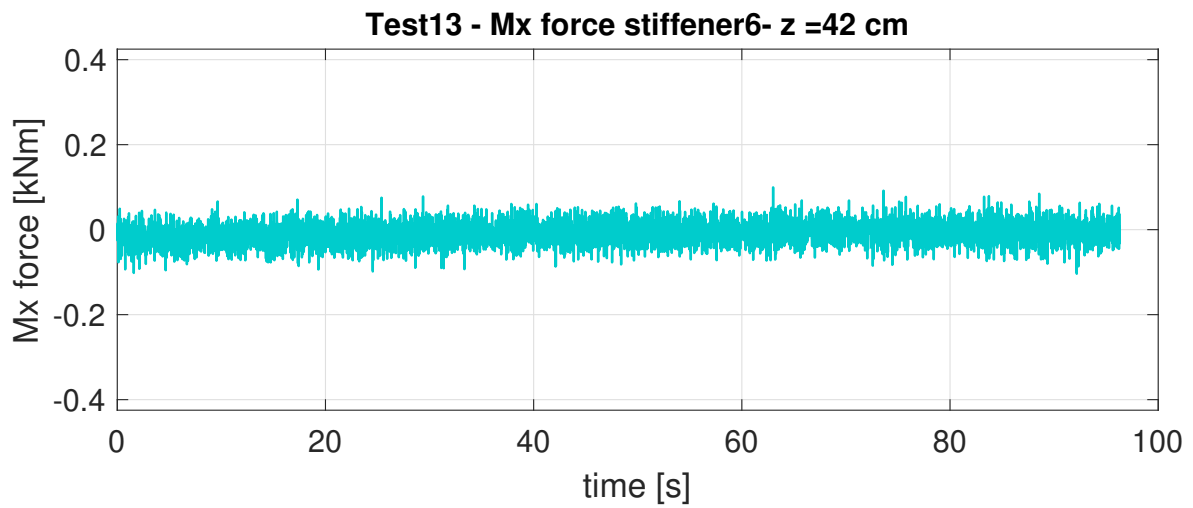
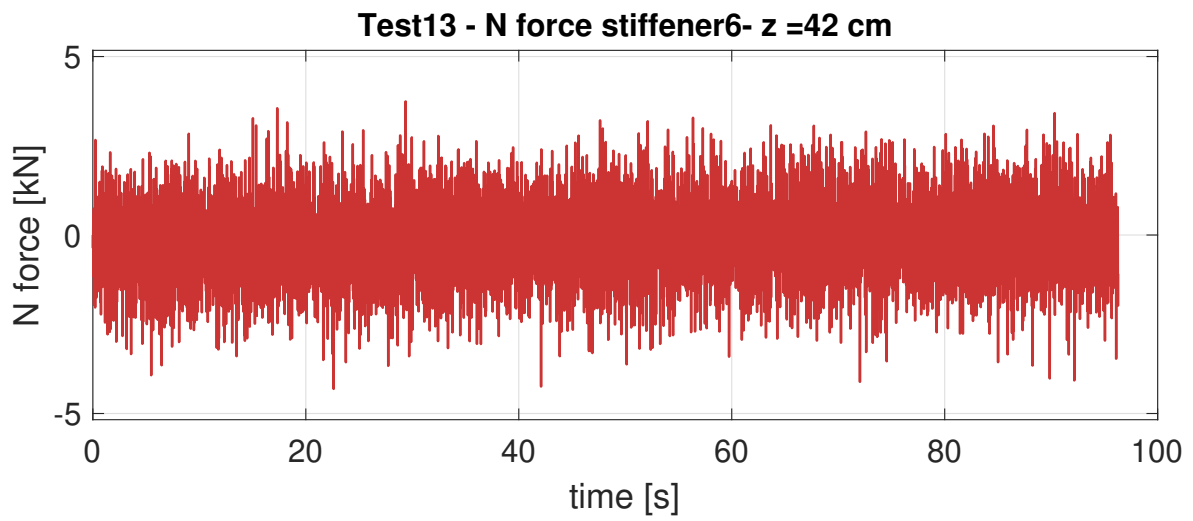




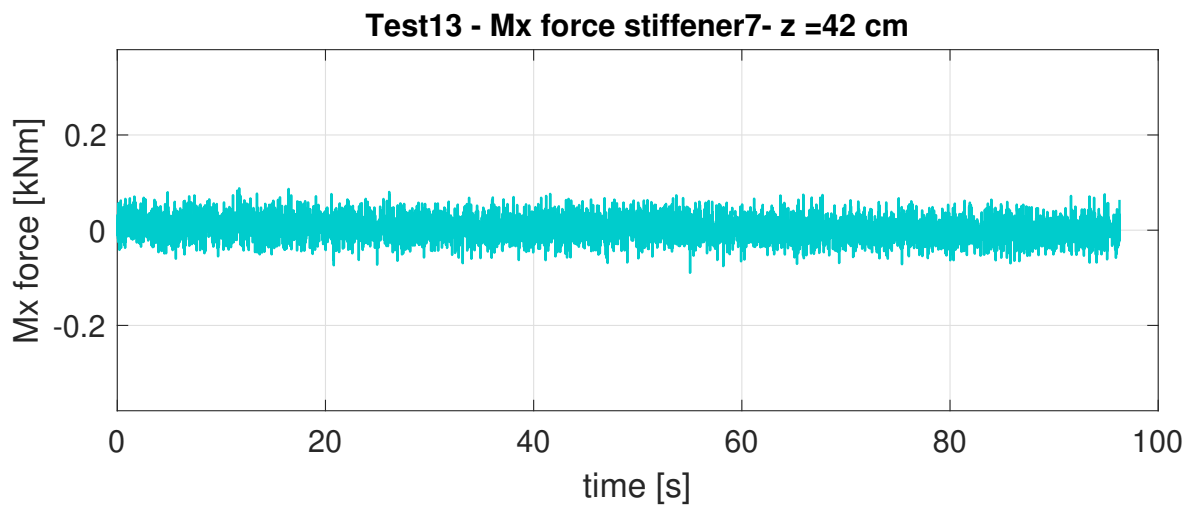
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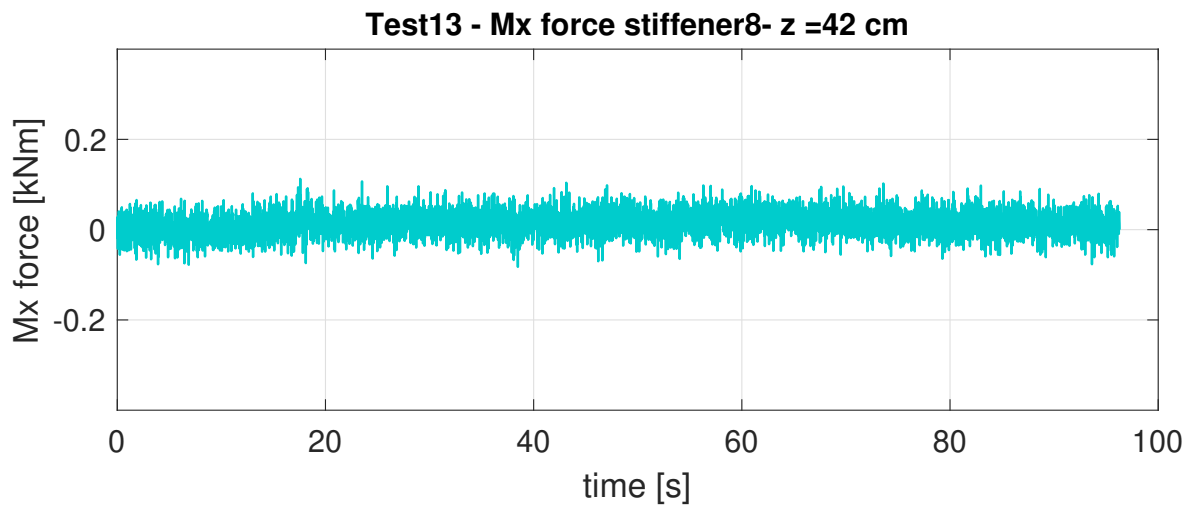
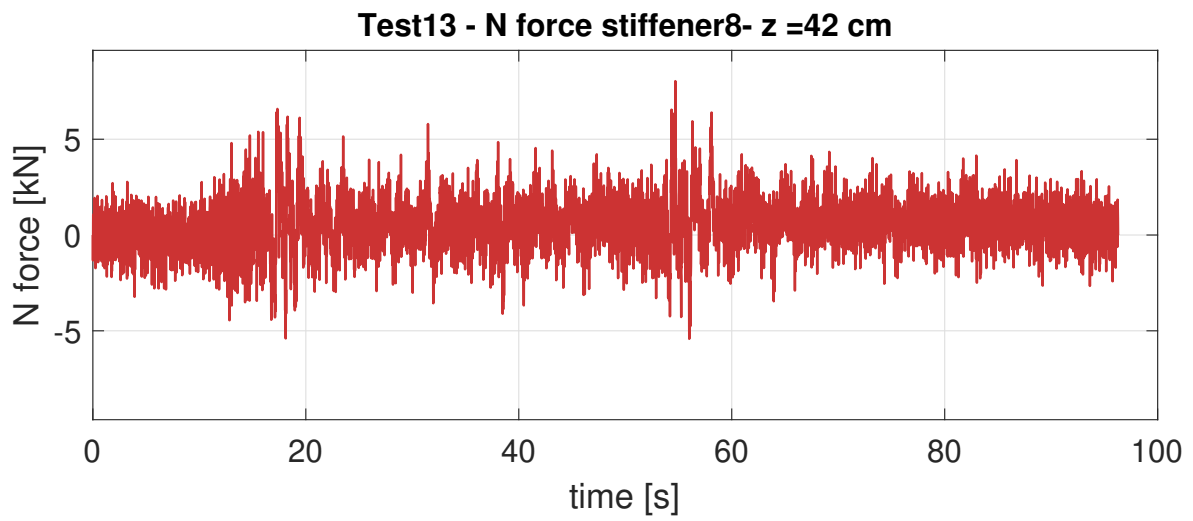
– Montante numero 6



- Montante numero 7



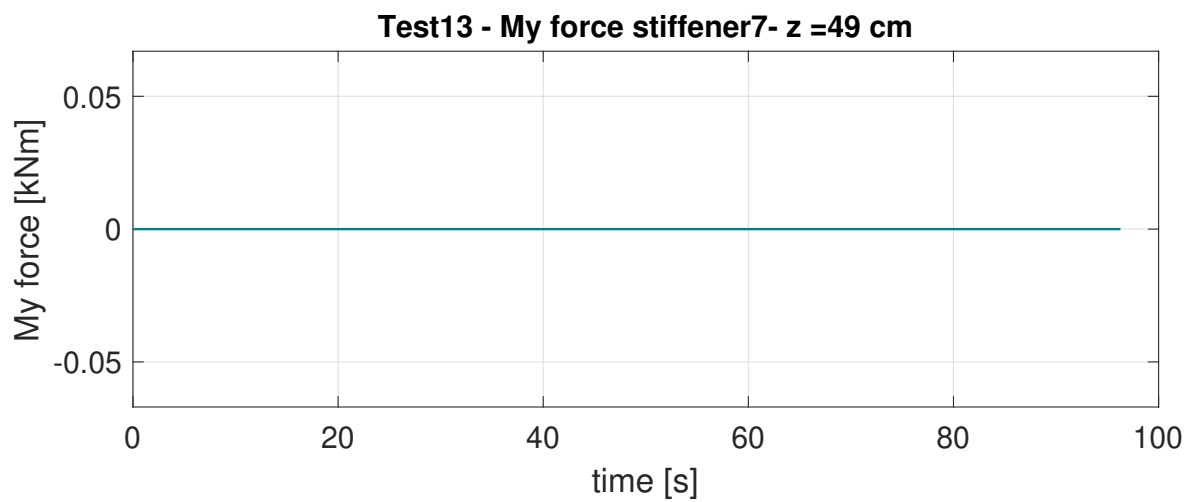
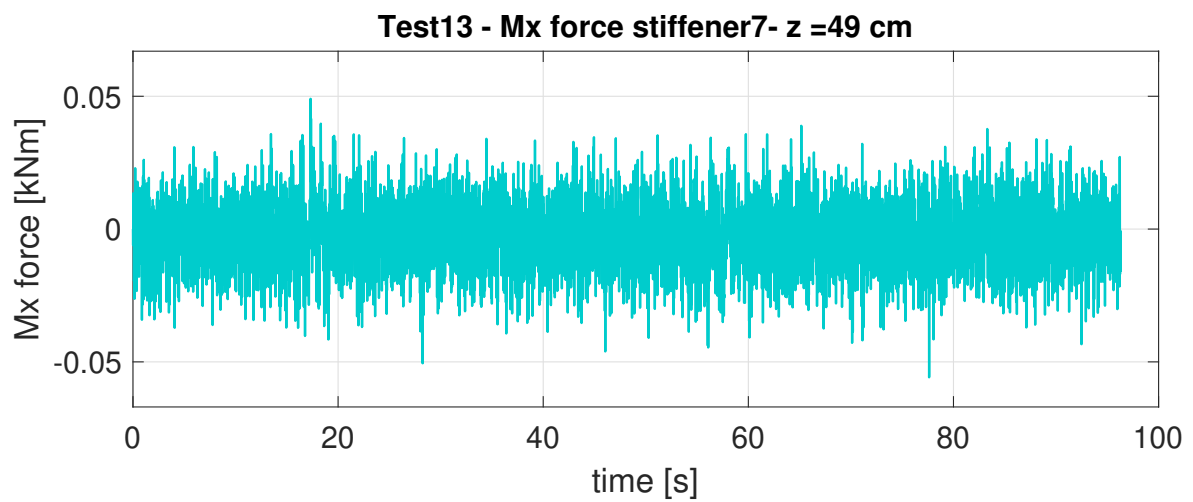
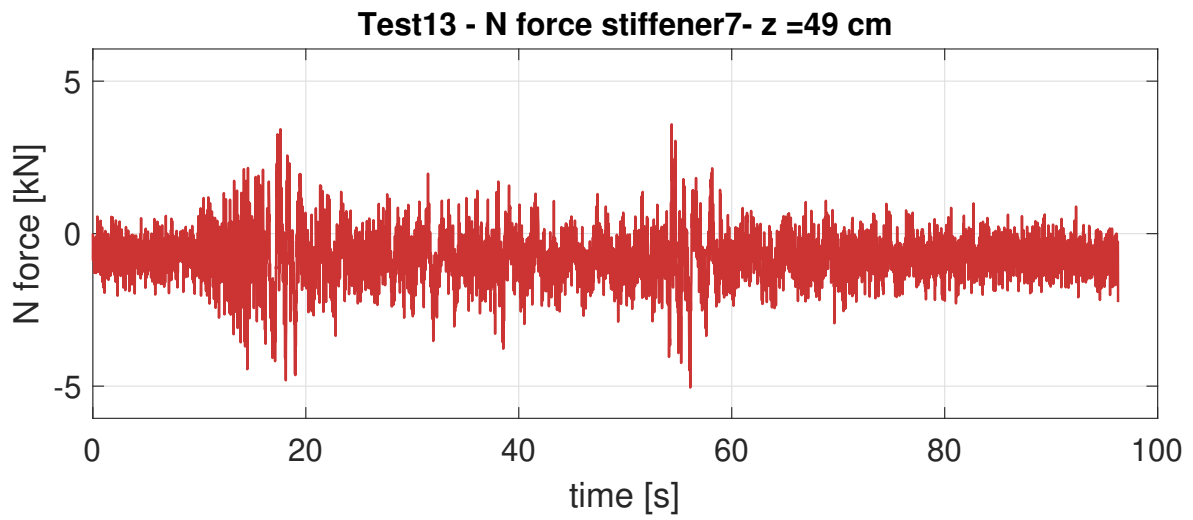
– Montante numero 8



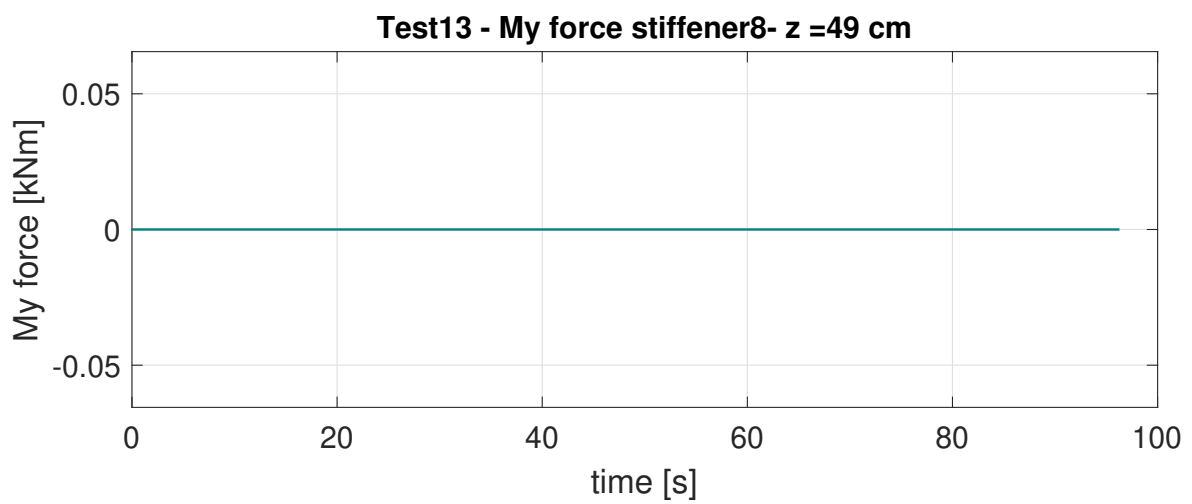
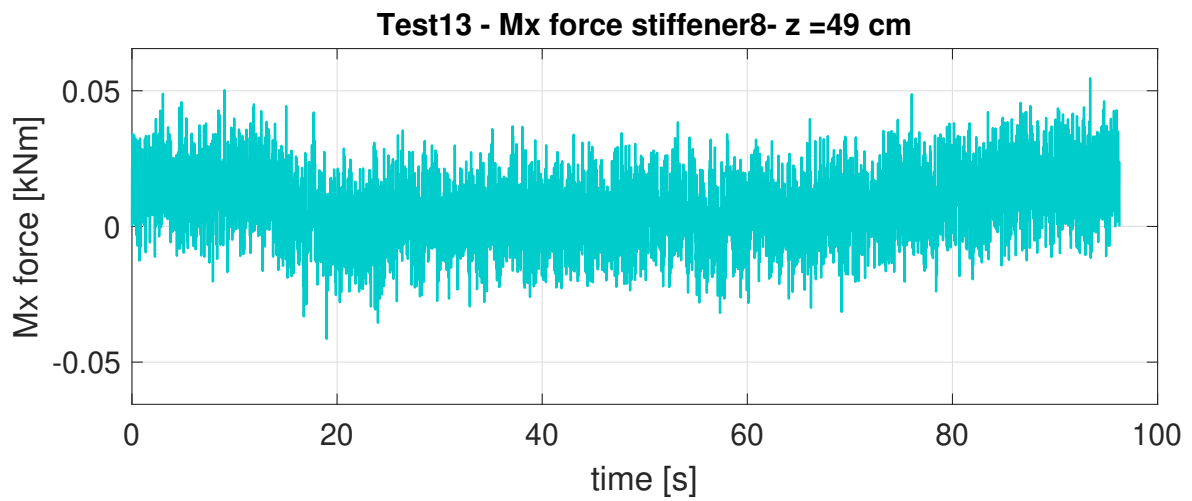
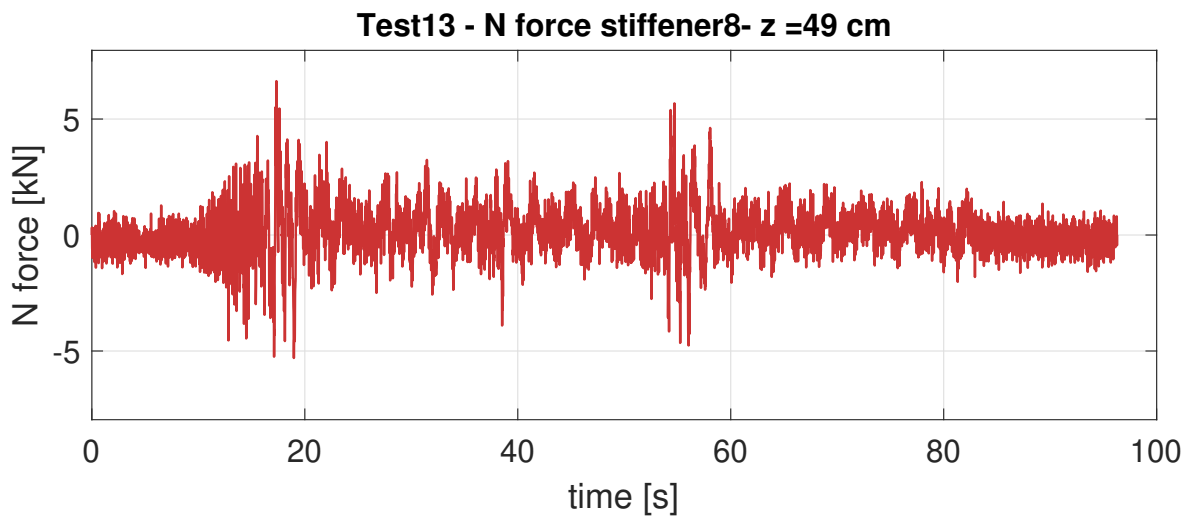


**Quota z = 49 cm**

– Montante numero 7

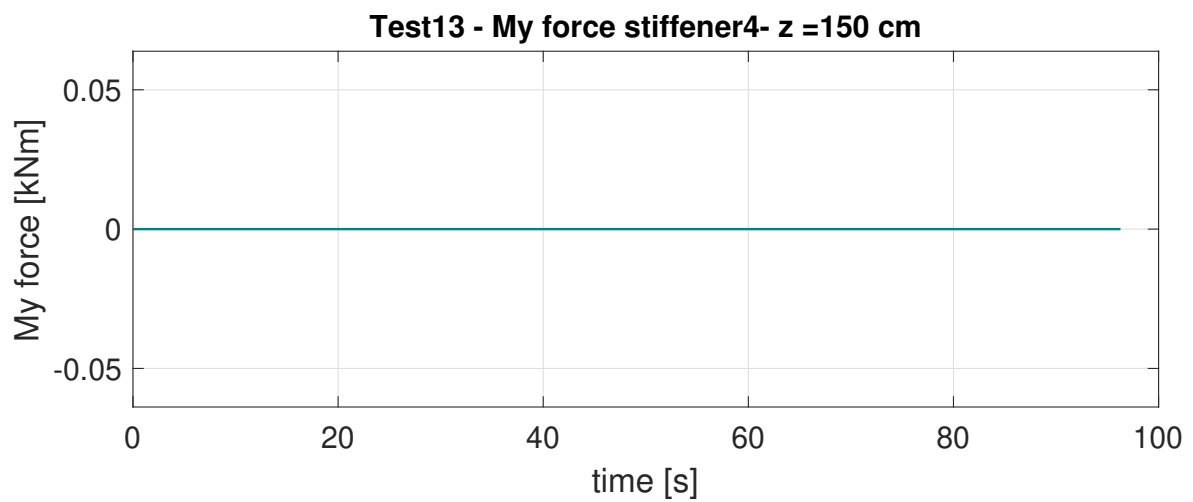
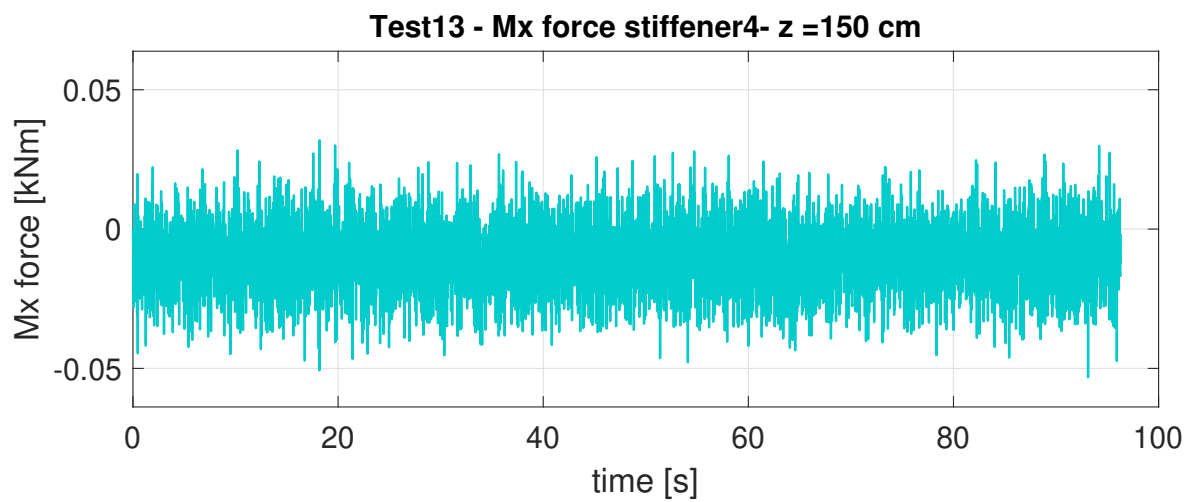
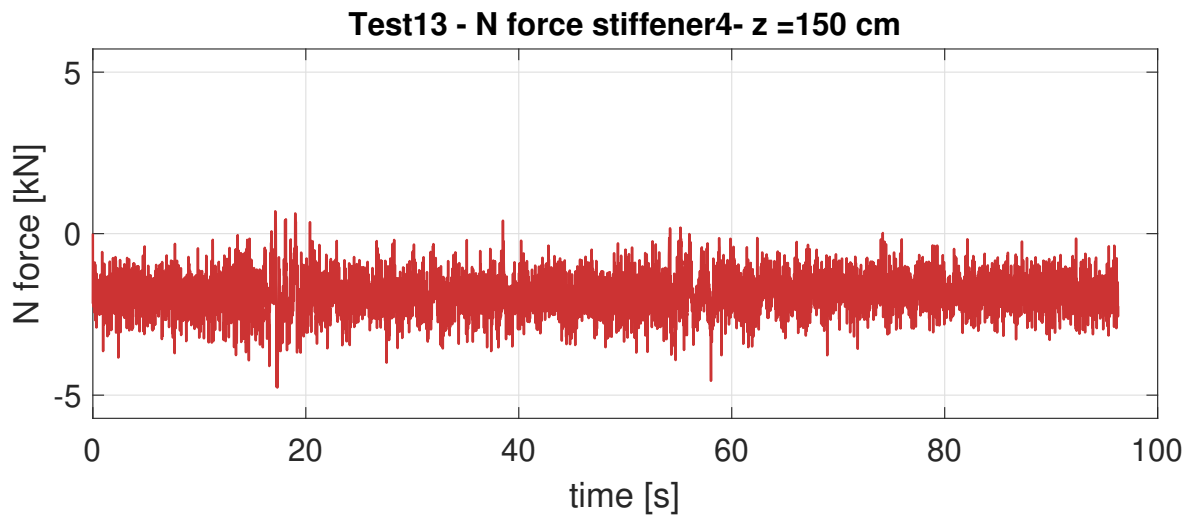


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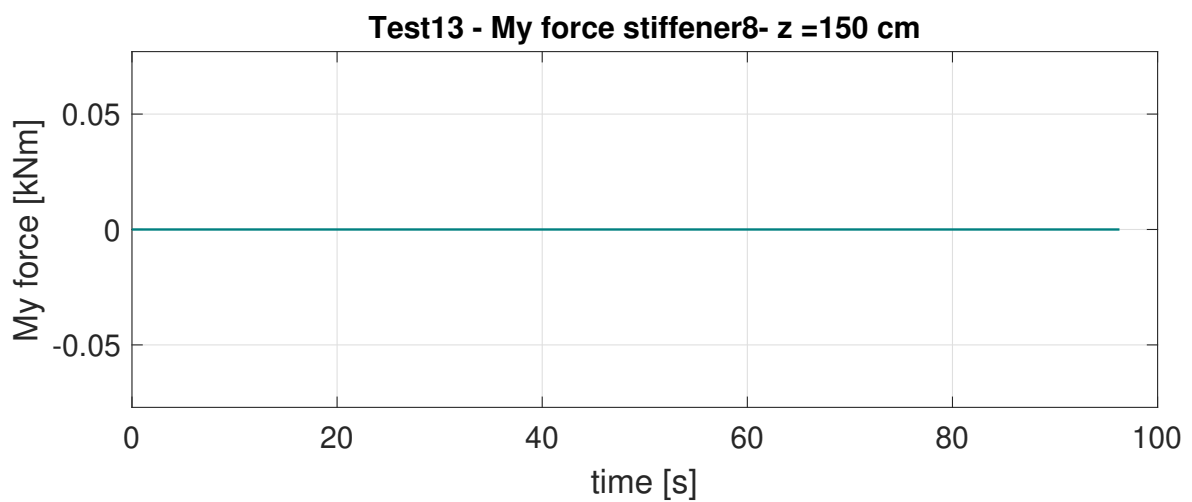
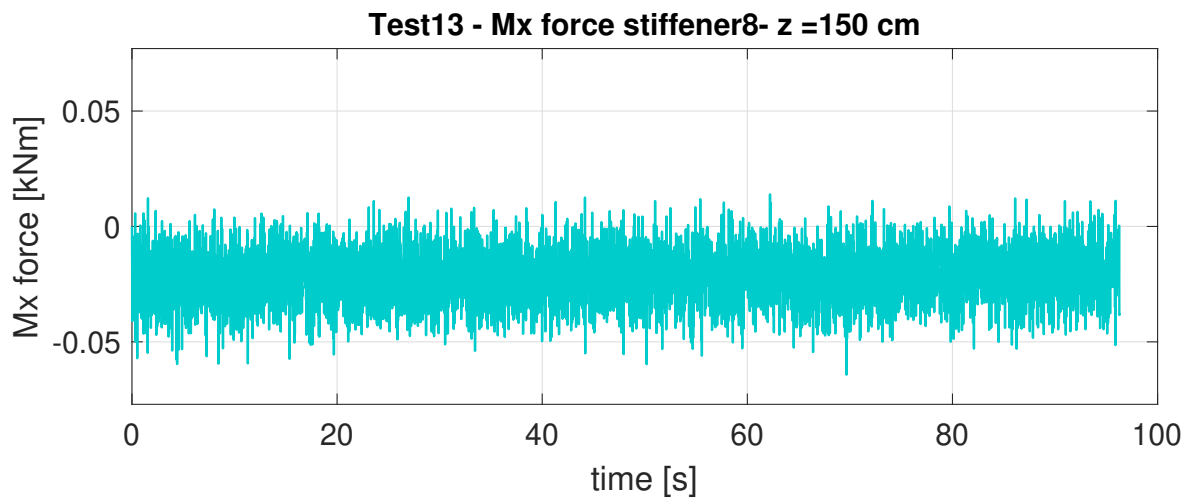
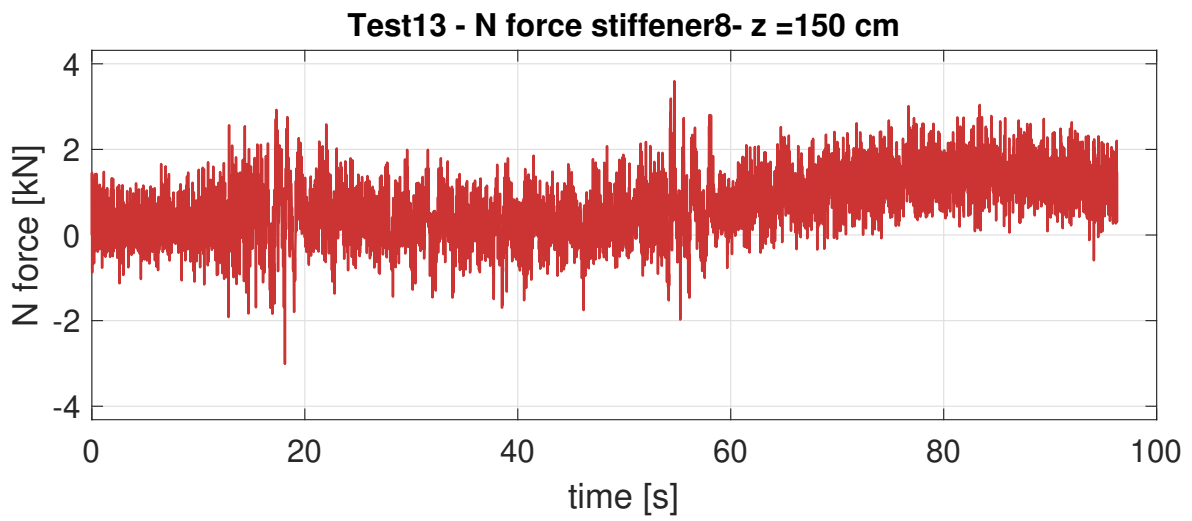


**Quota z = 150 cm**

– Montante numero 4

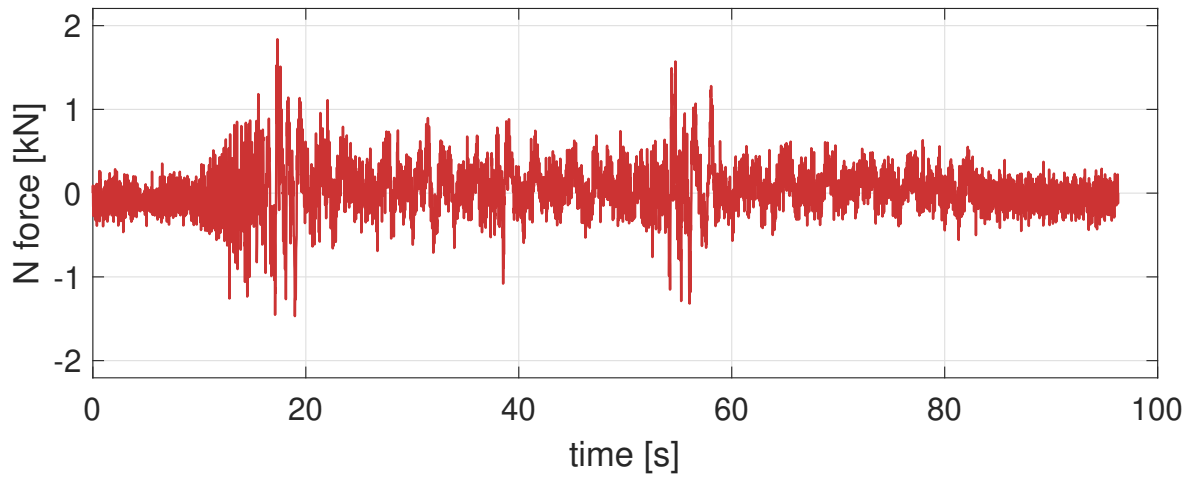
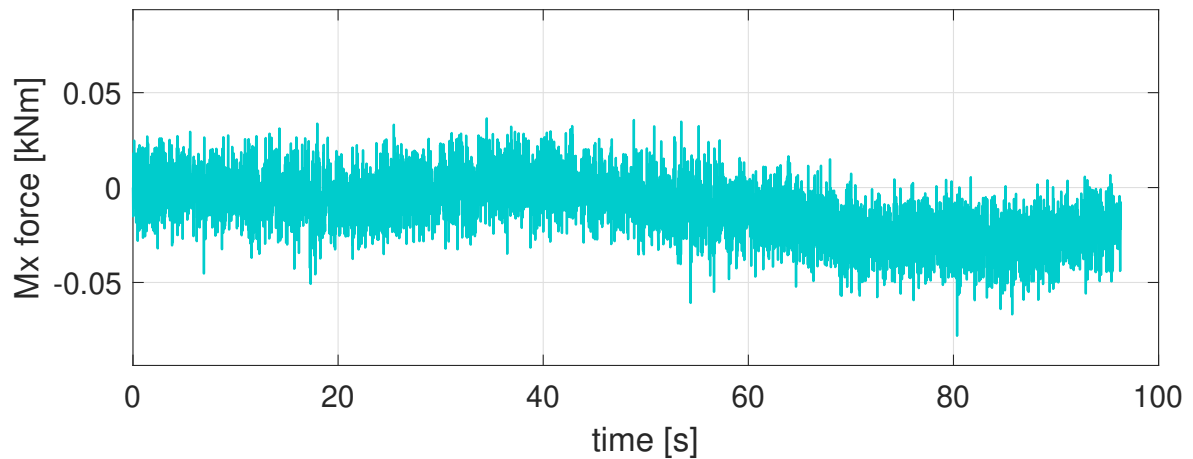
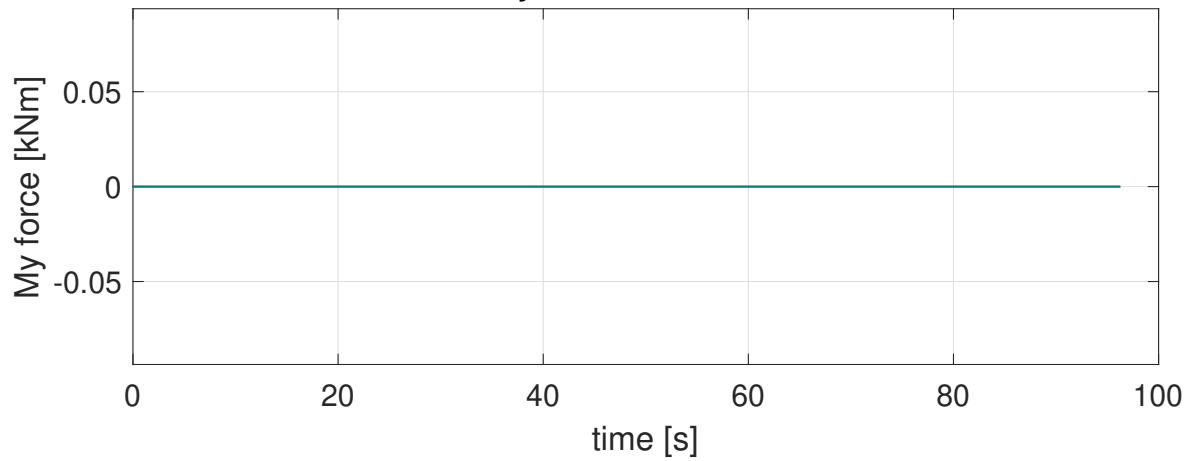


– Montante numero 8



**Quota z = 250 cm**

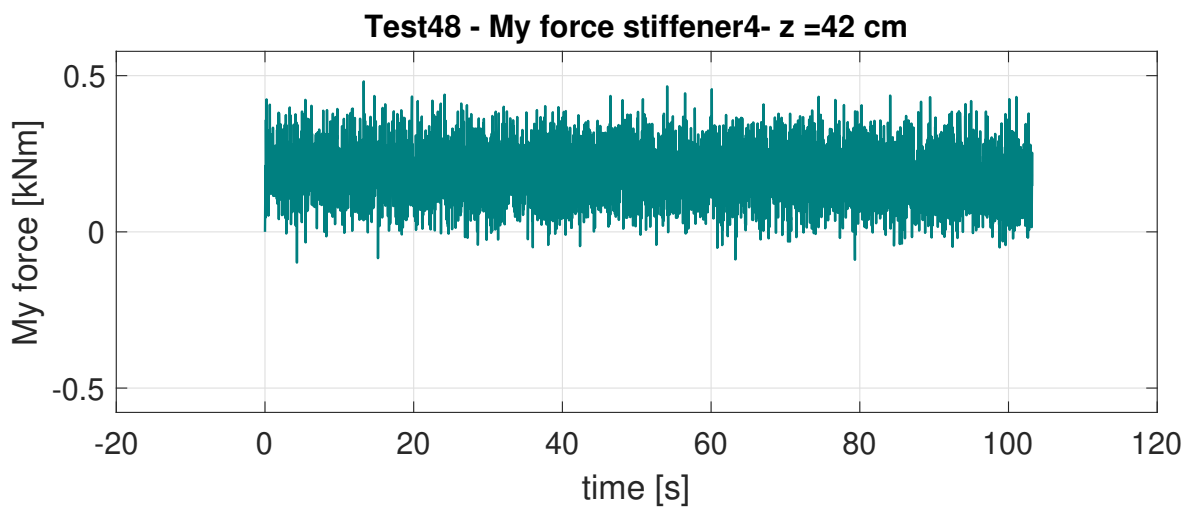
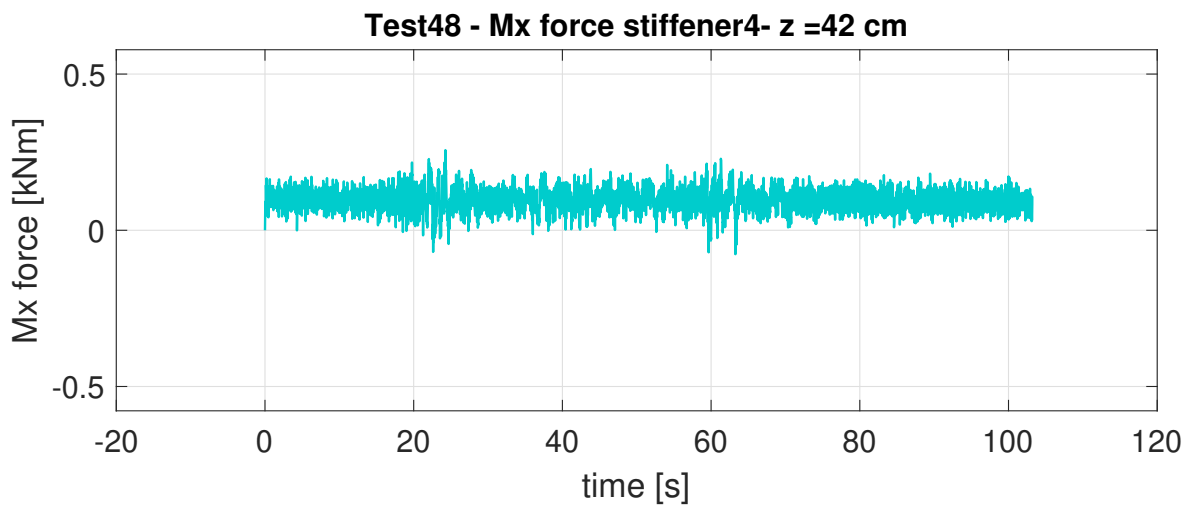
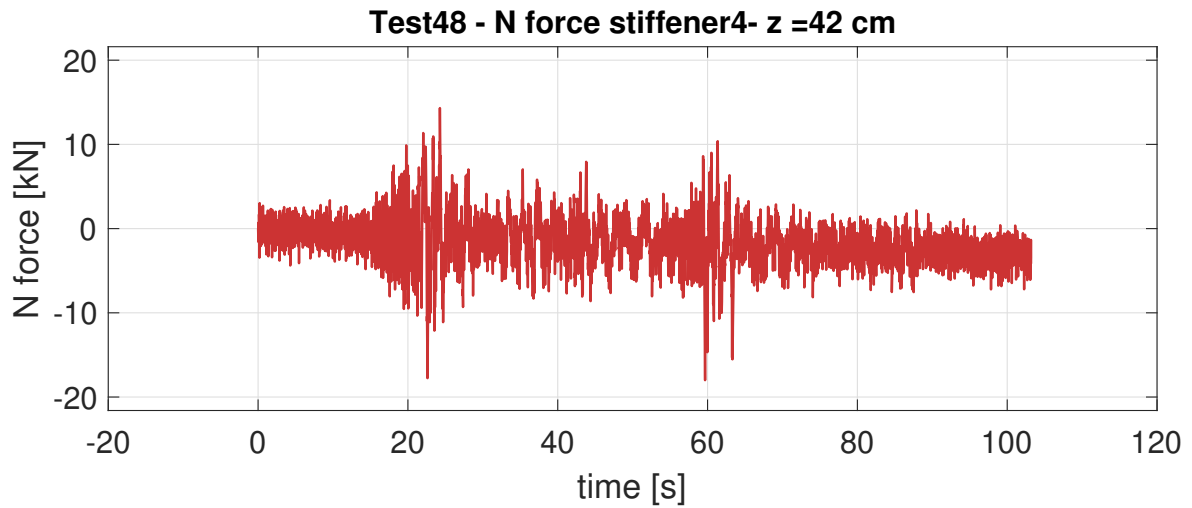
– Montante numero 8

**Test13 - N force stiffener8- z =250 cm****Test13 - Mx force stiffener8- z =250 cm****Test13 - My force stiffener8- z =250 cm**

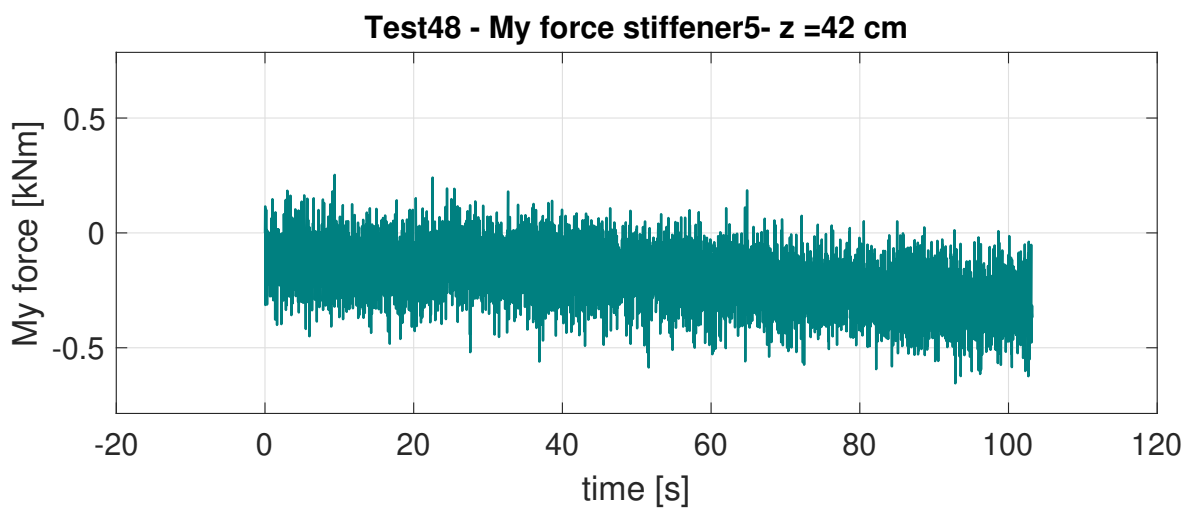
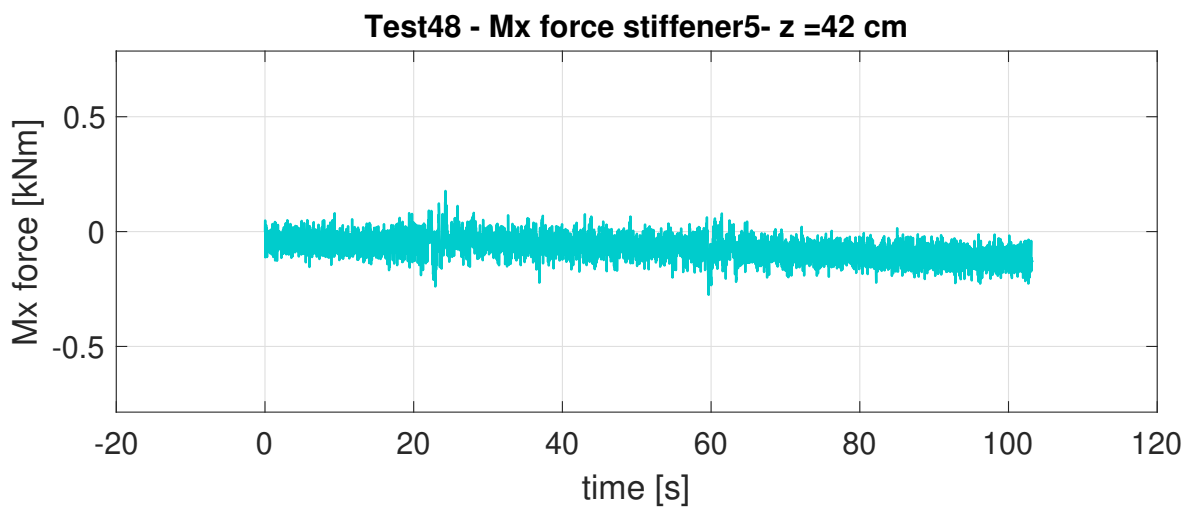
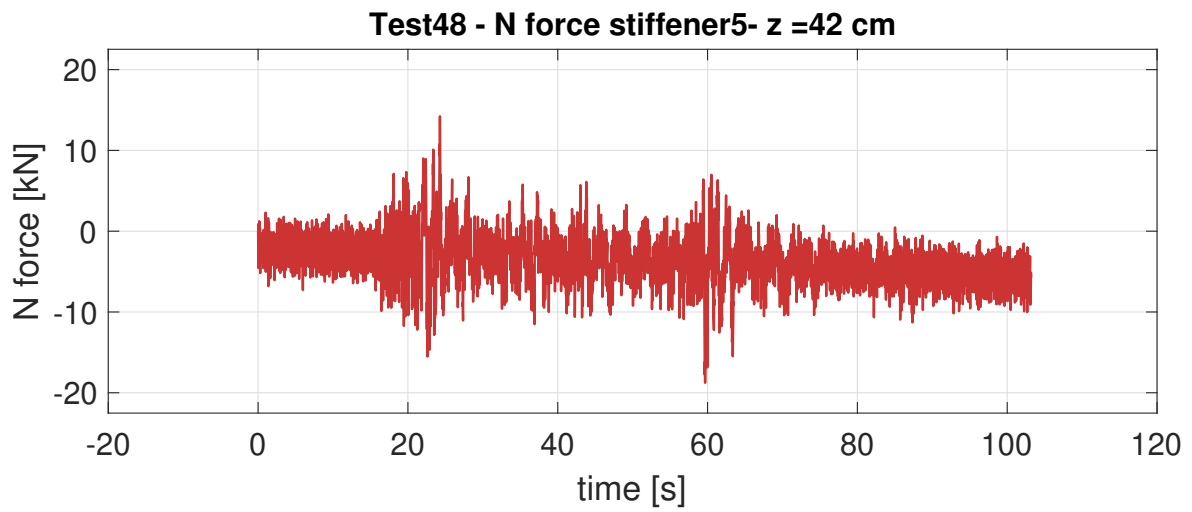
- Terremoto RS1 0.3 g

Quota z = 42 cm

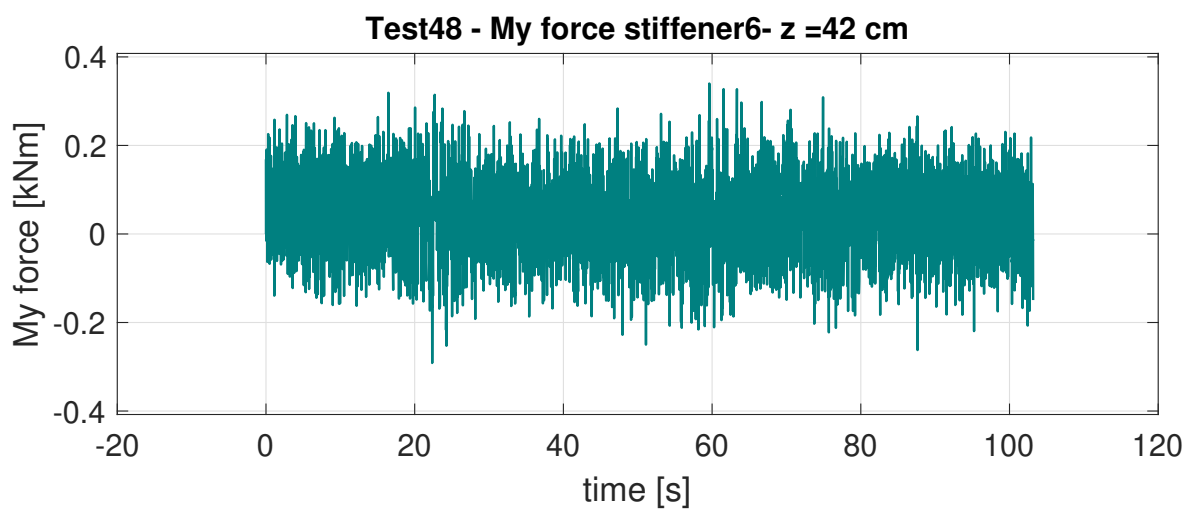
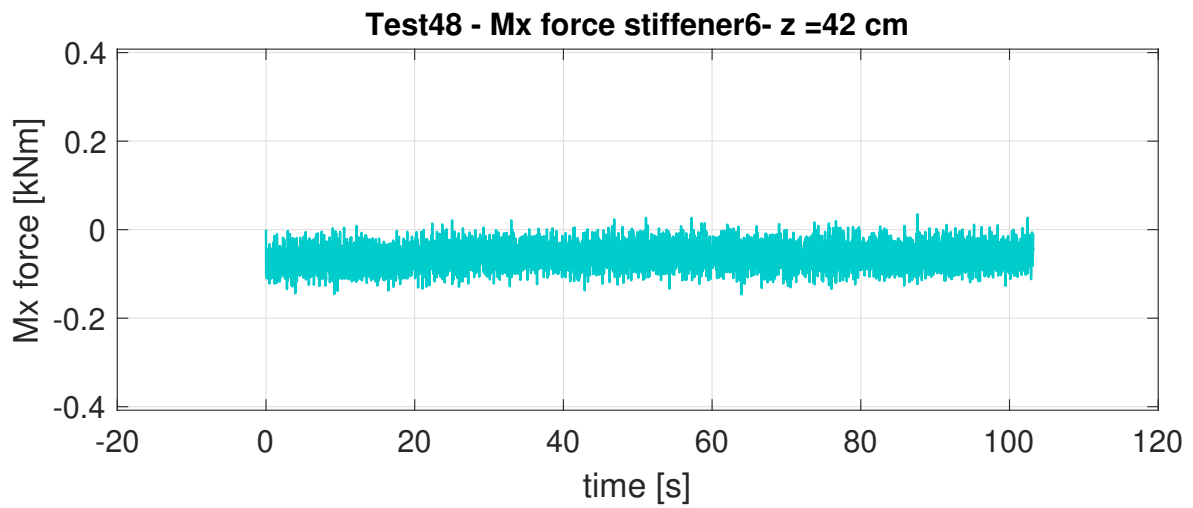
– Montante numero 4



- Montante numero 5

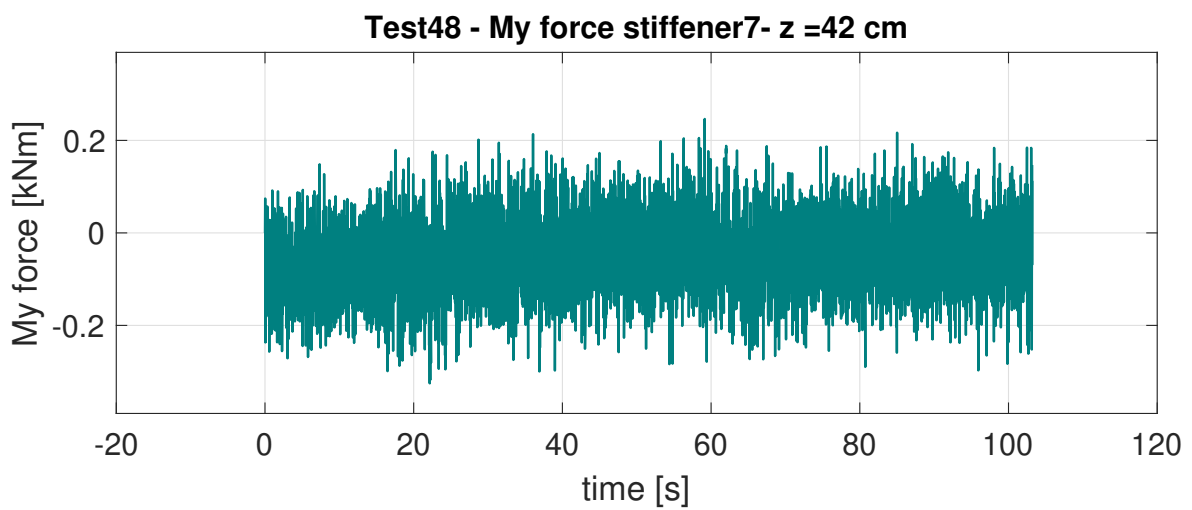
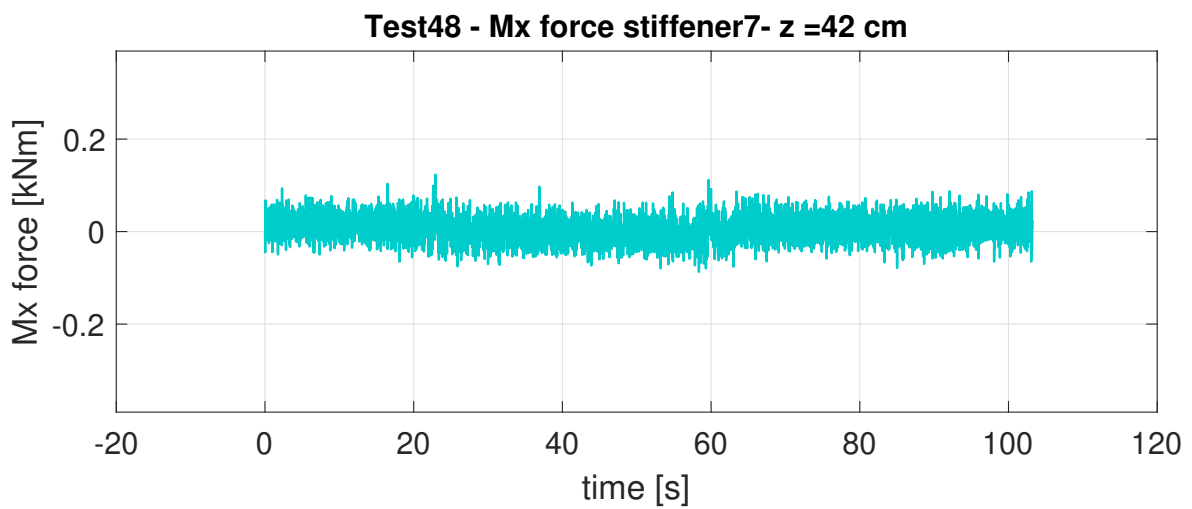
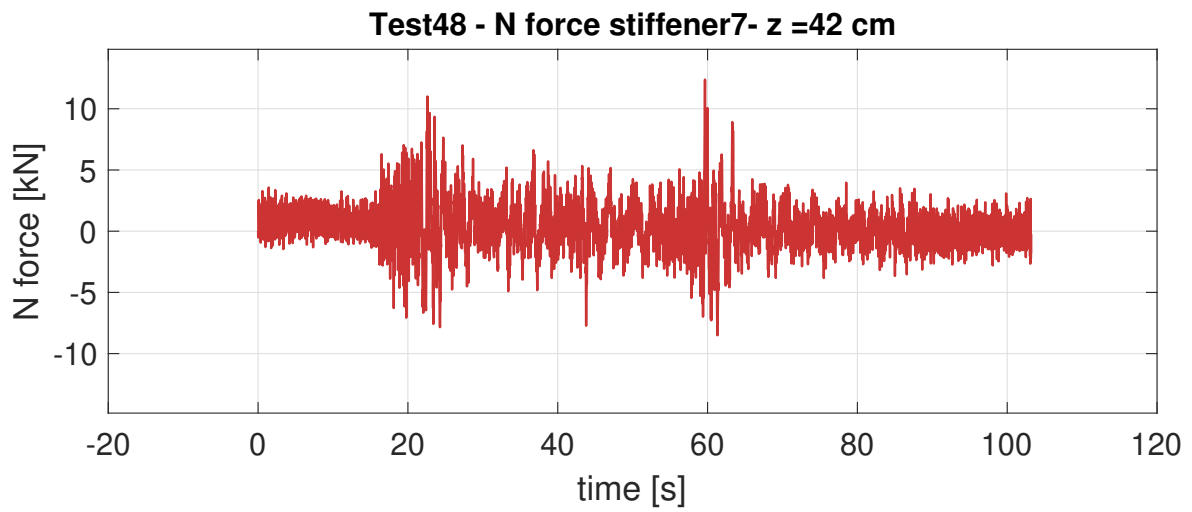


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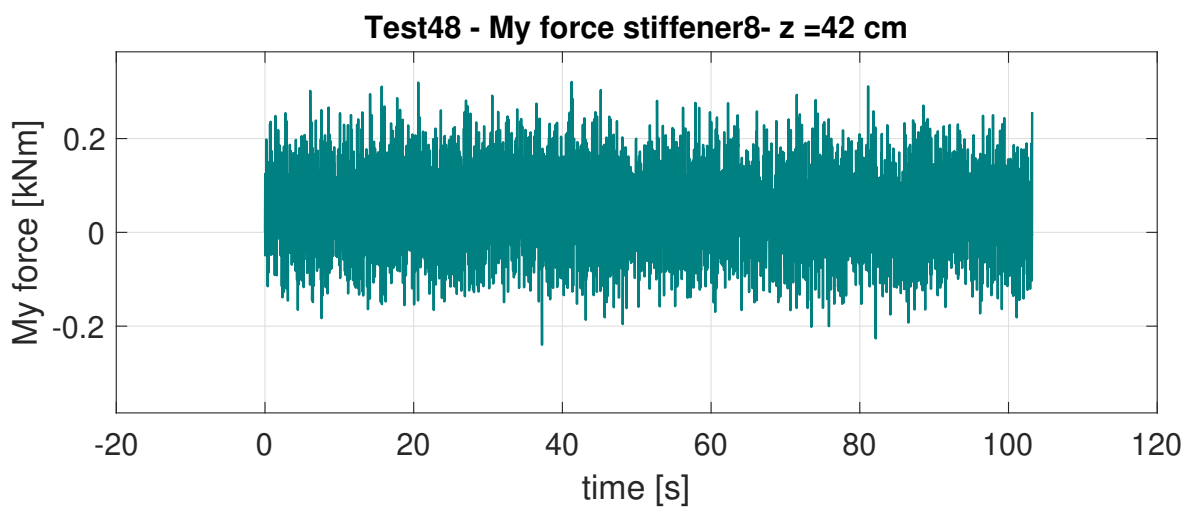
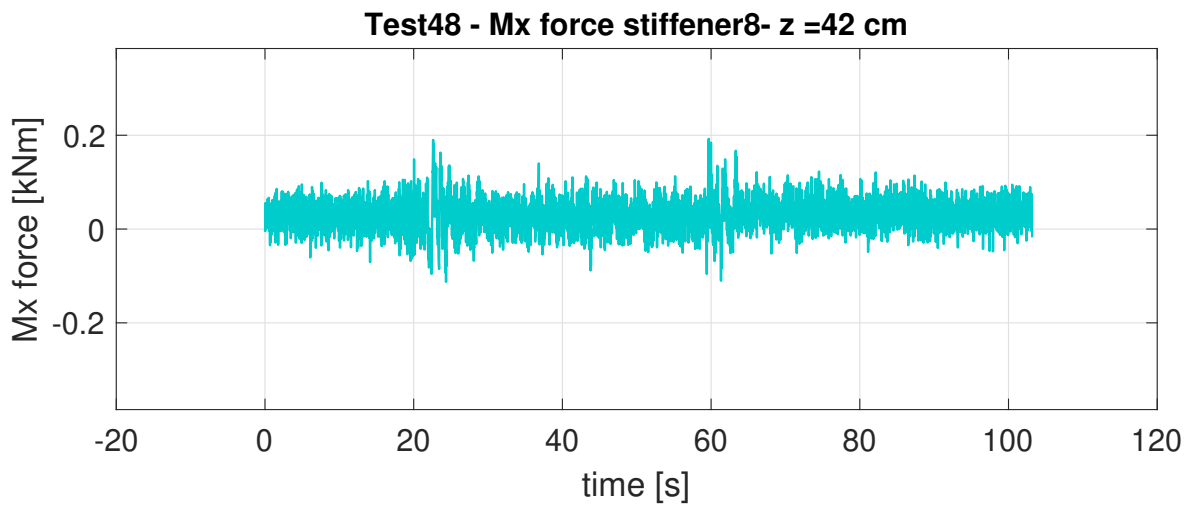
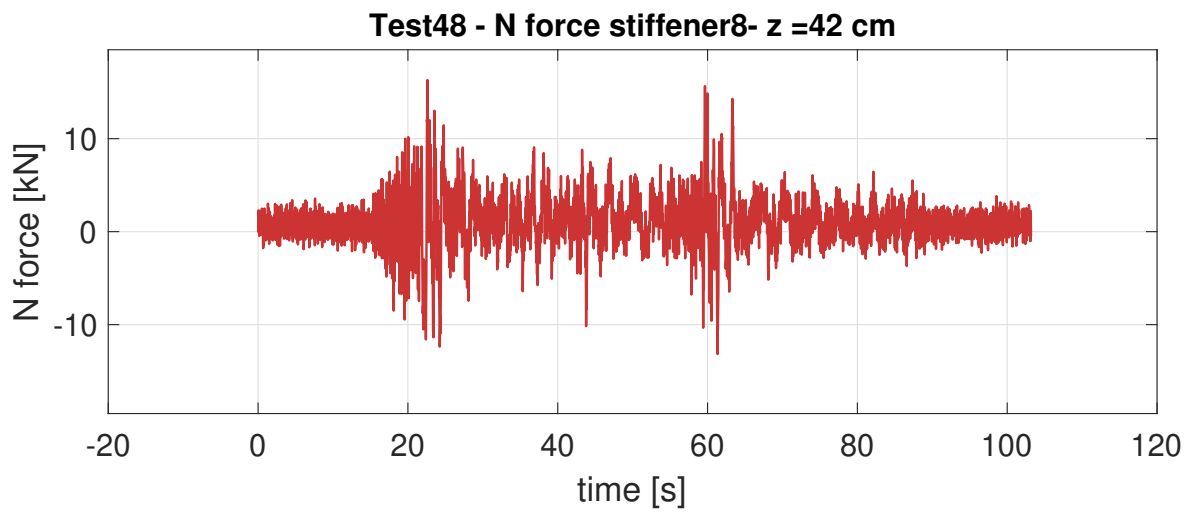




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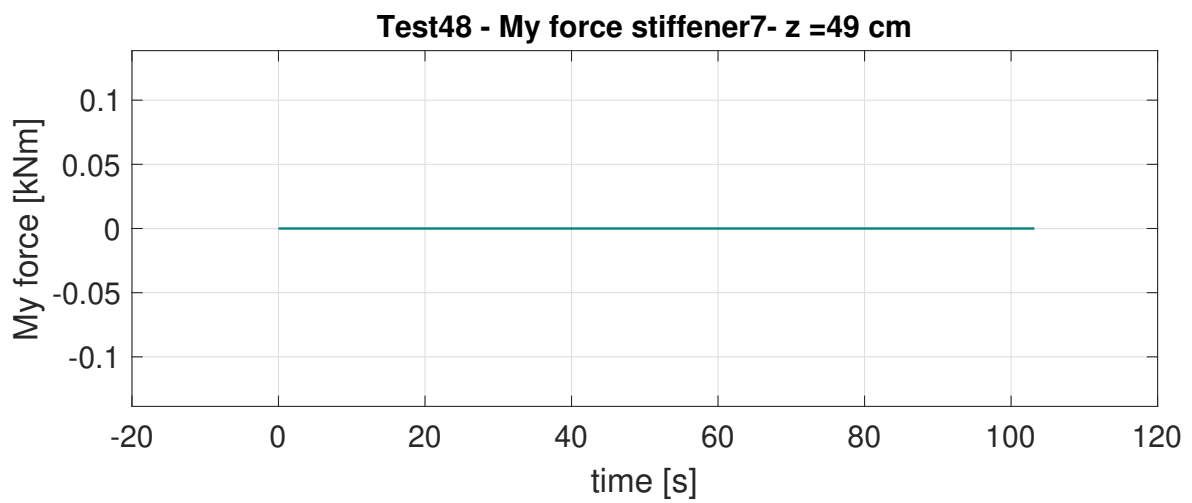
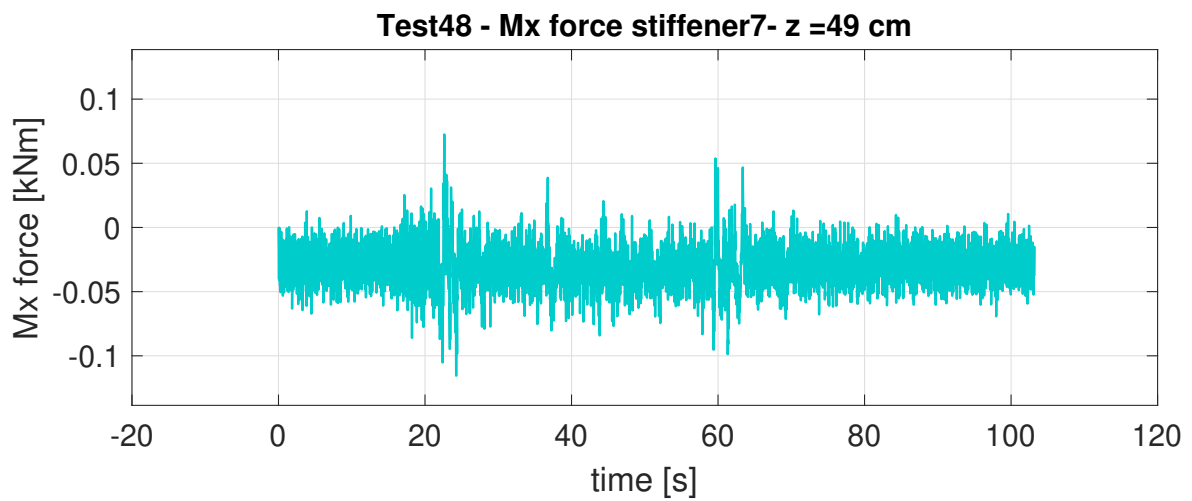
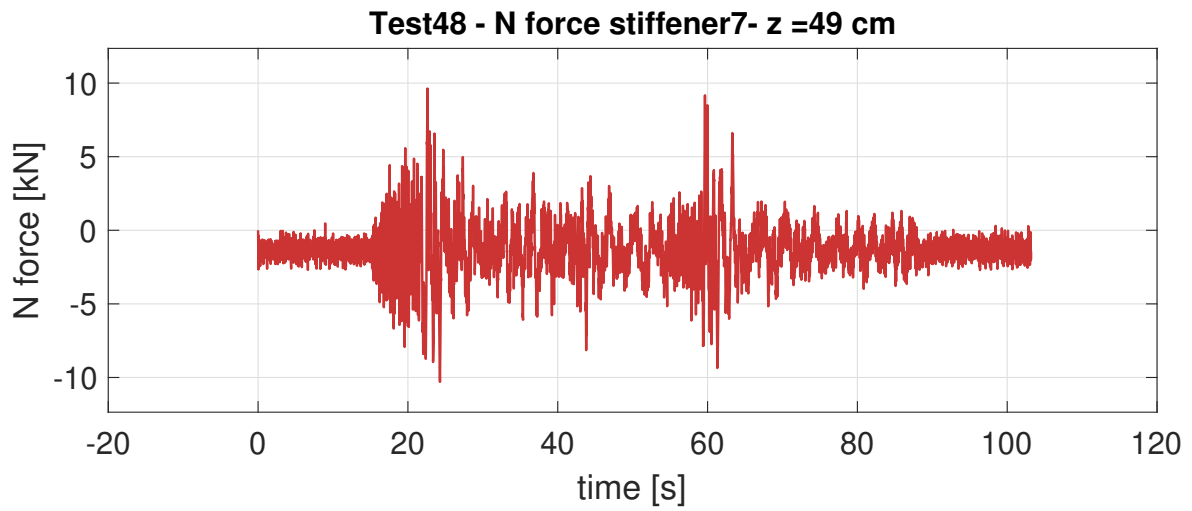


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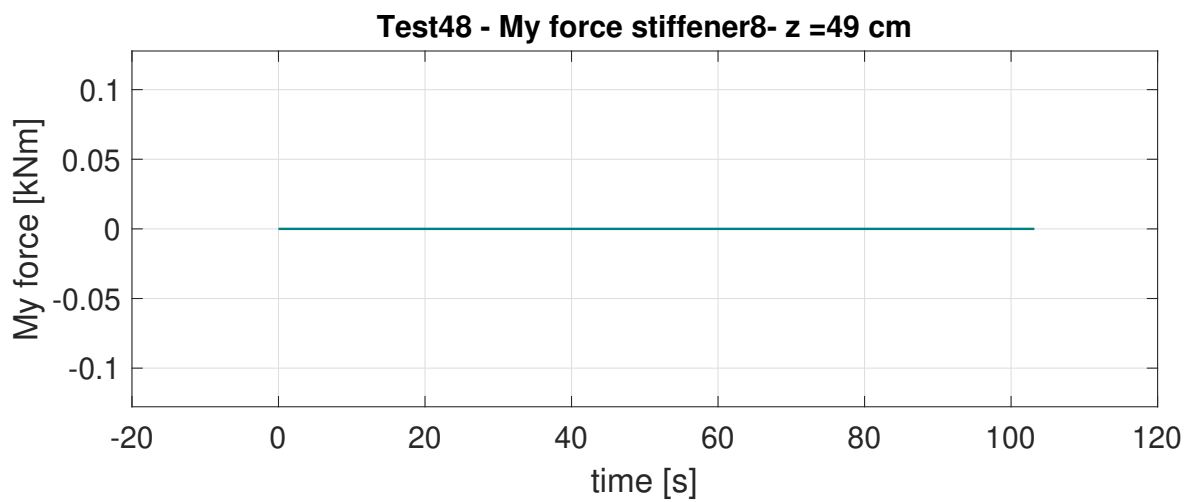
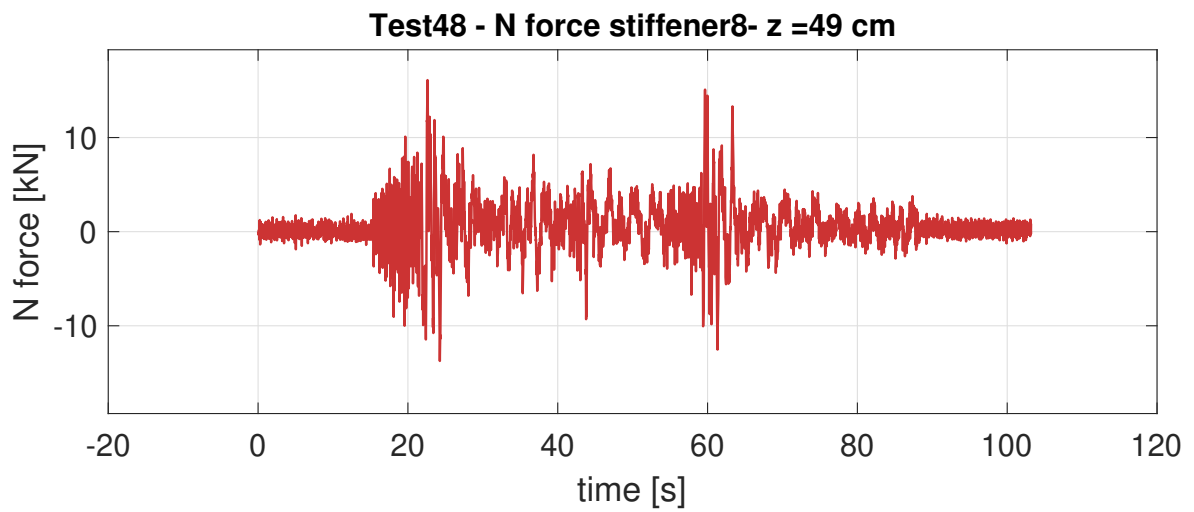


**Quota z = 49 cm**

– Montante numero 7

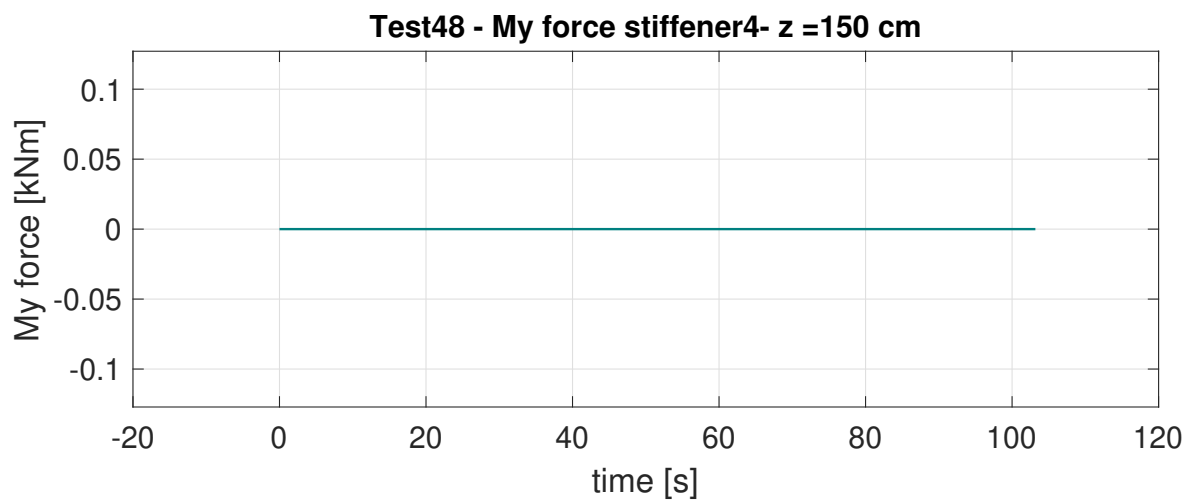
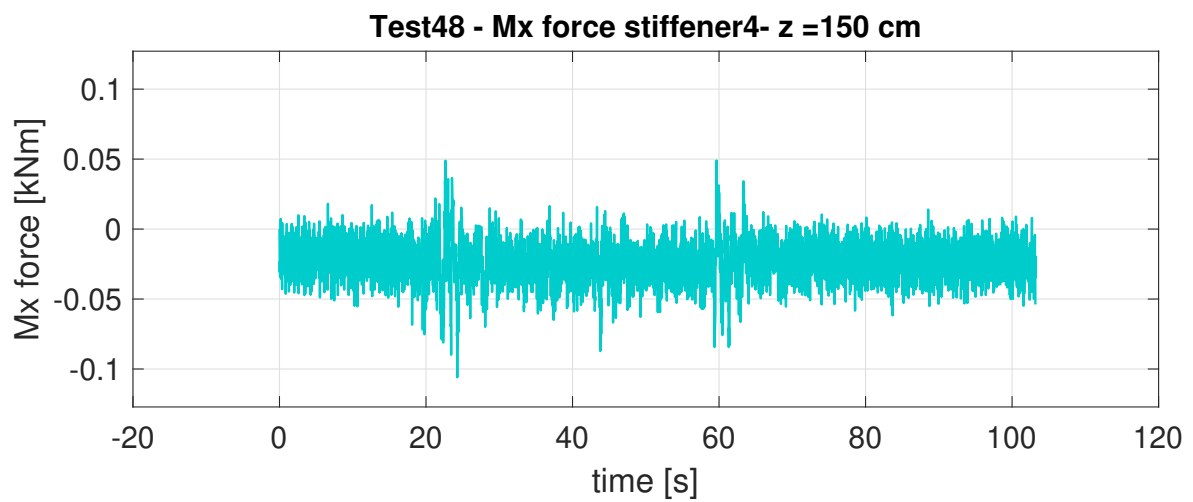
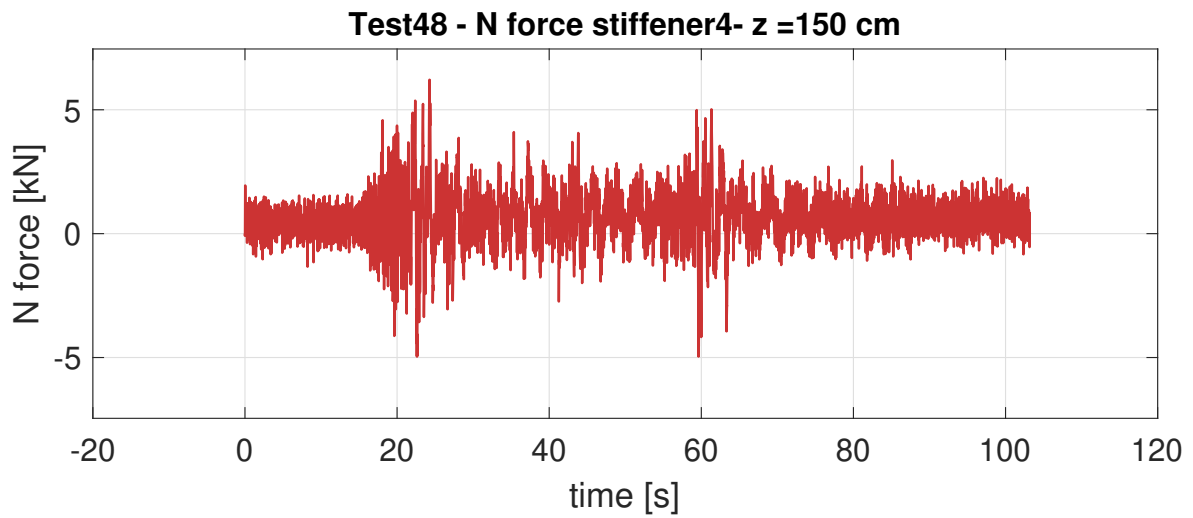


– Montante numero 8

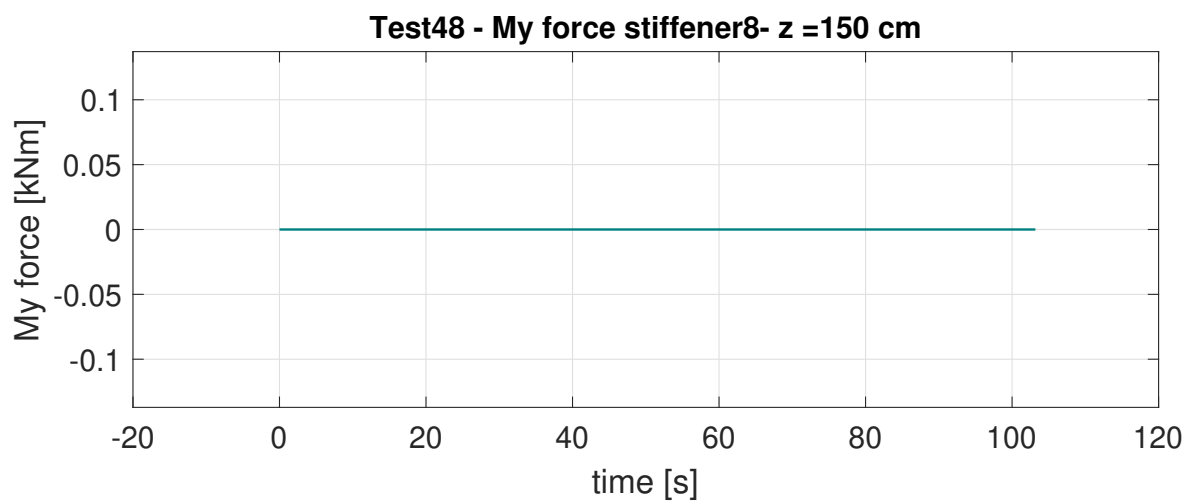
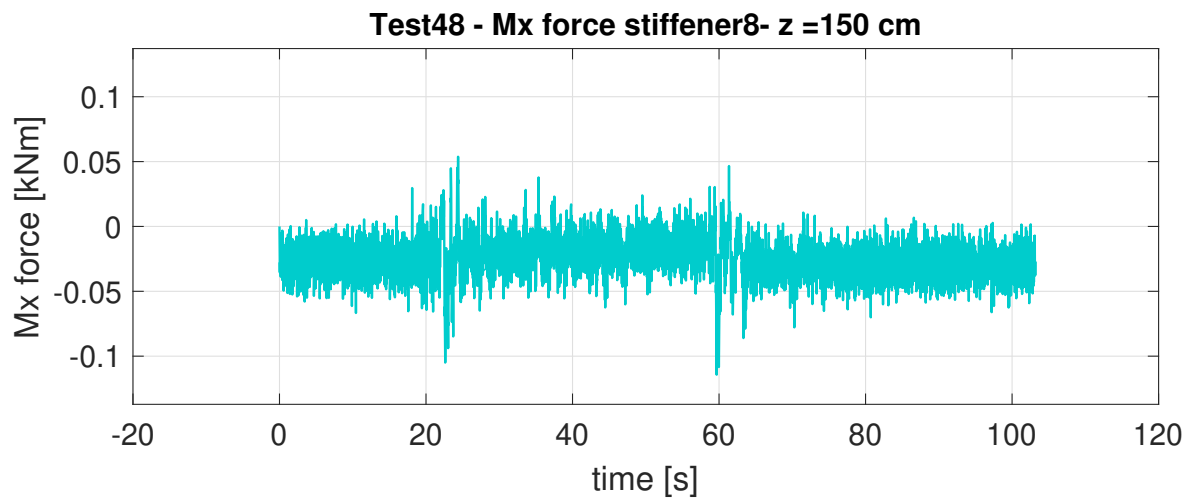
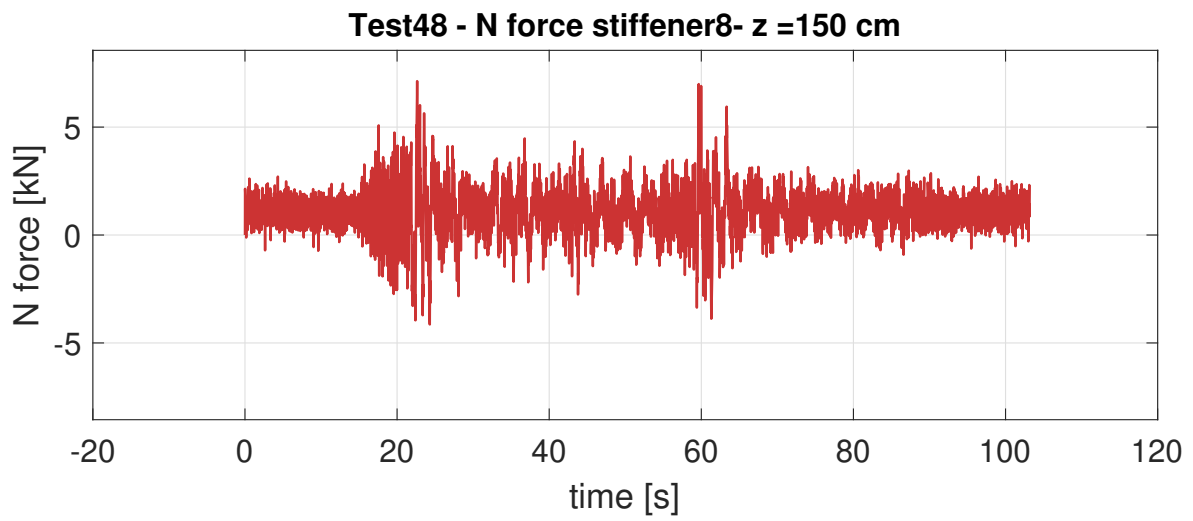


**Quota z = 150 cm**

– Montante numero 4

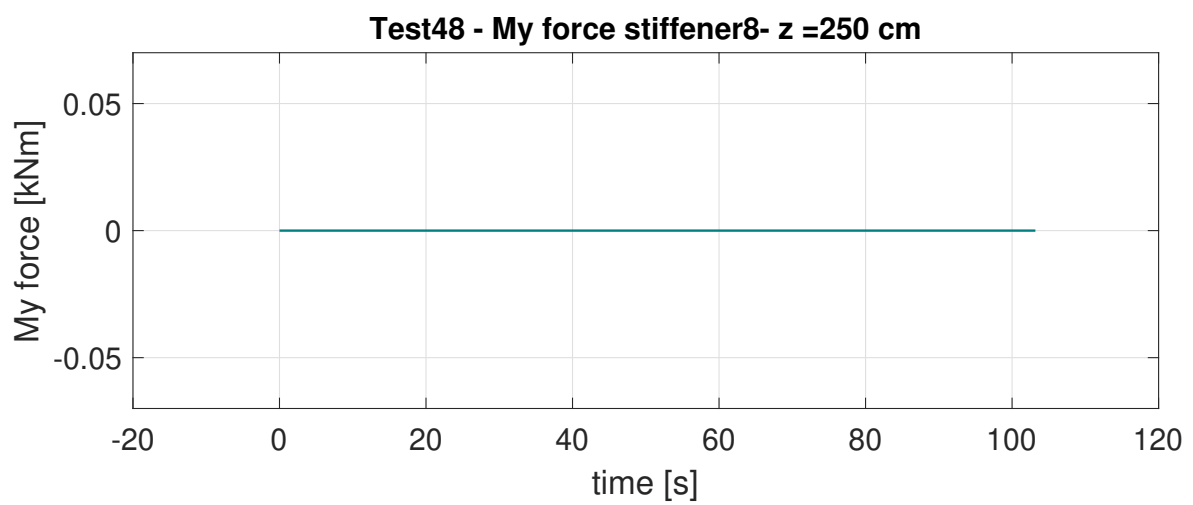
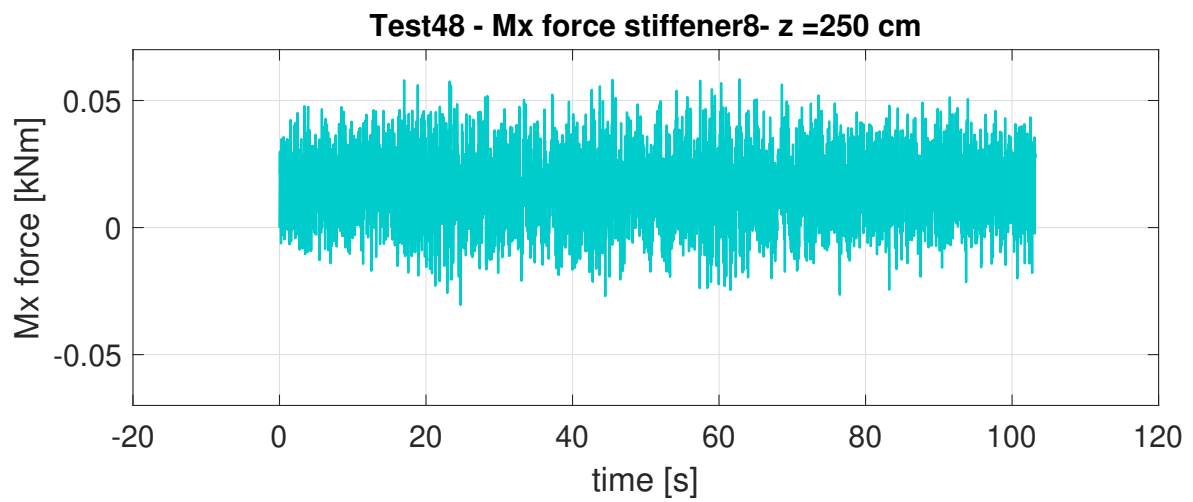
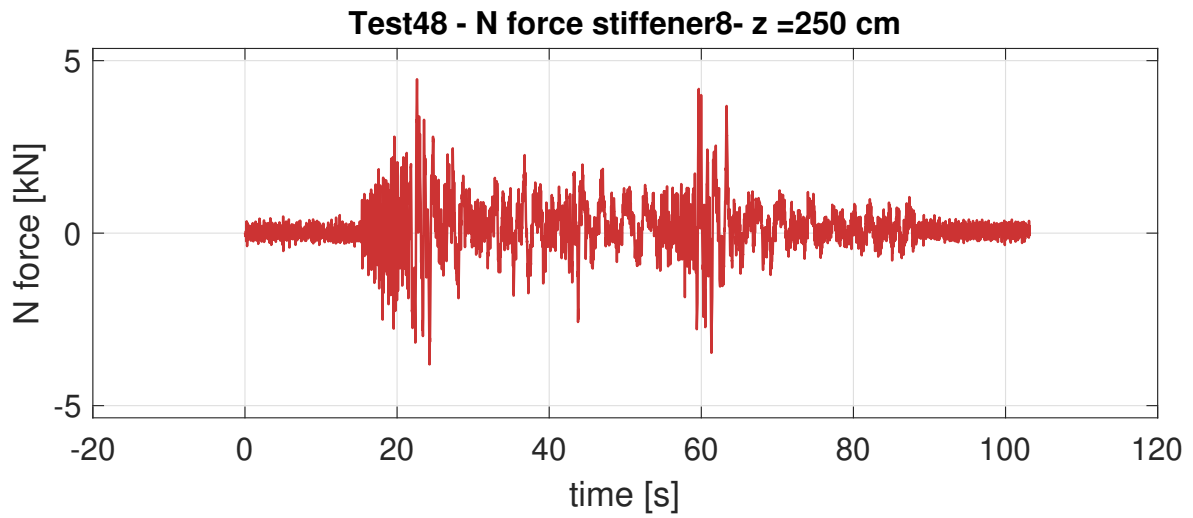


– Montante numero 8



**Quota z = 250 cm**

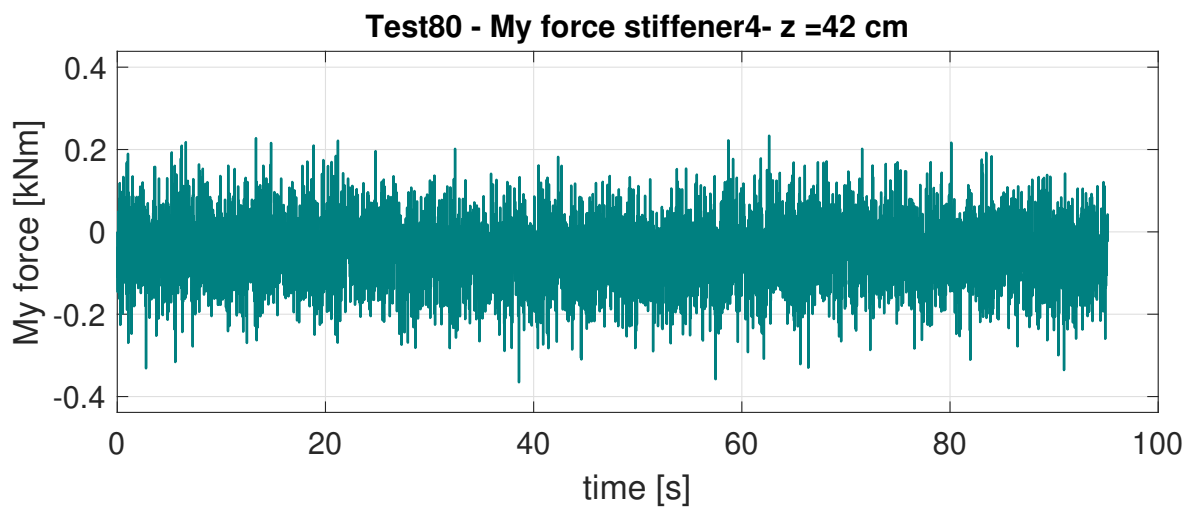
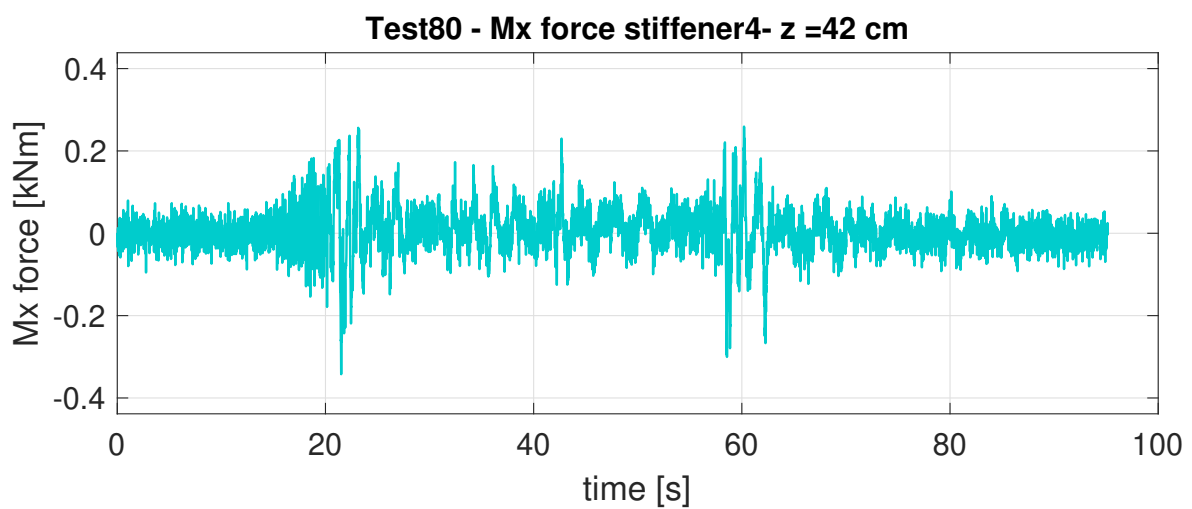
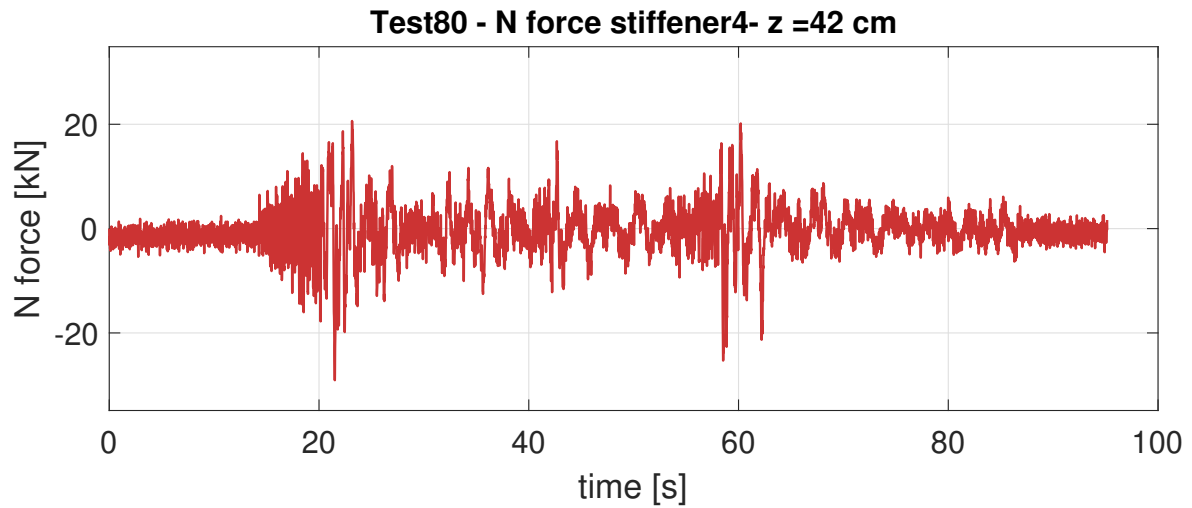
– Montante numero 8



- Terremoto RS1 0.5 g

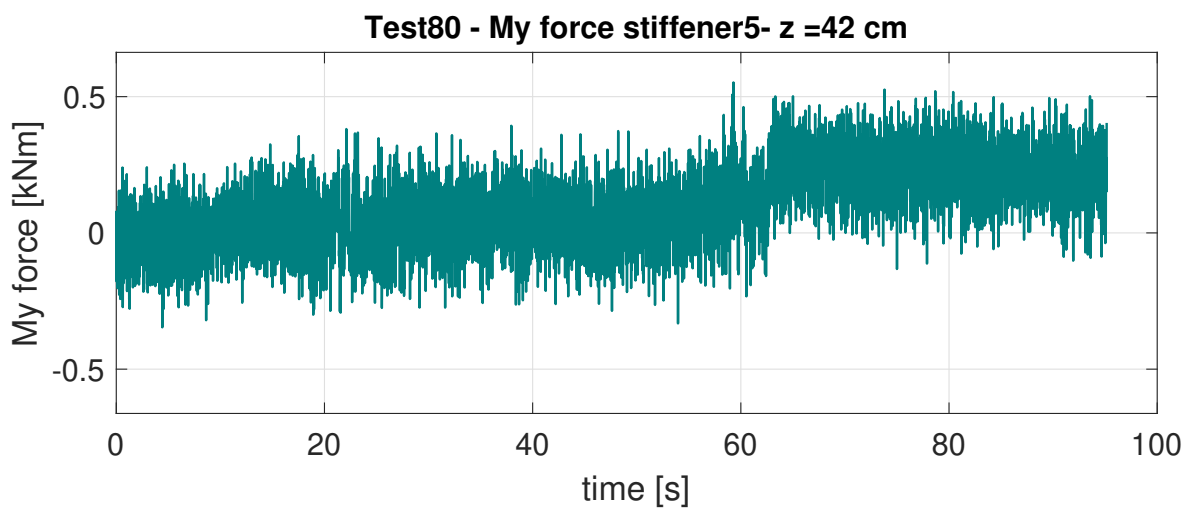
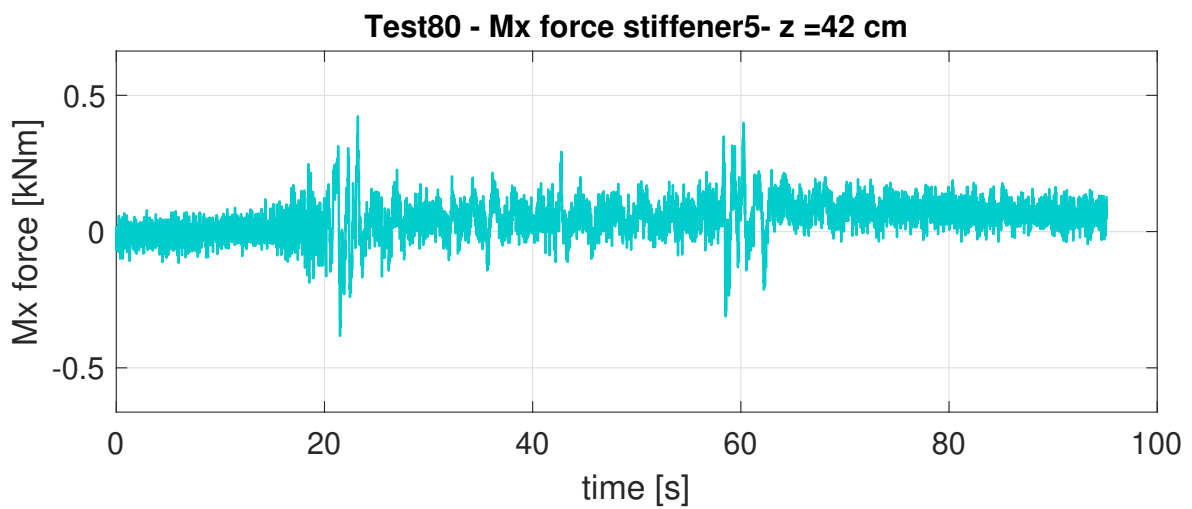
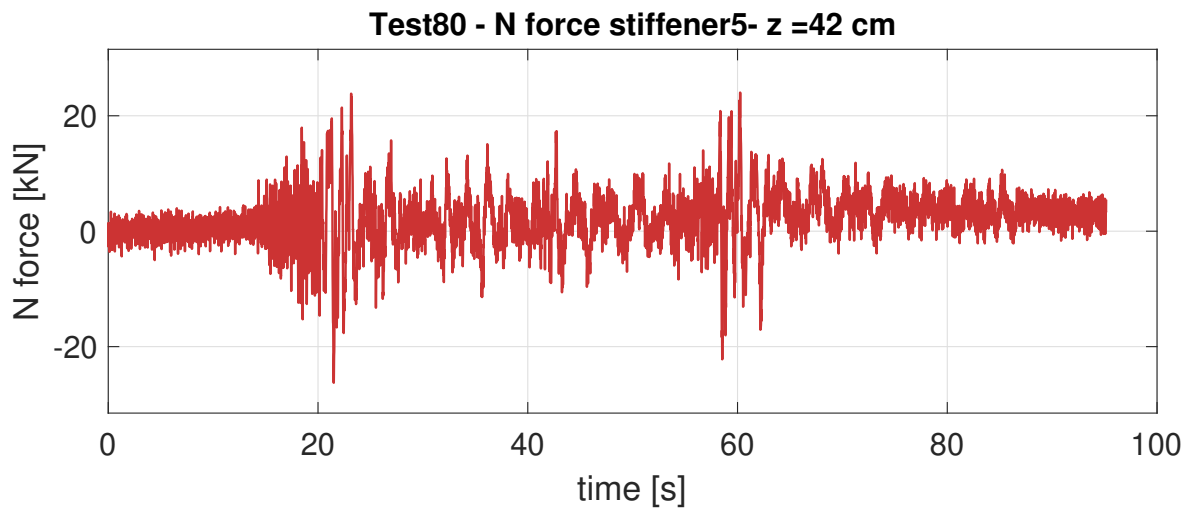
Quota z = 42 cm

– Montante numero 4

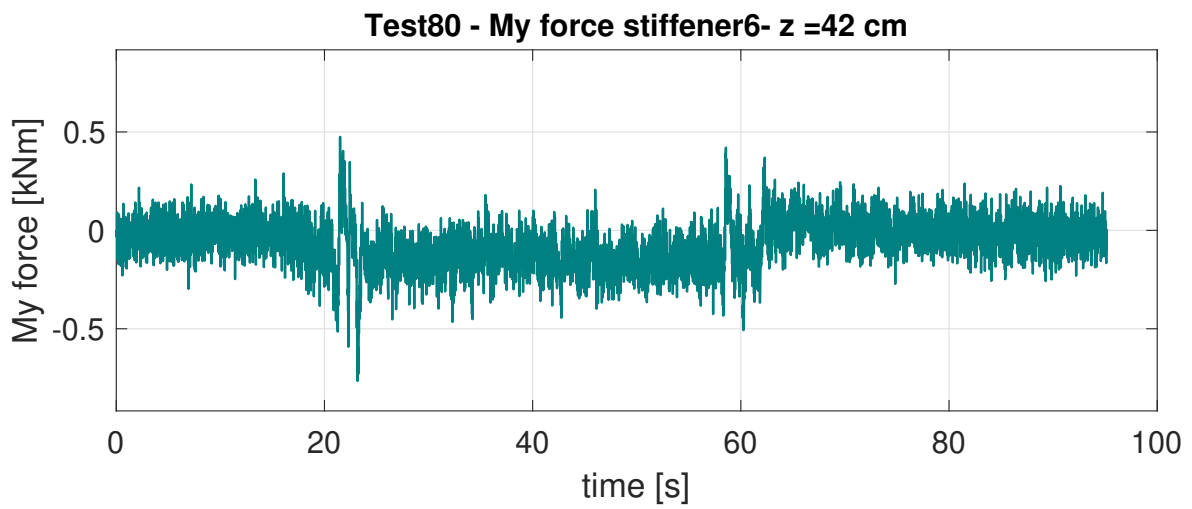
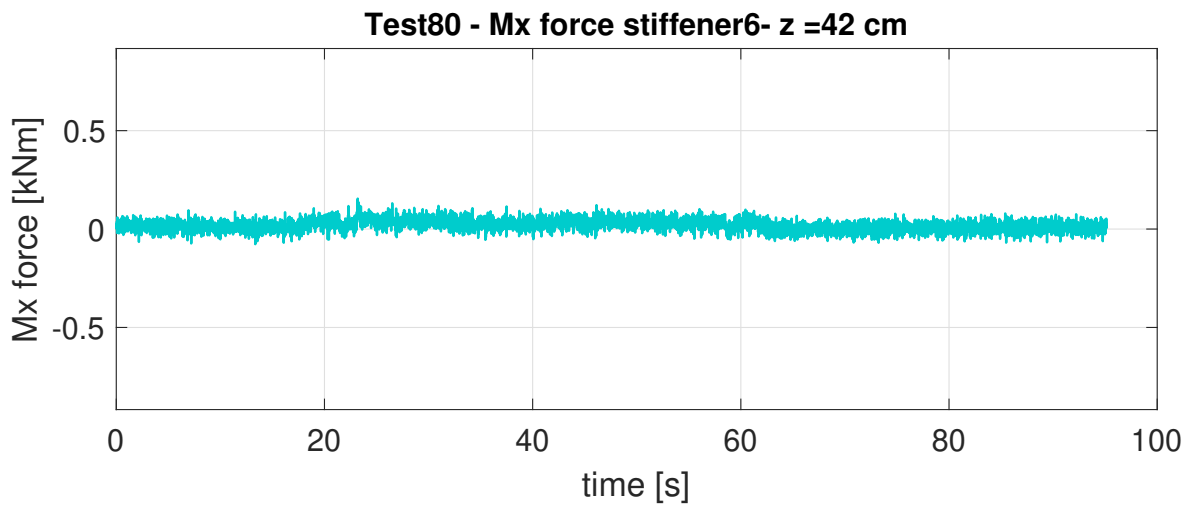
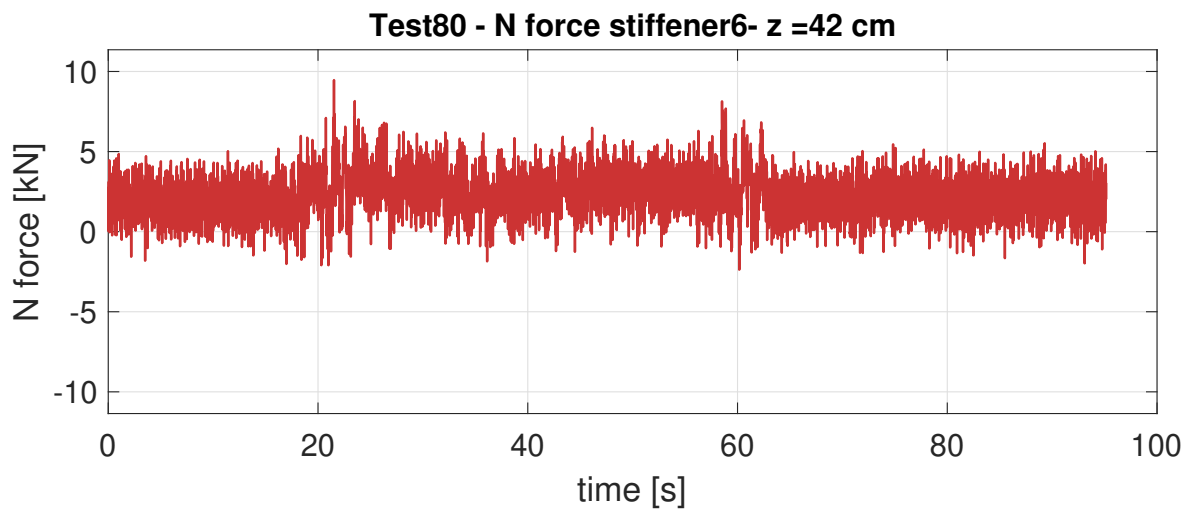




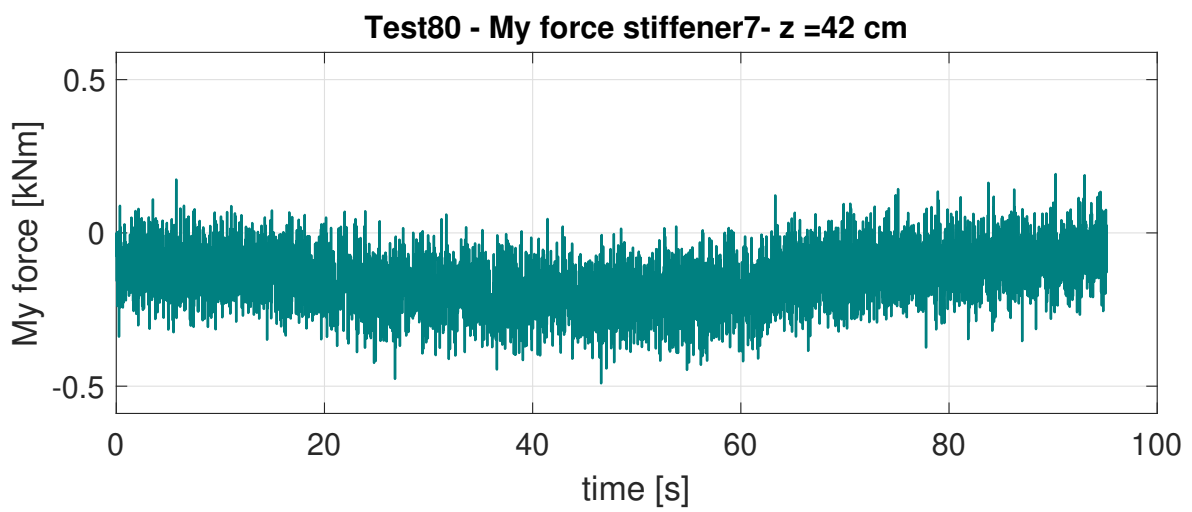
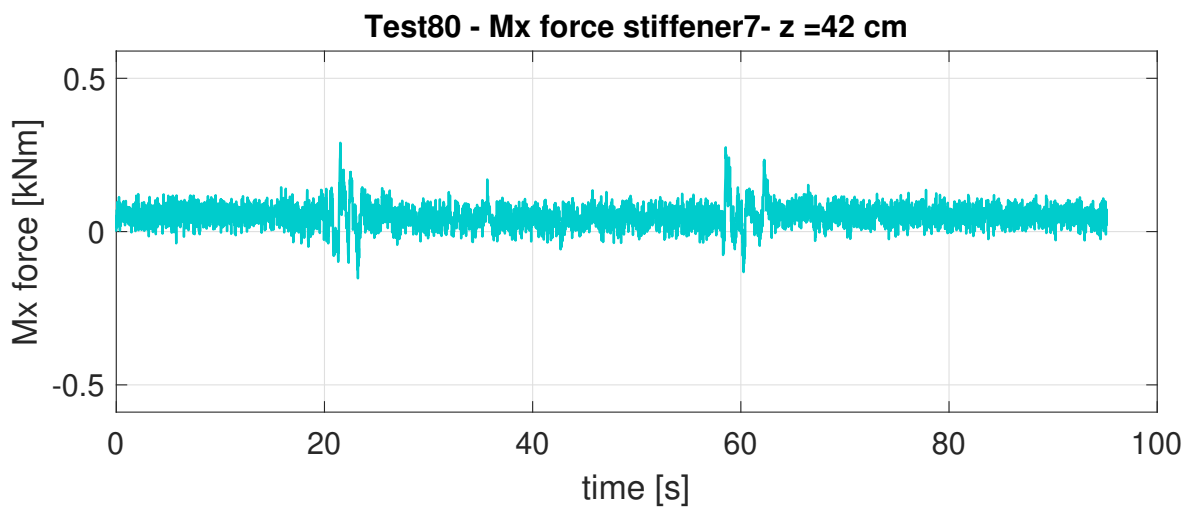
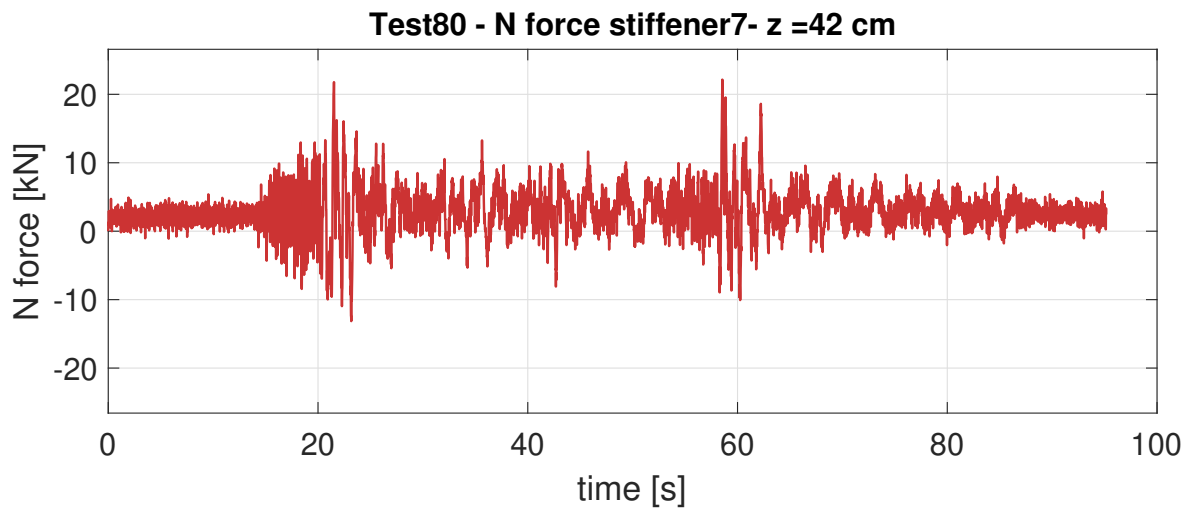
- Montante numero 5



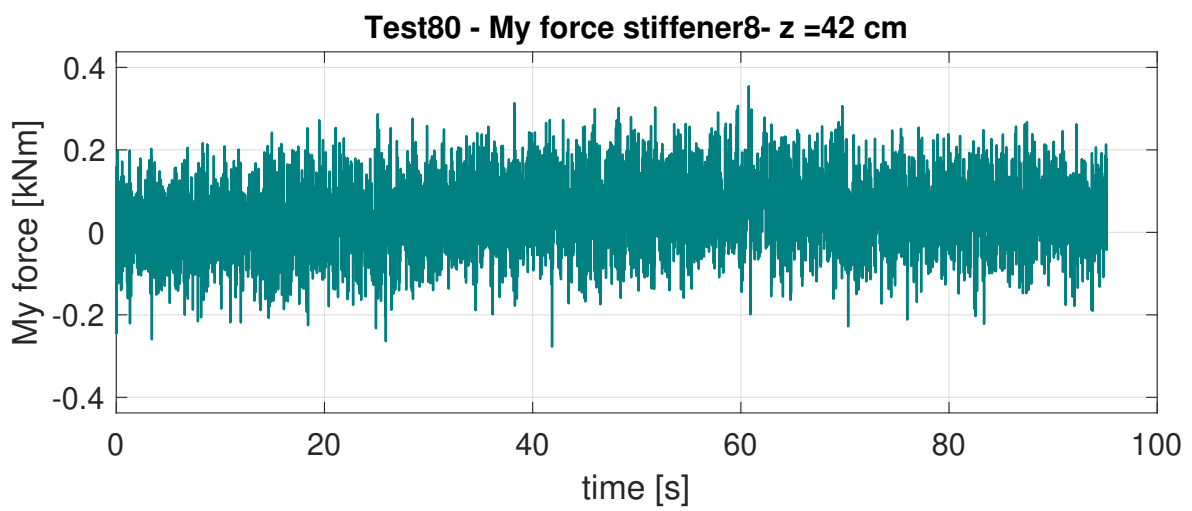
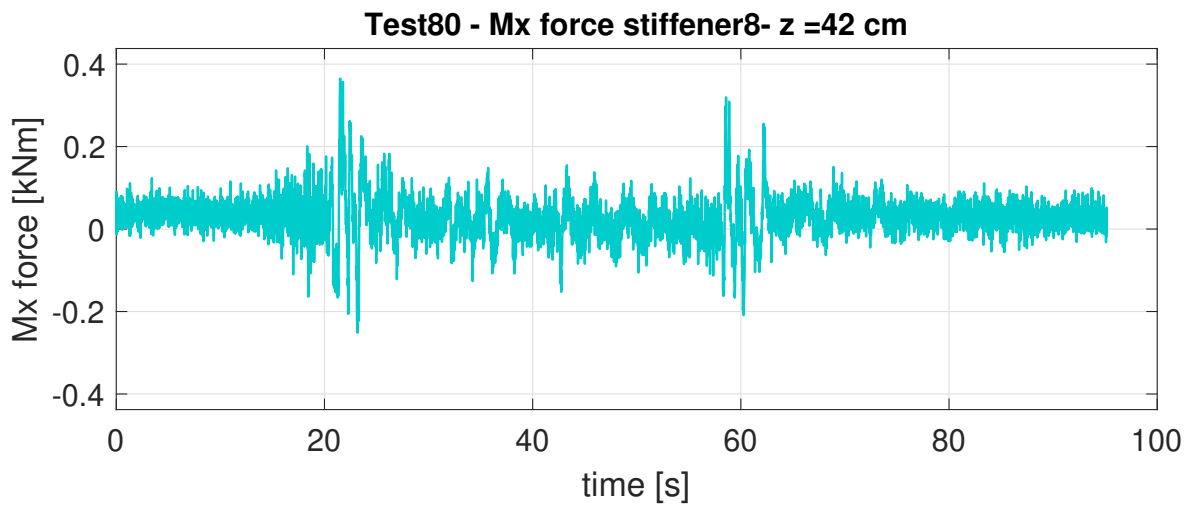
– Montante numero 6



- Montante numero 7

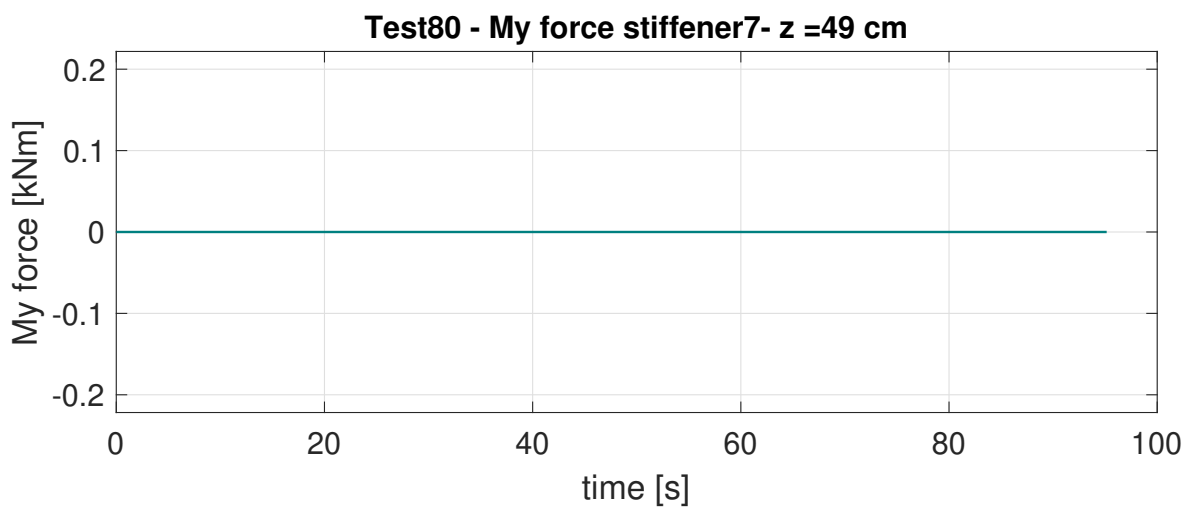
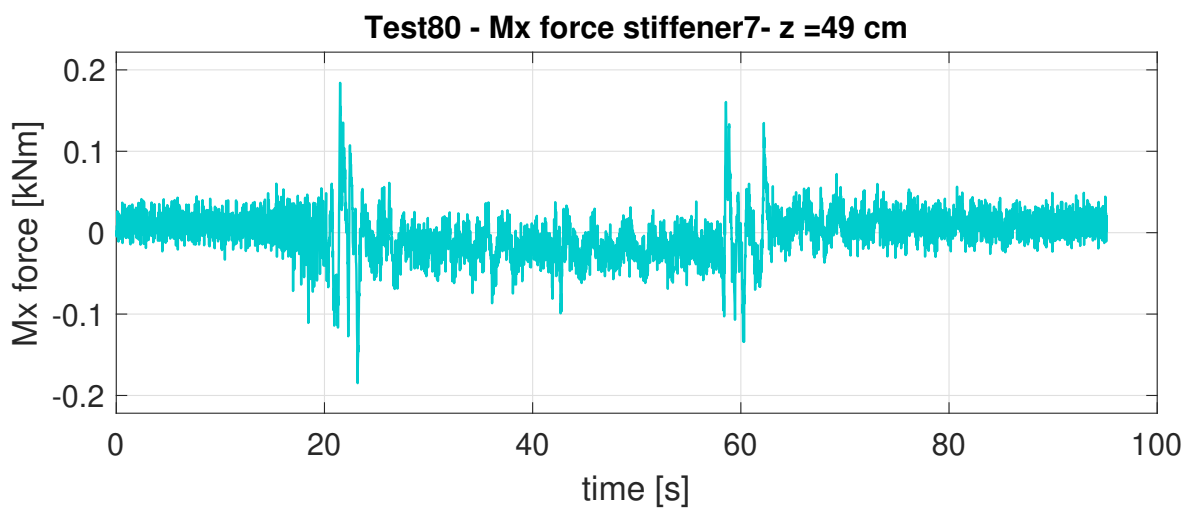
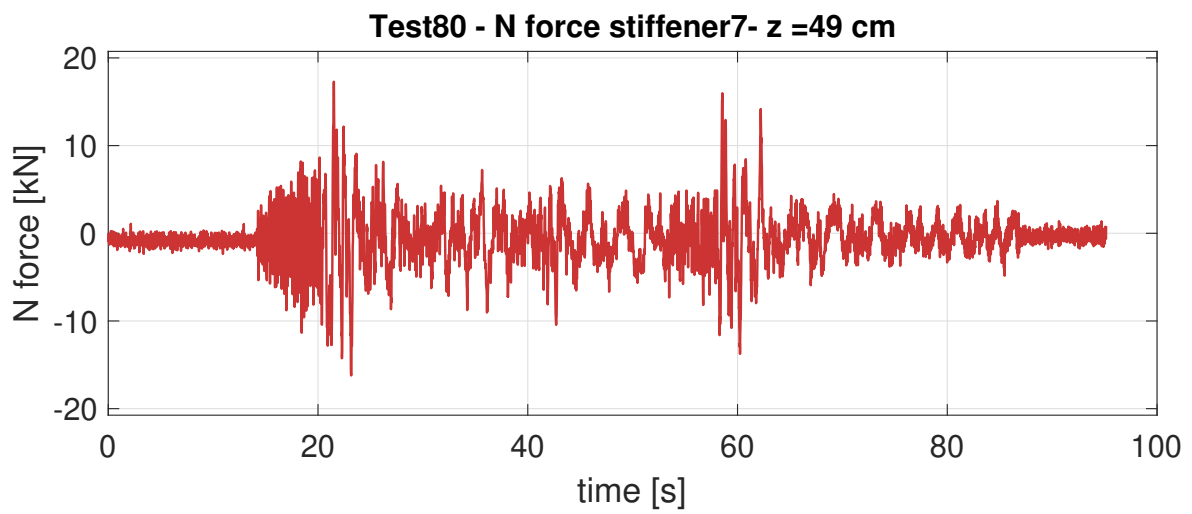


- Montante numero 8

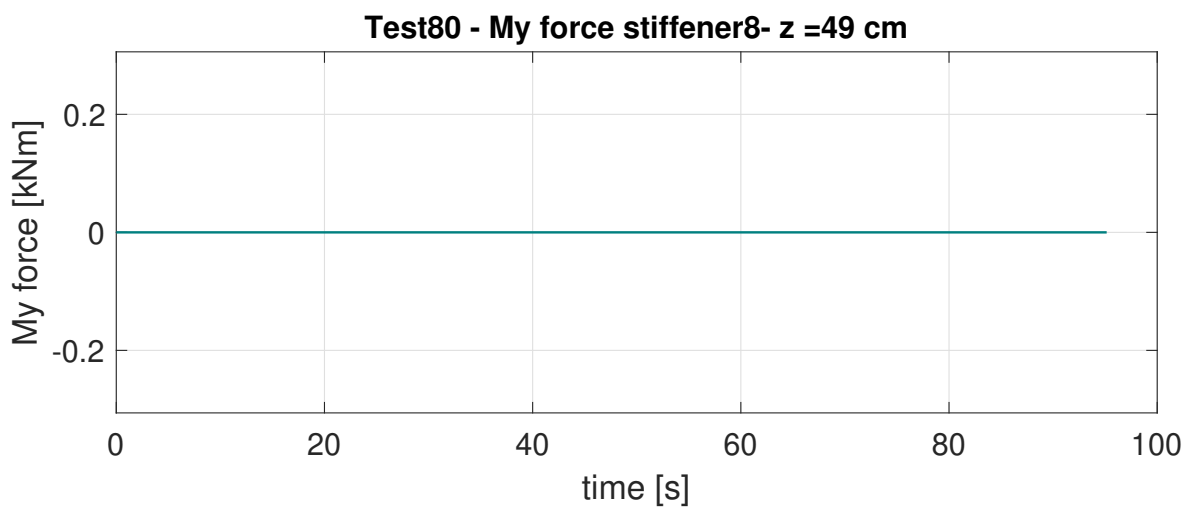
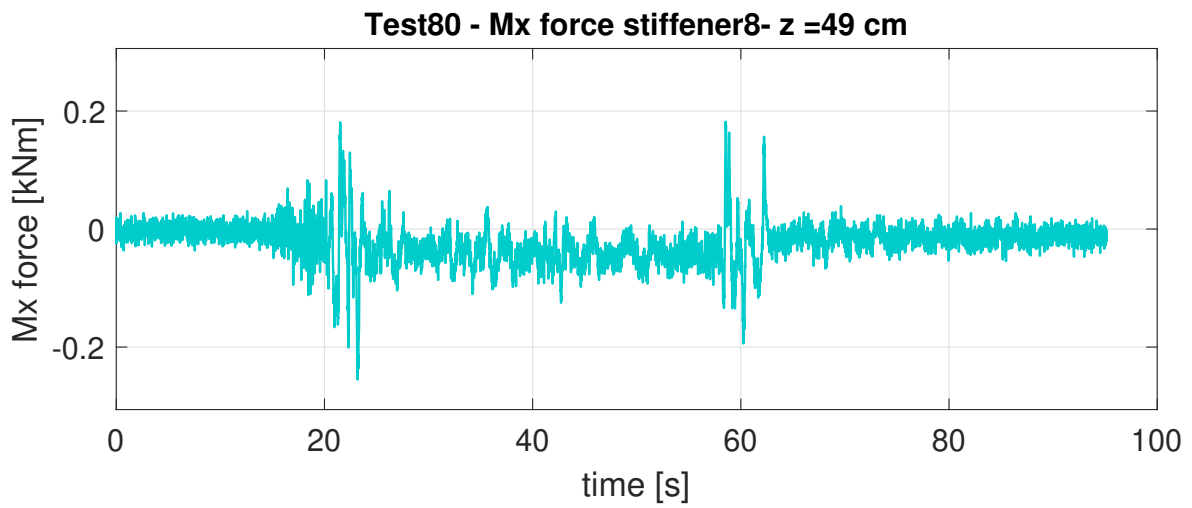


**Quota z = 49 cm**

– Montante numero 7

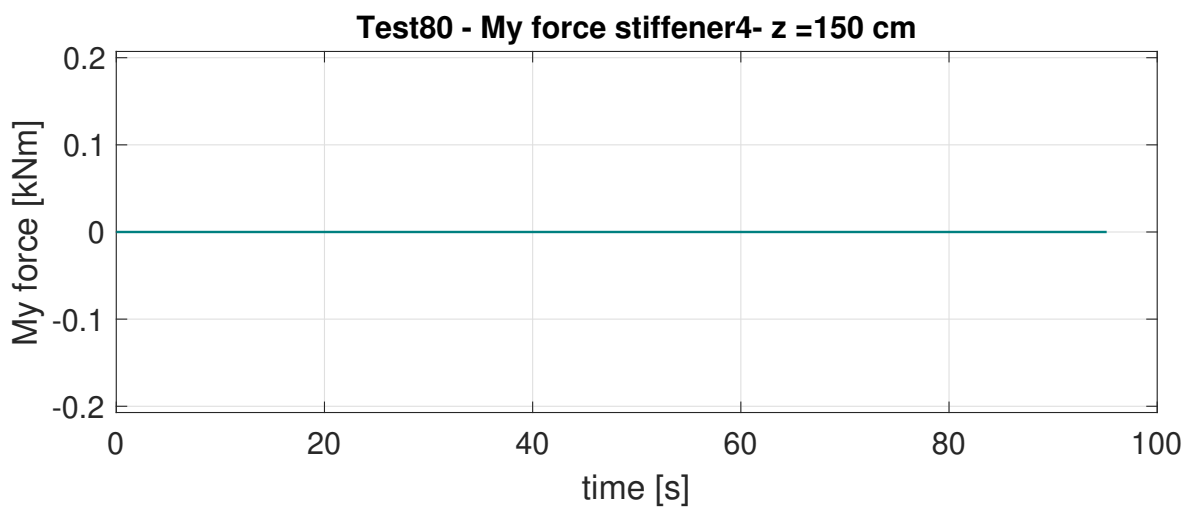
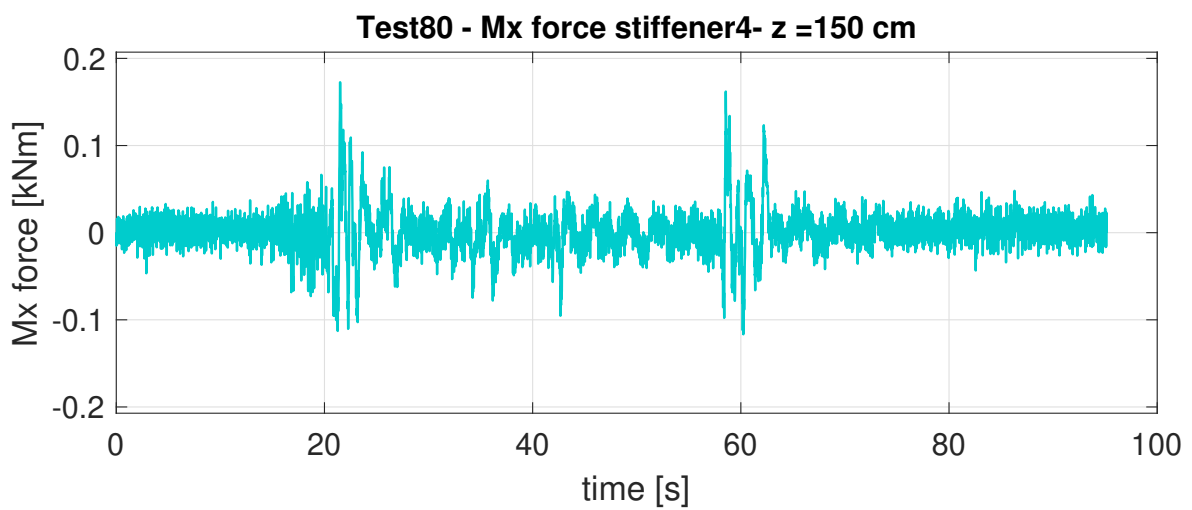
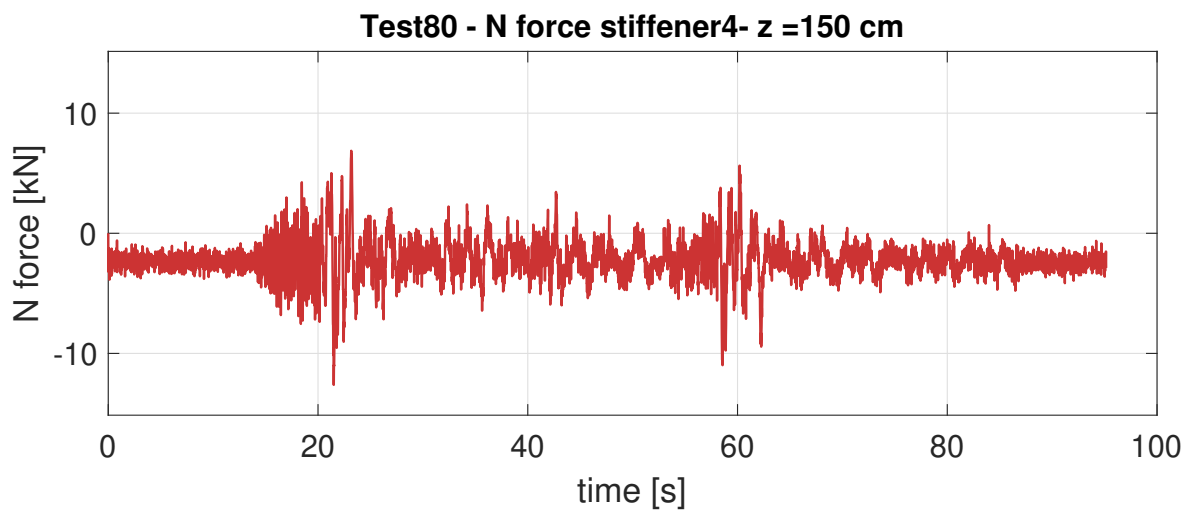


- Montante numero 8

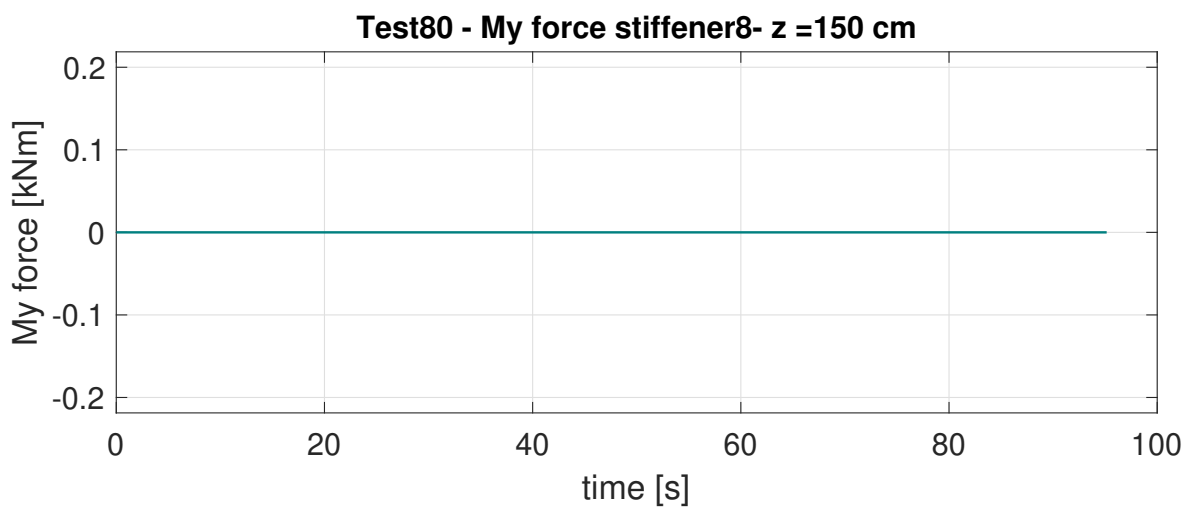
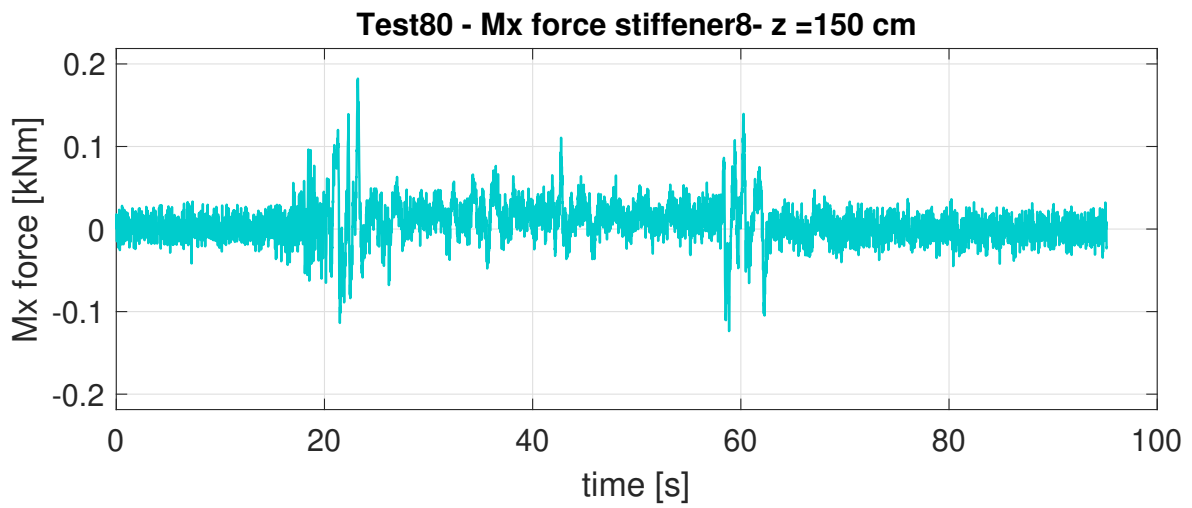
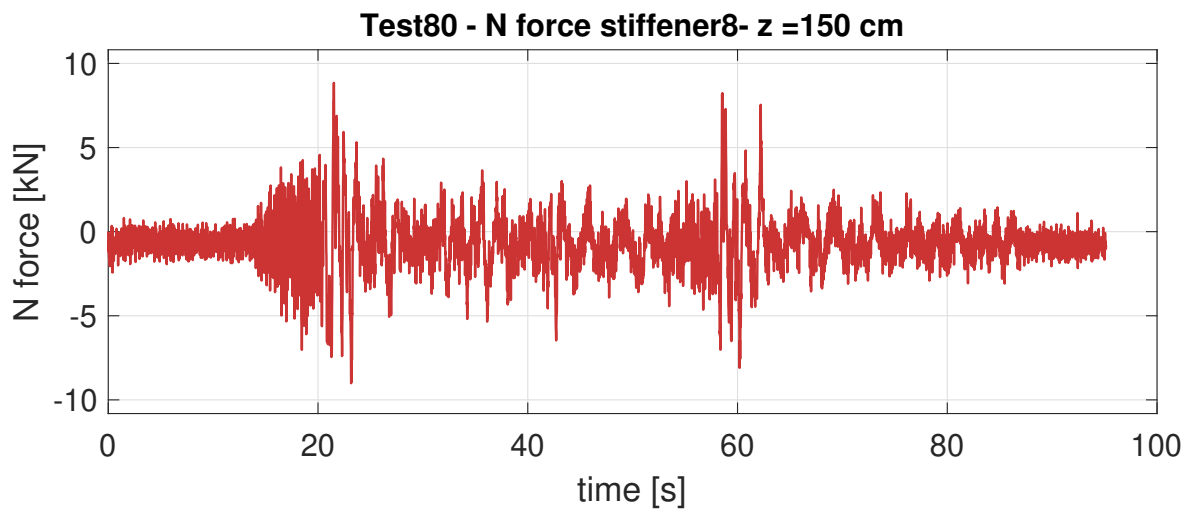


**Quota z = 150 cm**

– Montante numero 4



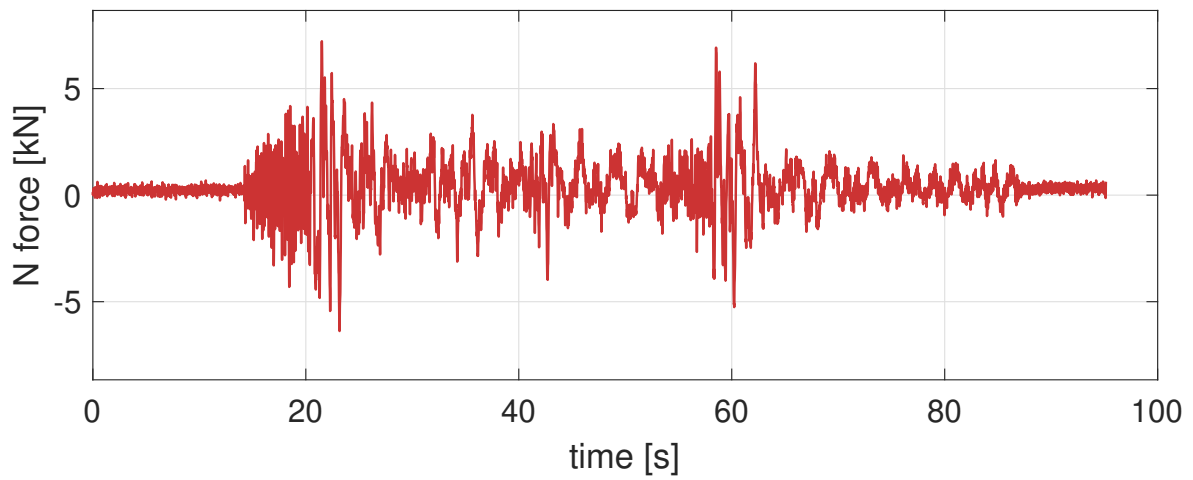
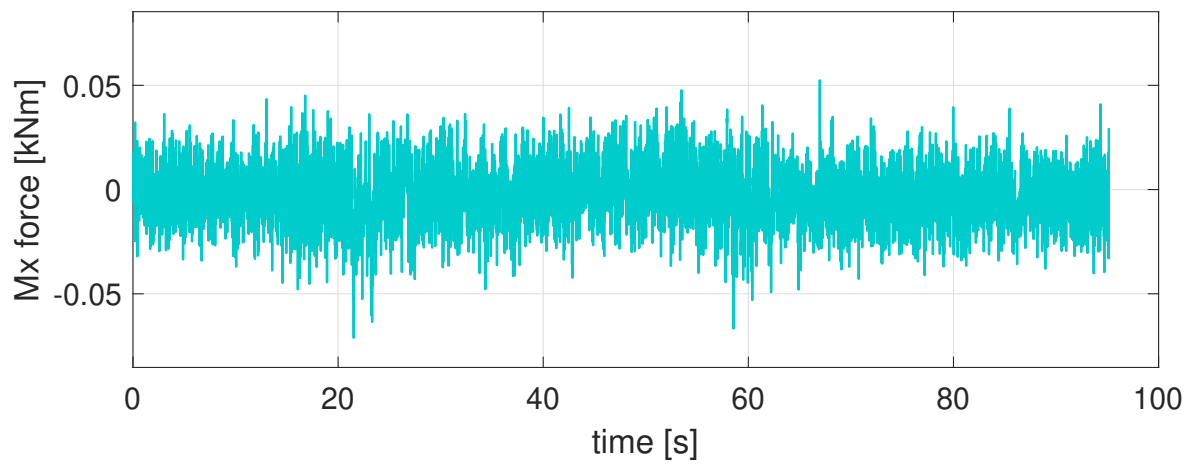
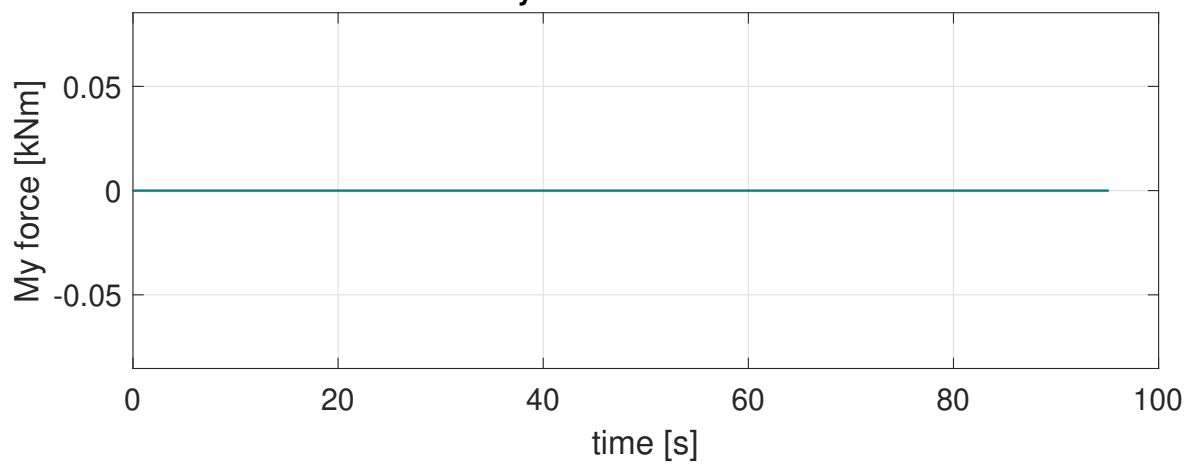
– Montante numero 8





**Quota z = 250 cm**

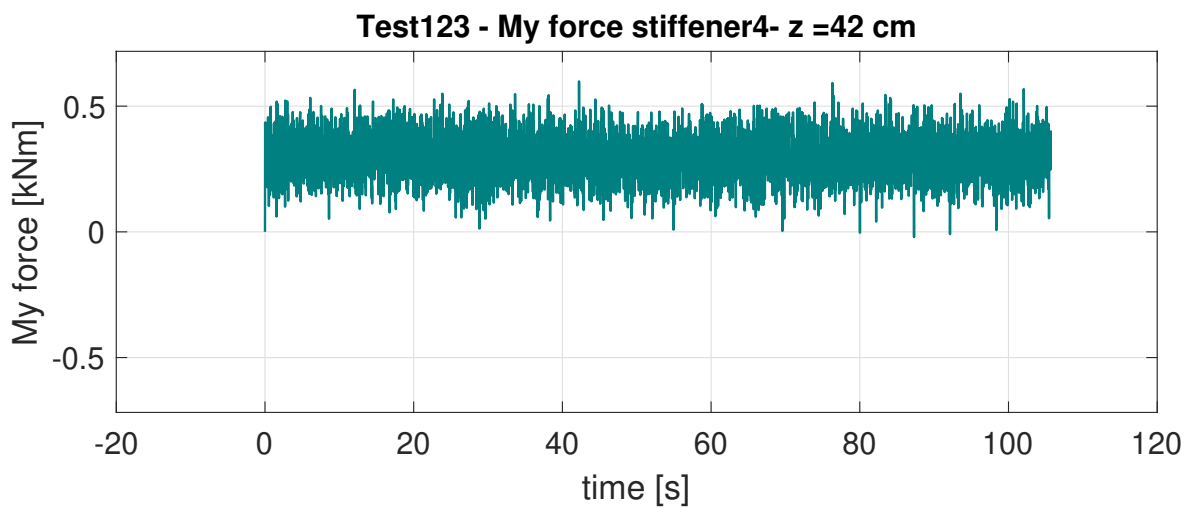
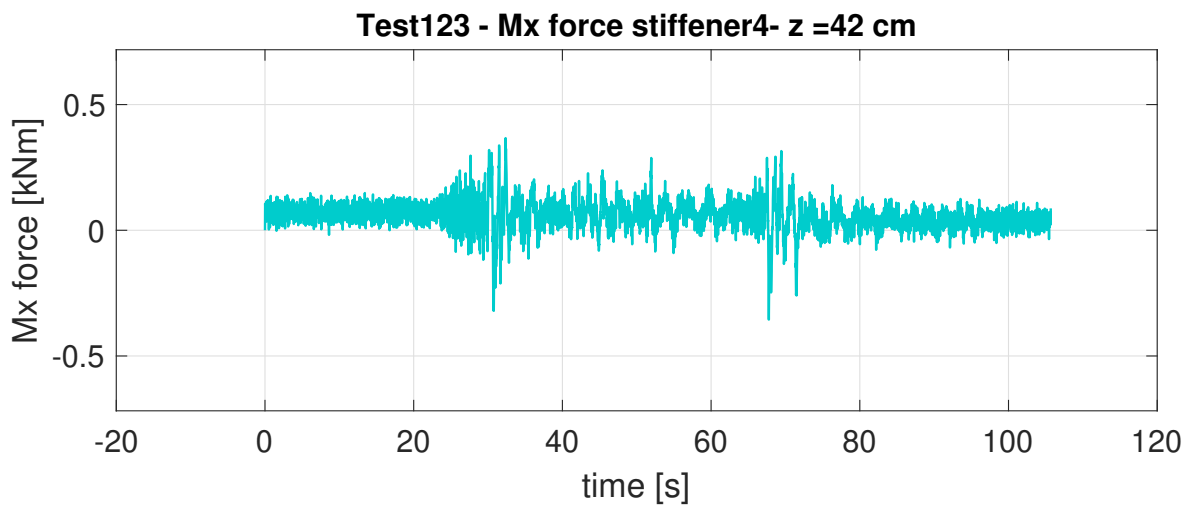
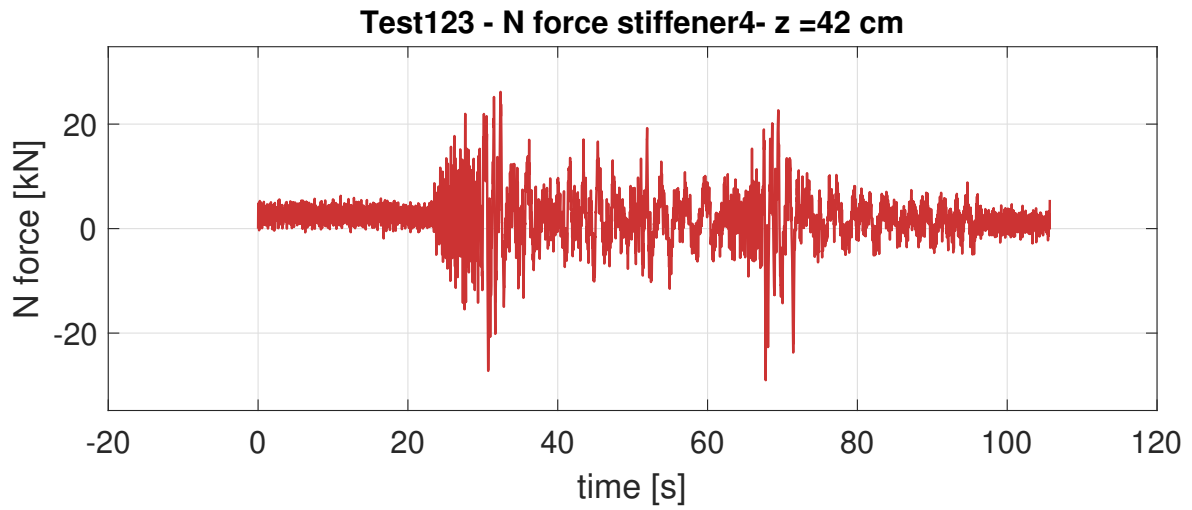
– Montante numero 8

**Test80 - N force stiffener8- z =250 cm****Test80 - Mx force stiffener8- z =250 cm****Test80 - My force stiffener8- z =250 cm**

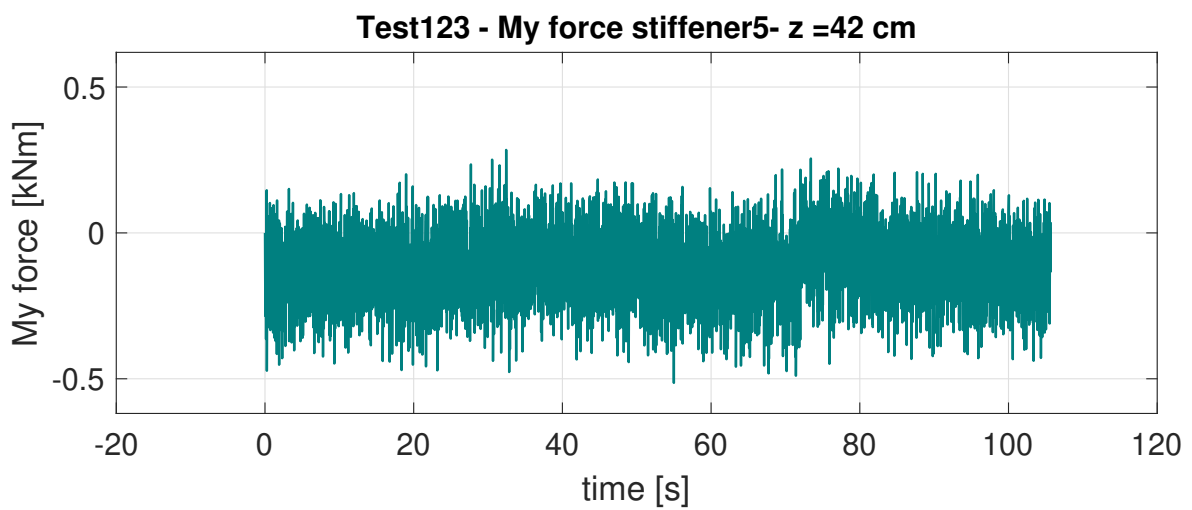
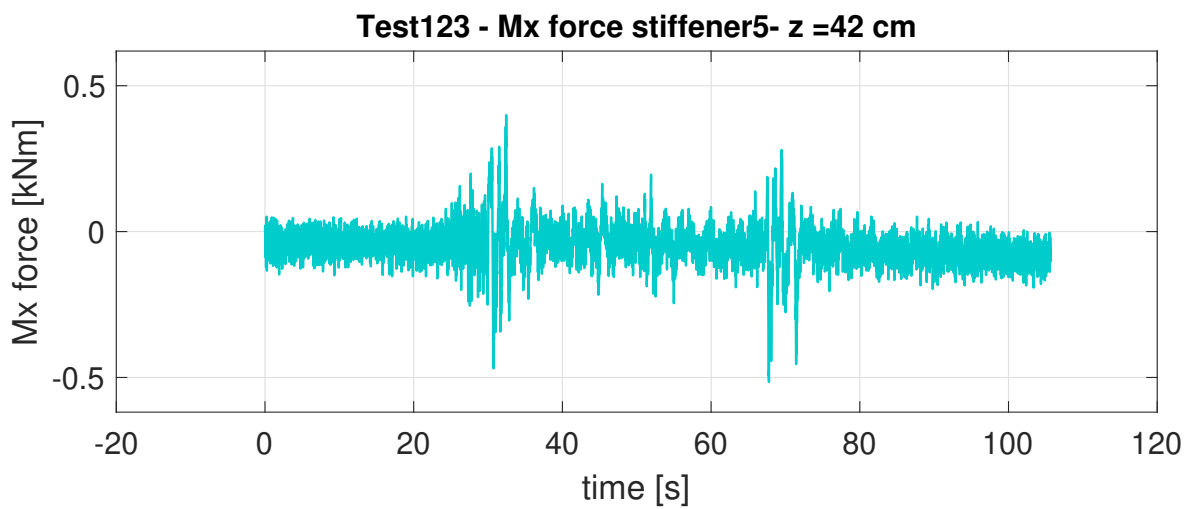
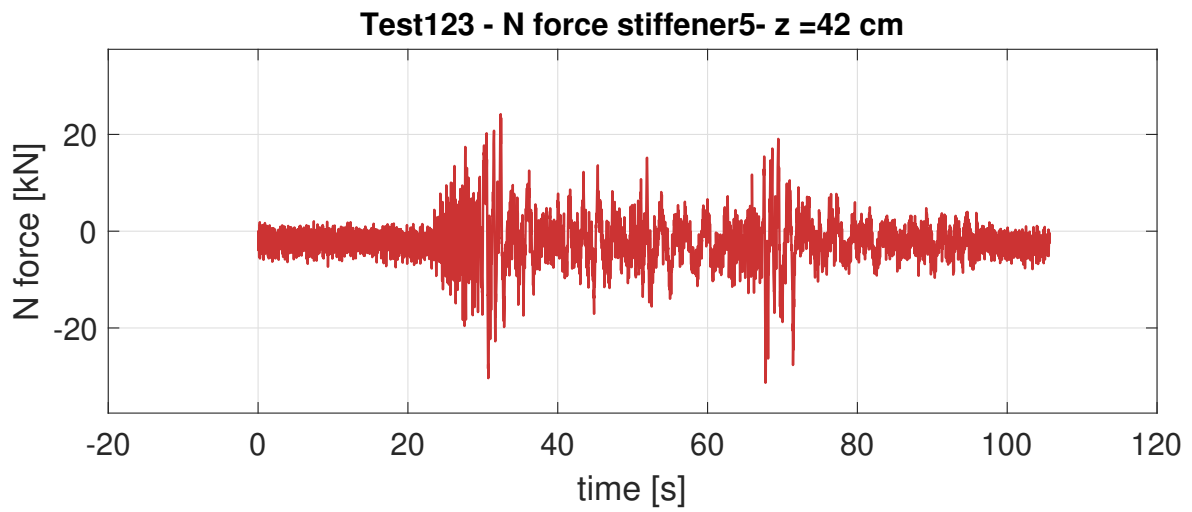
- Terremoto RS1 0.6 g

Quota z = 42 cm

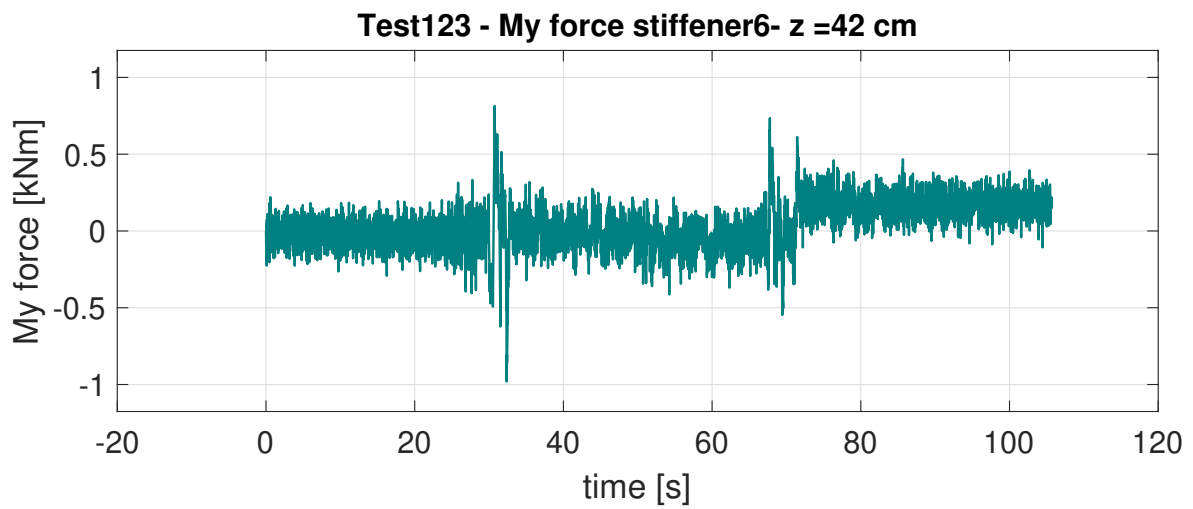
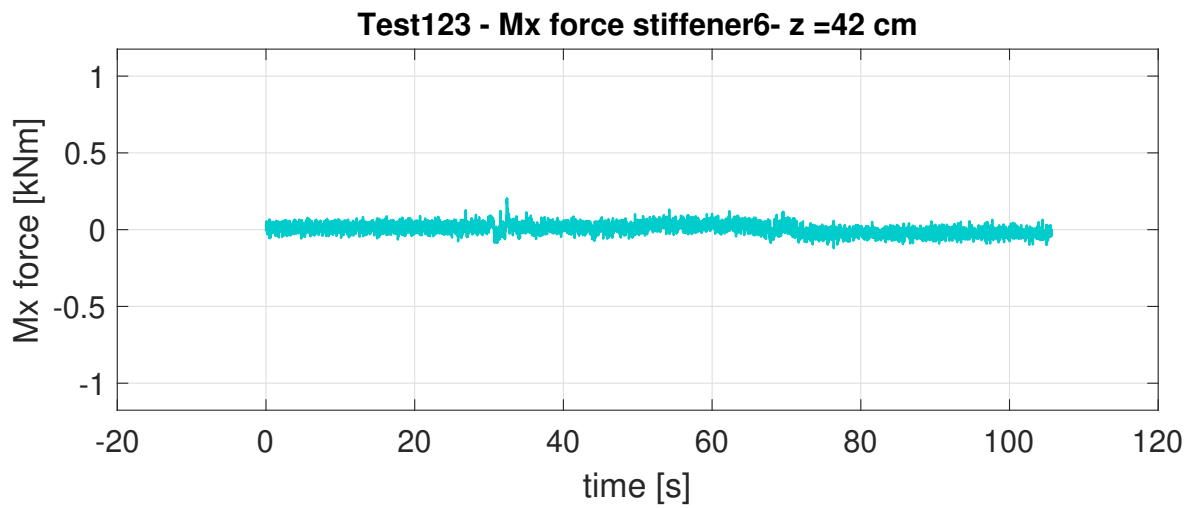
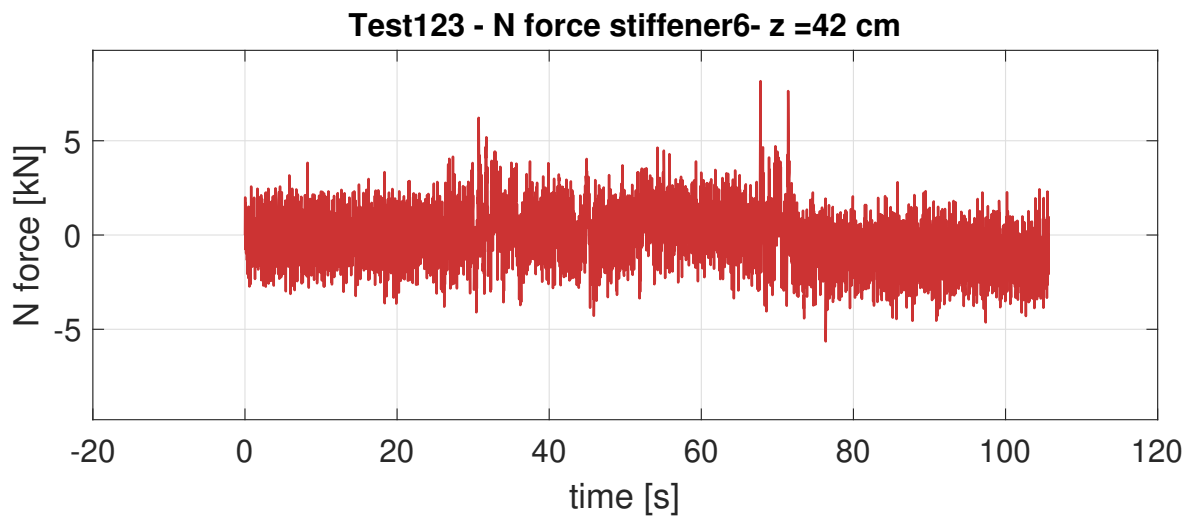
– Montante numero 4



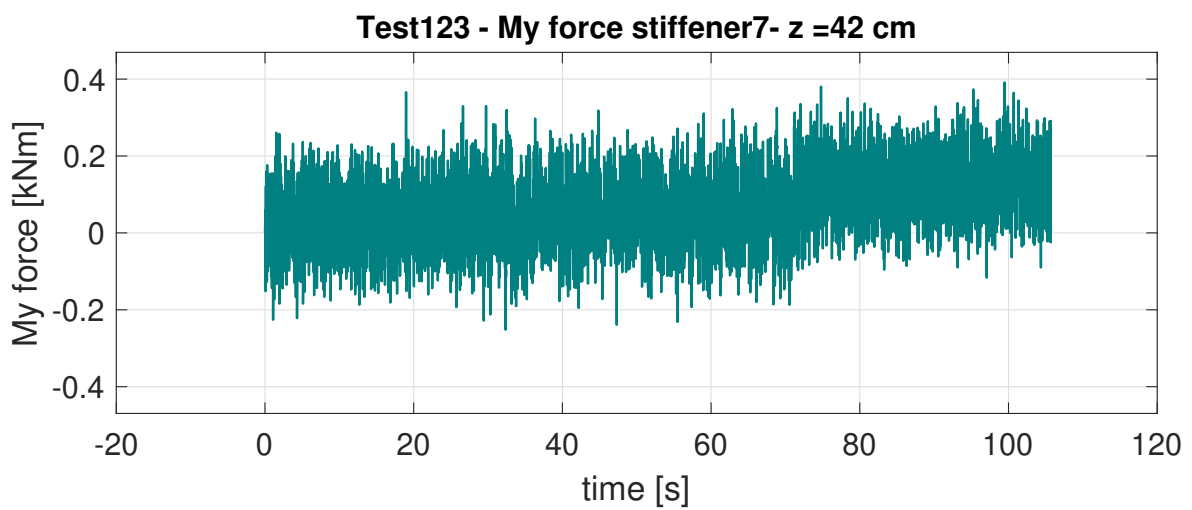
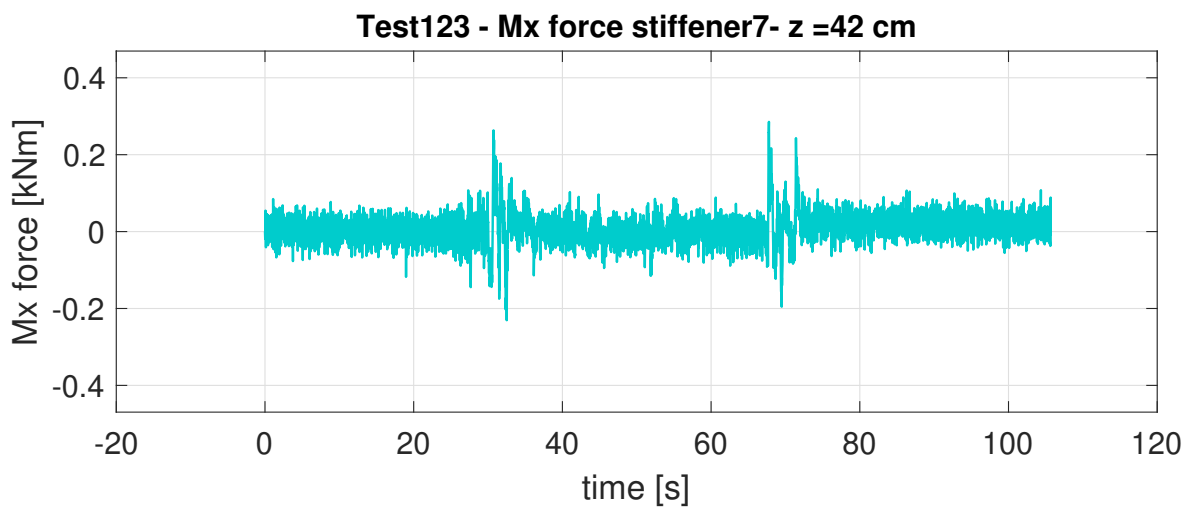
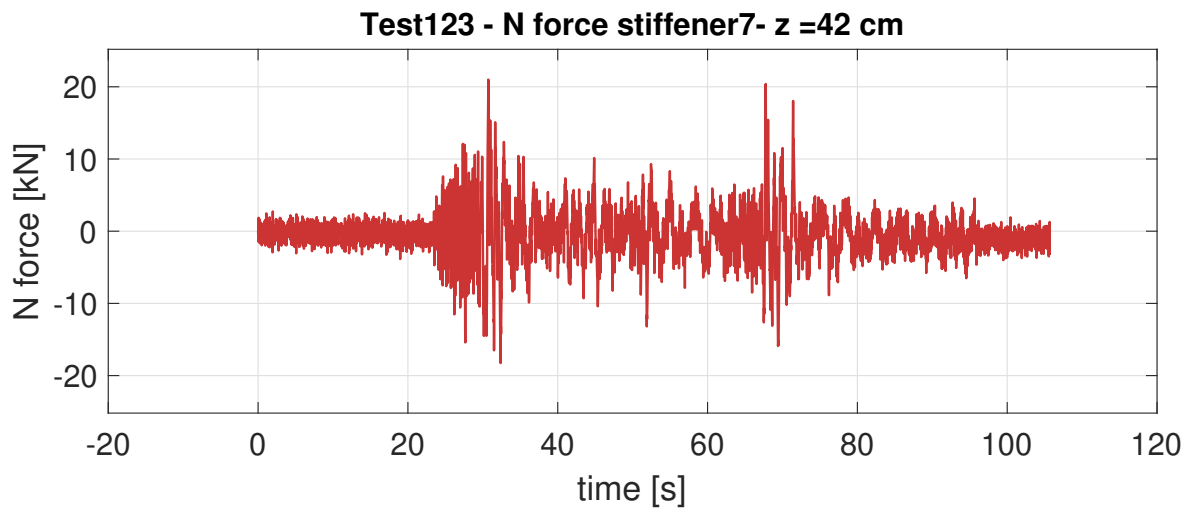
- Montante numero 5



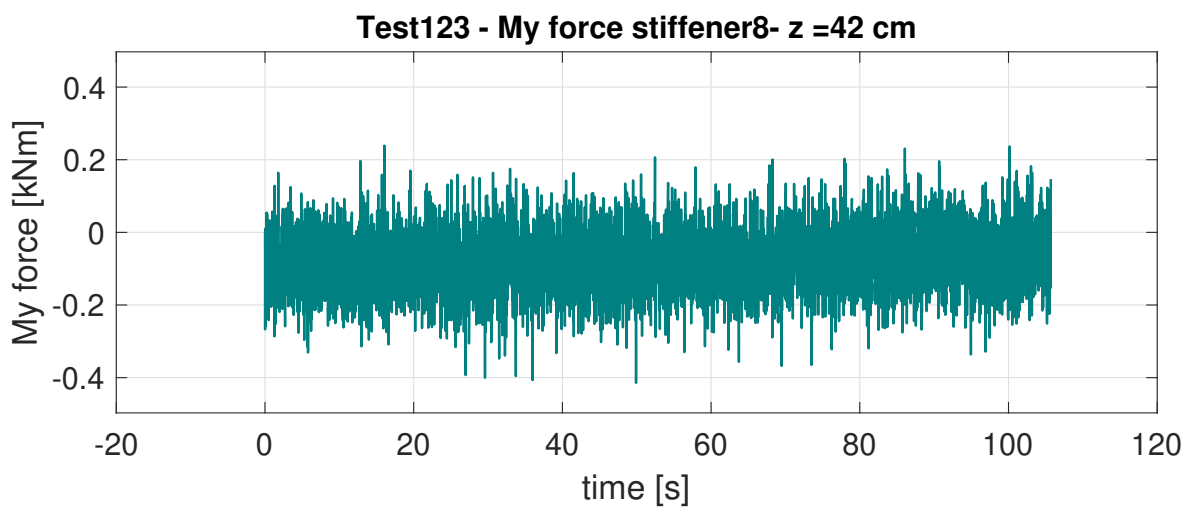
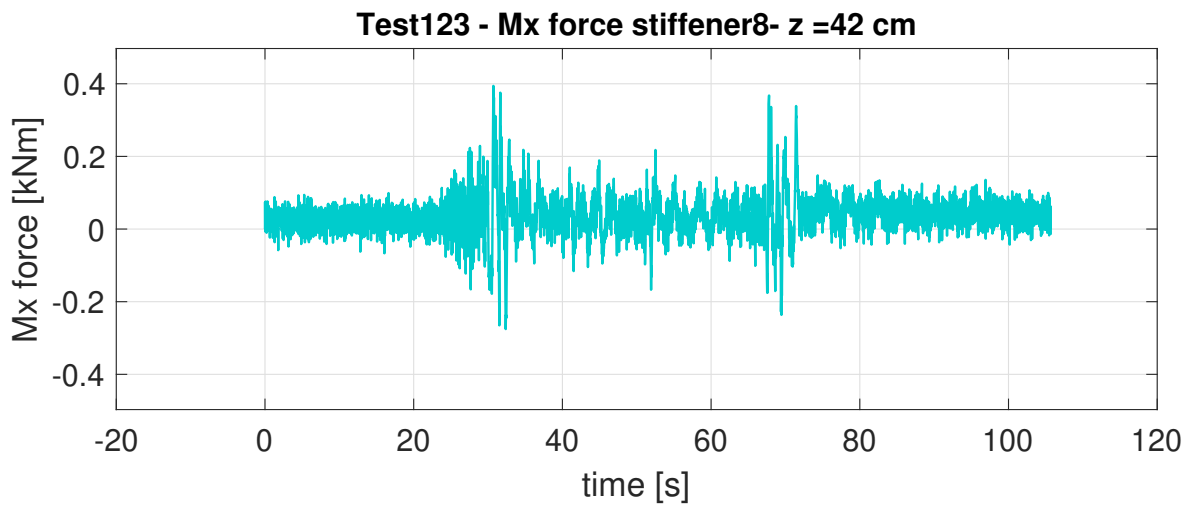
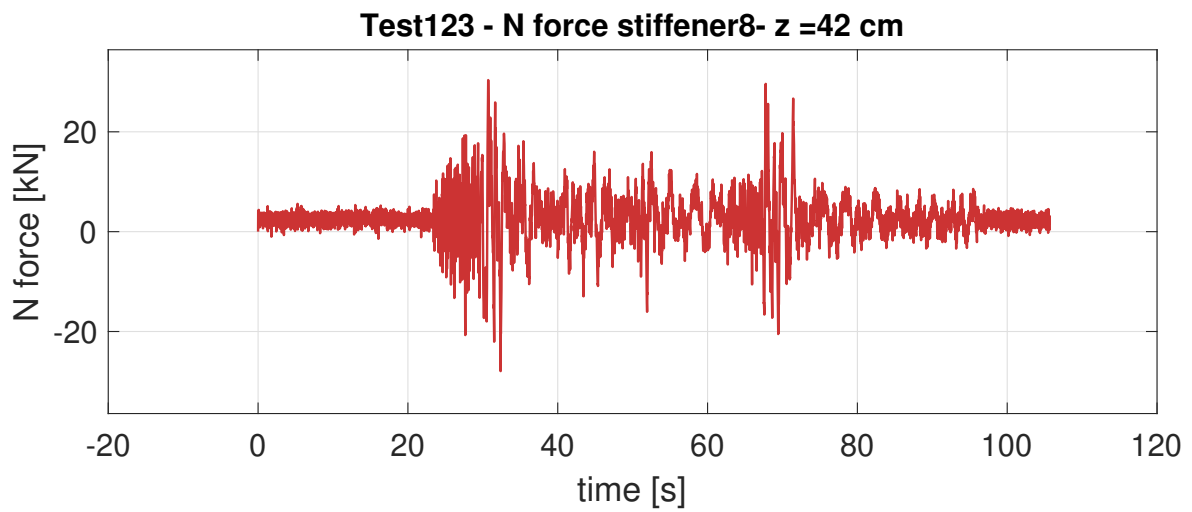
– Montante numero 6



- Montante numero 7

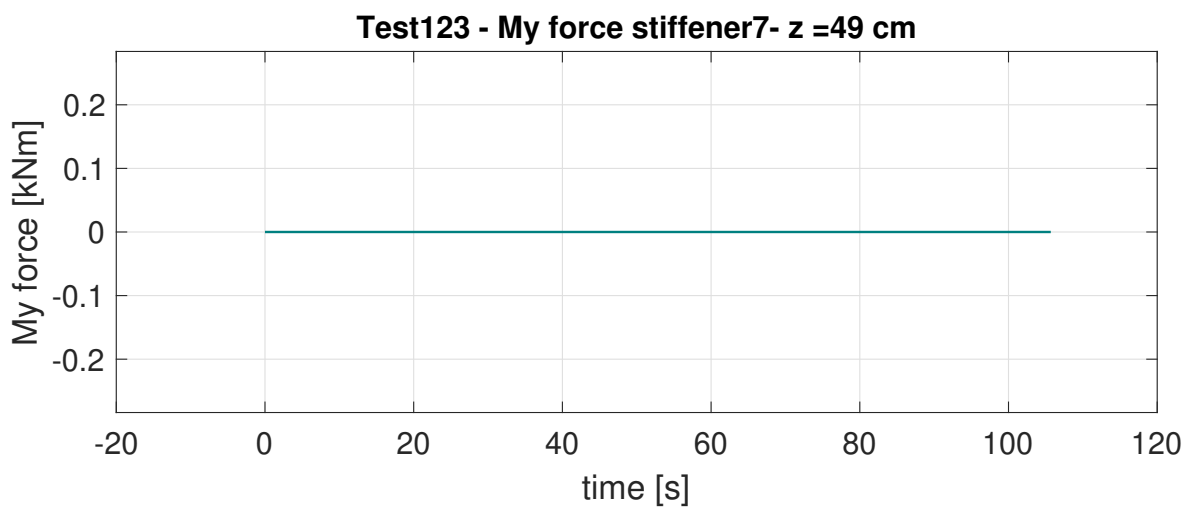
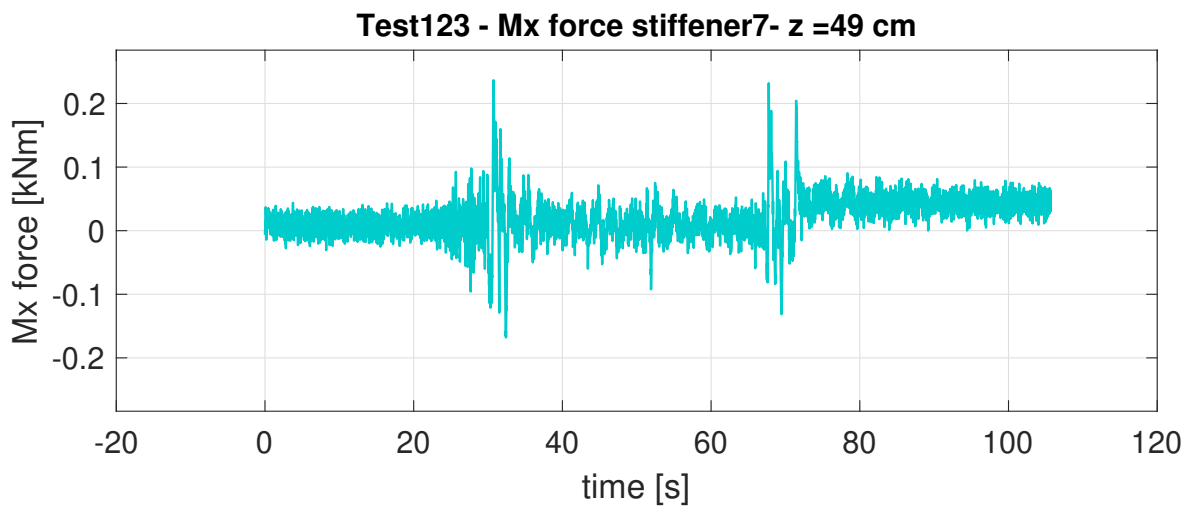
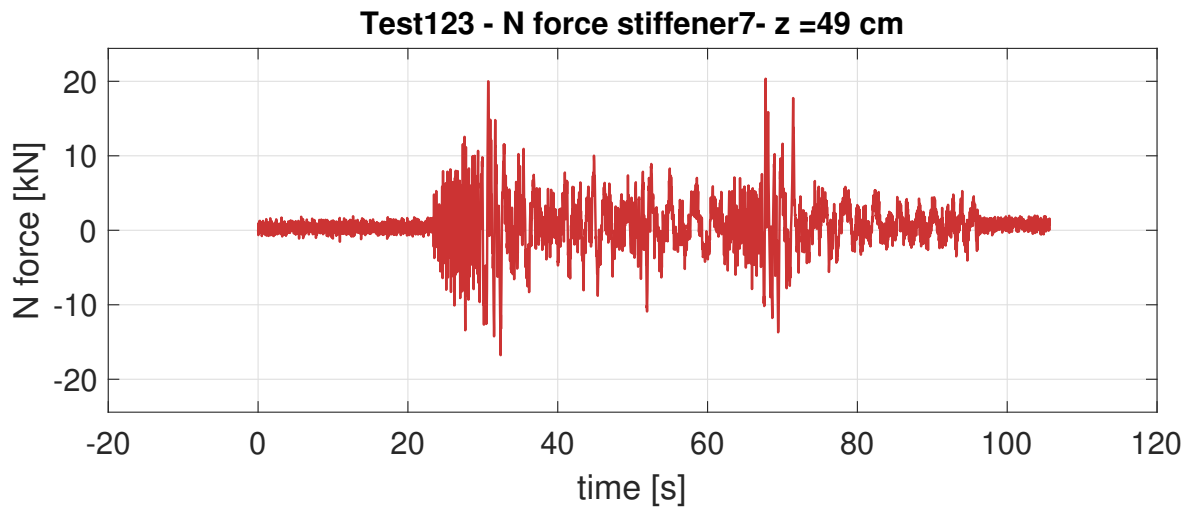


- Montante numero 8

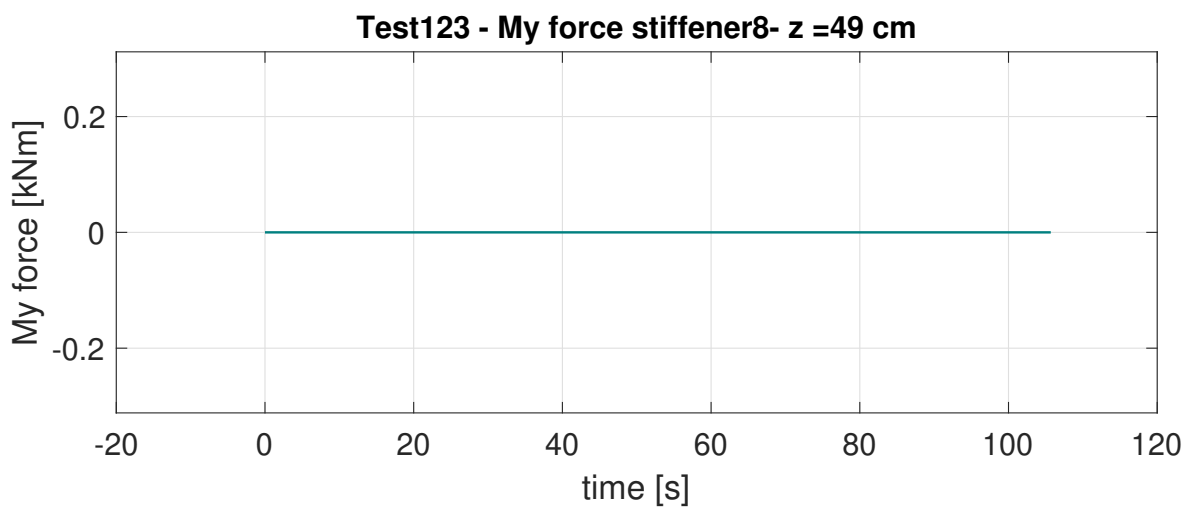
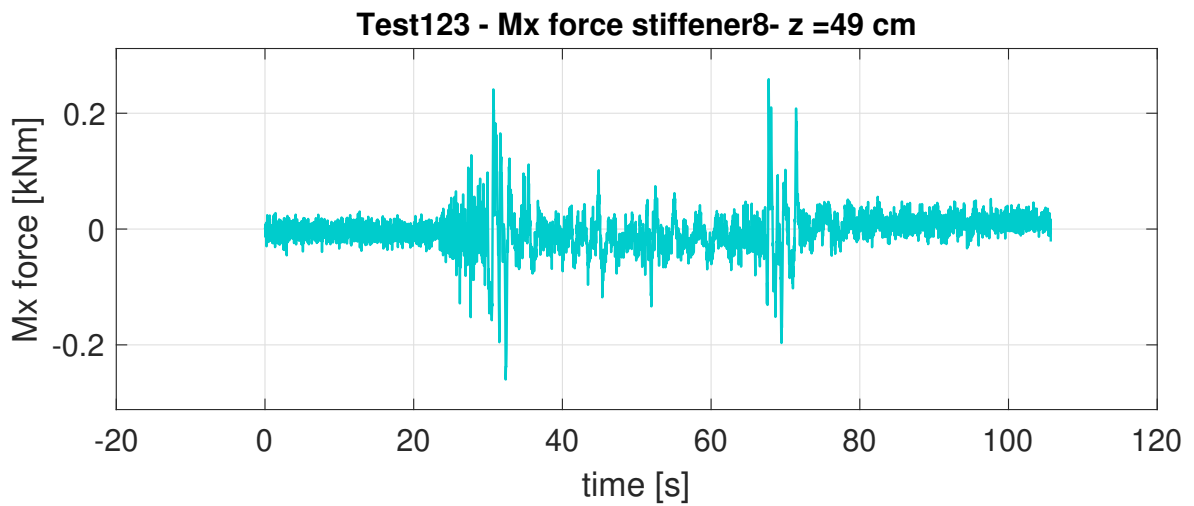
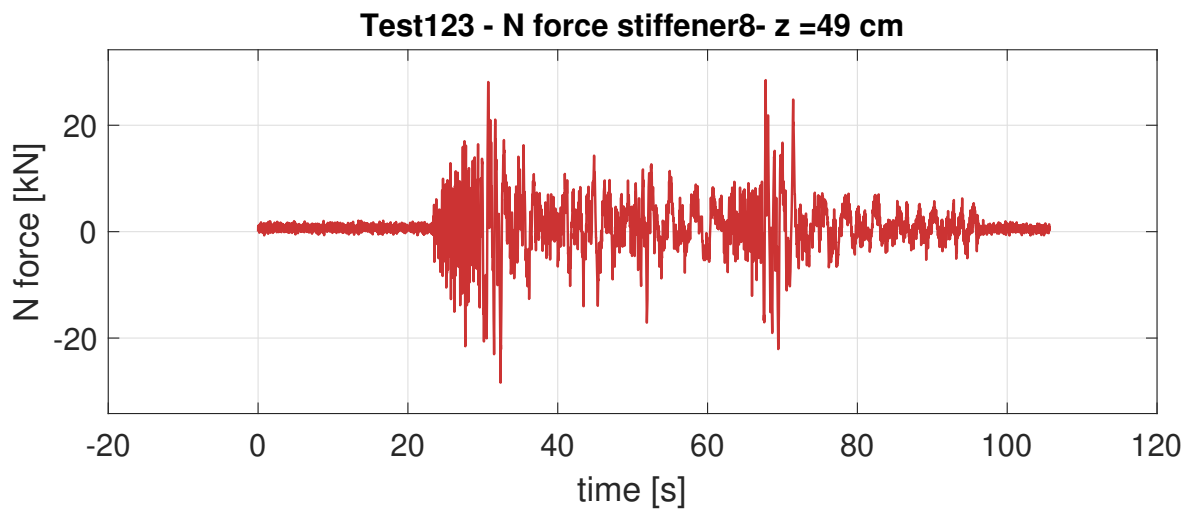


**Quota z = 49 cm**

– Montante numero 7



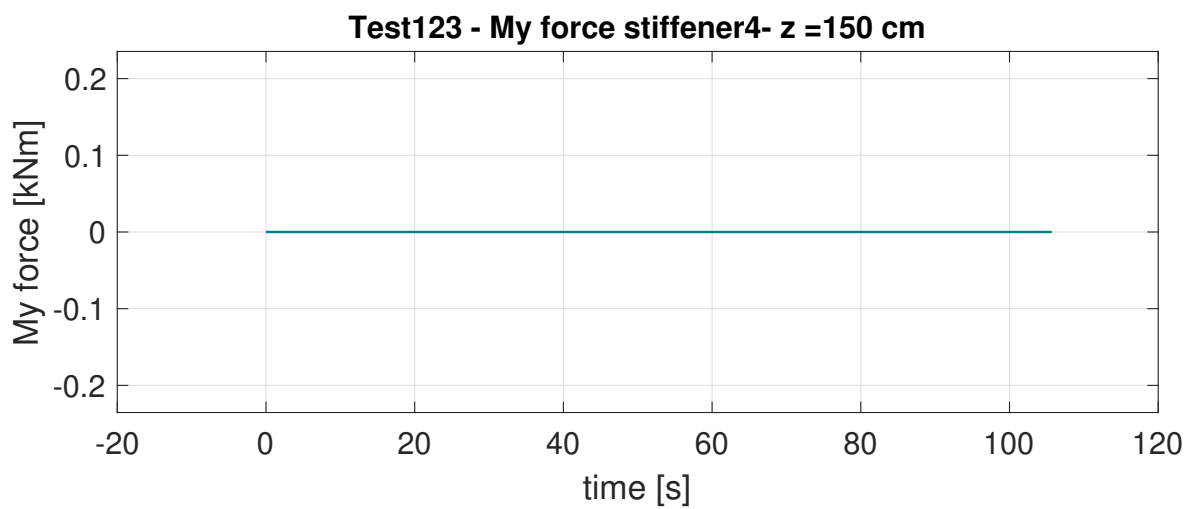
- Montante numero 8



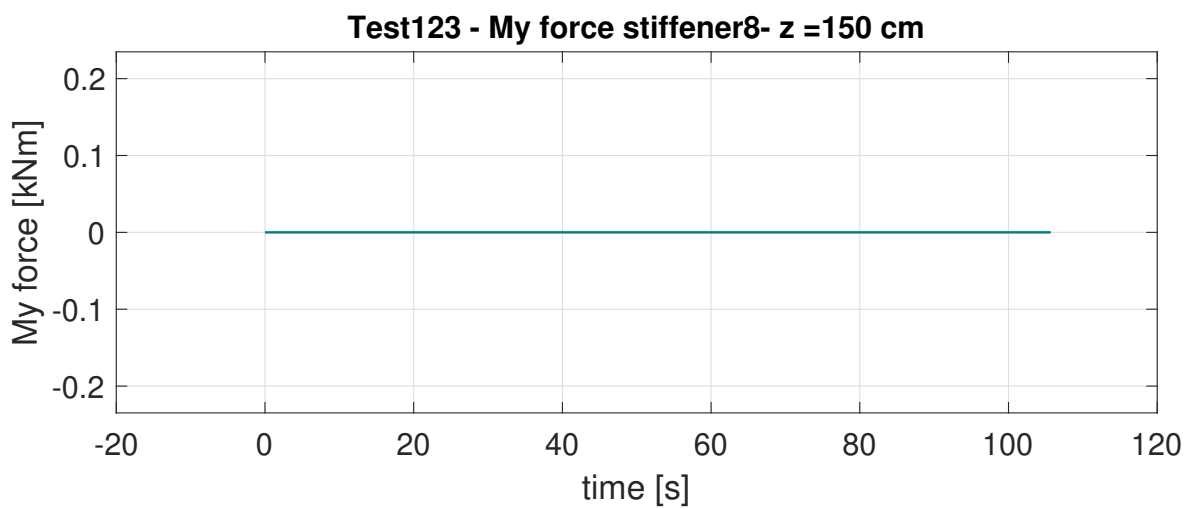
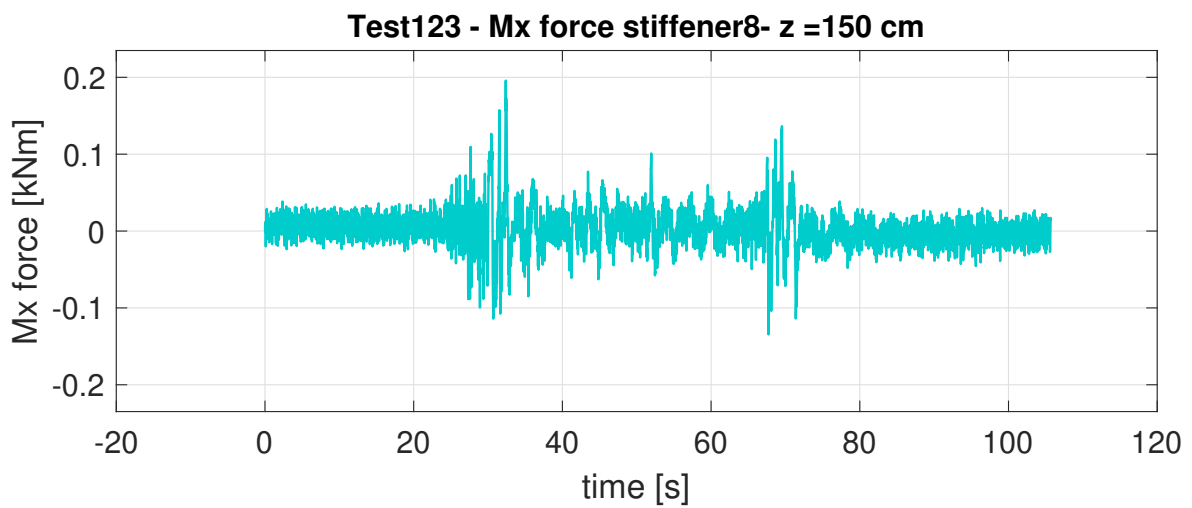
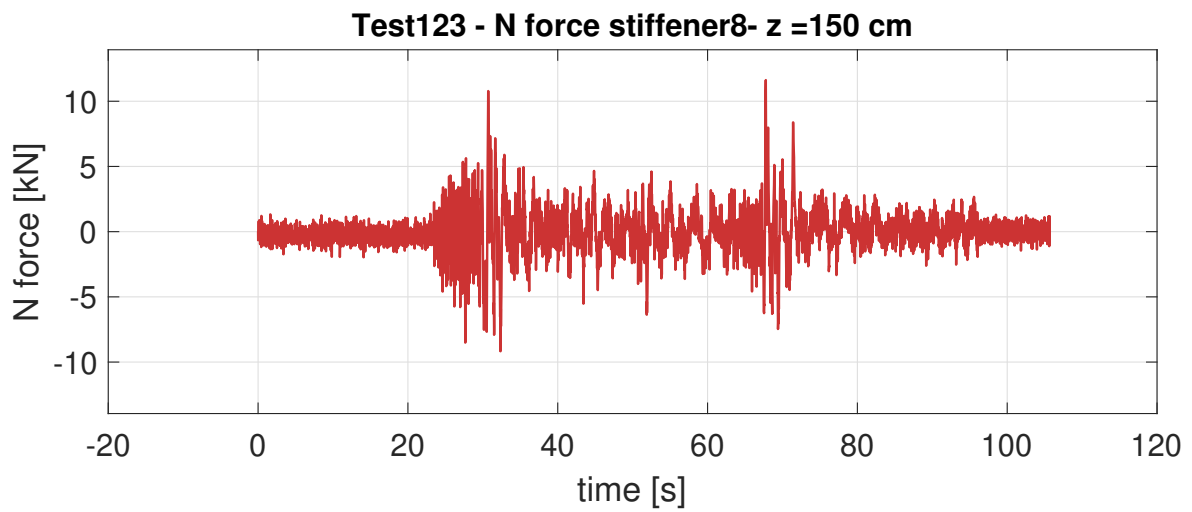


**Quota z = 150 cm**

– Montante numero 4

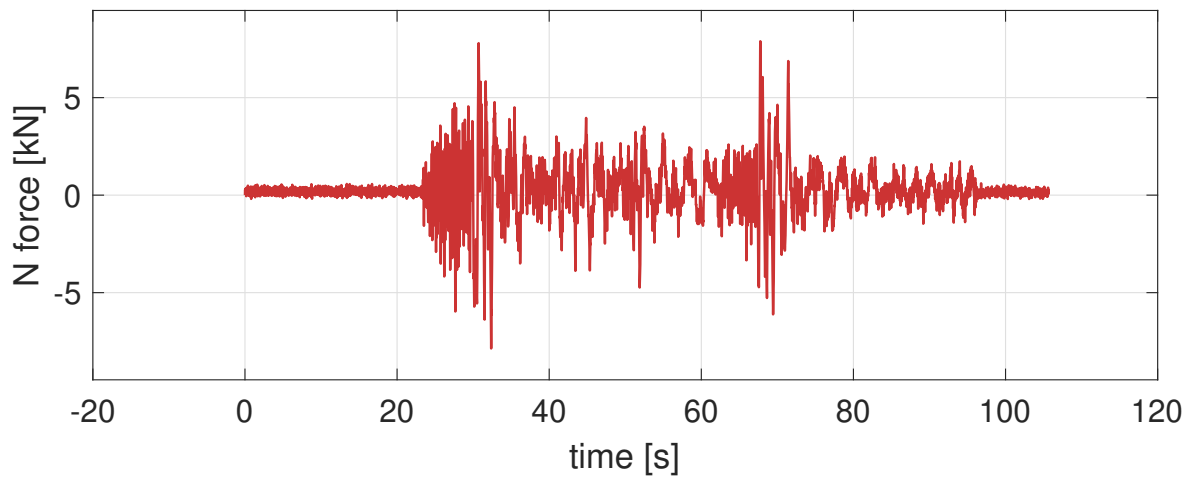
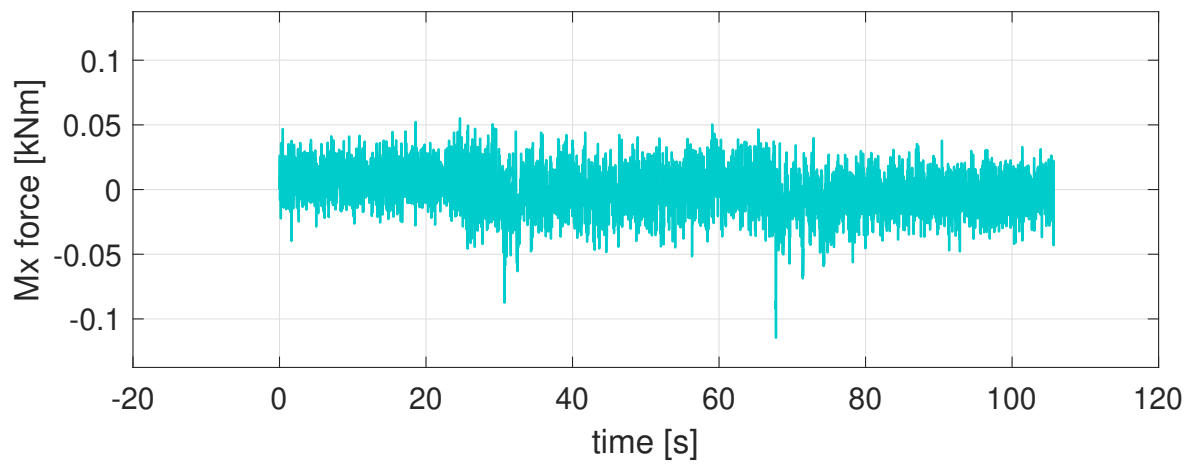
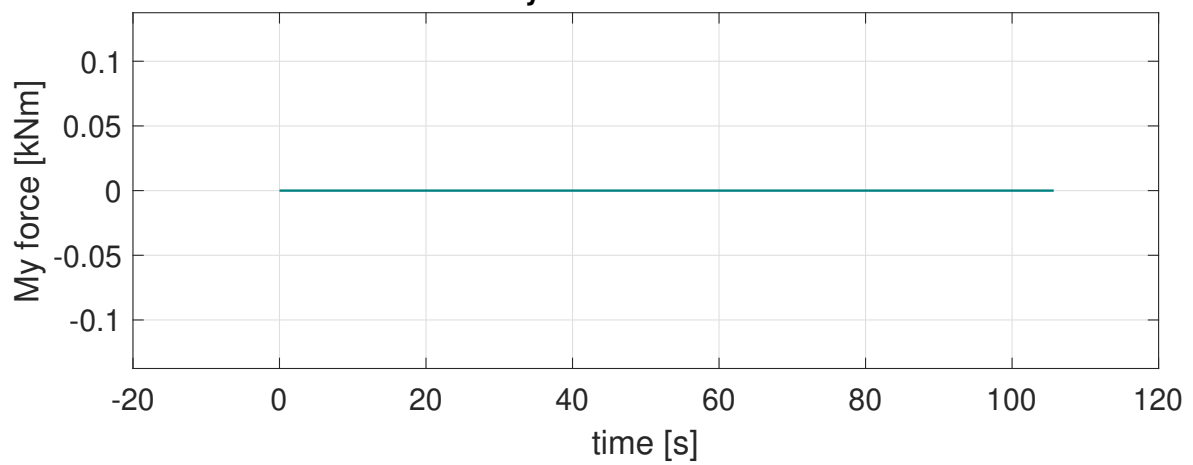


- Montante numero 8



**Quota z = 250 cm**

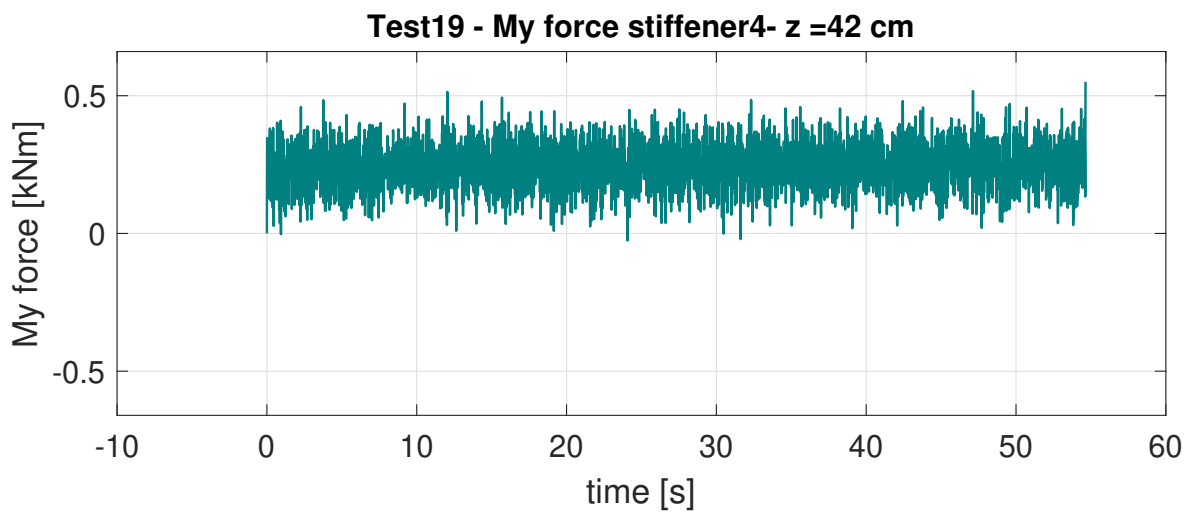
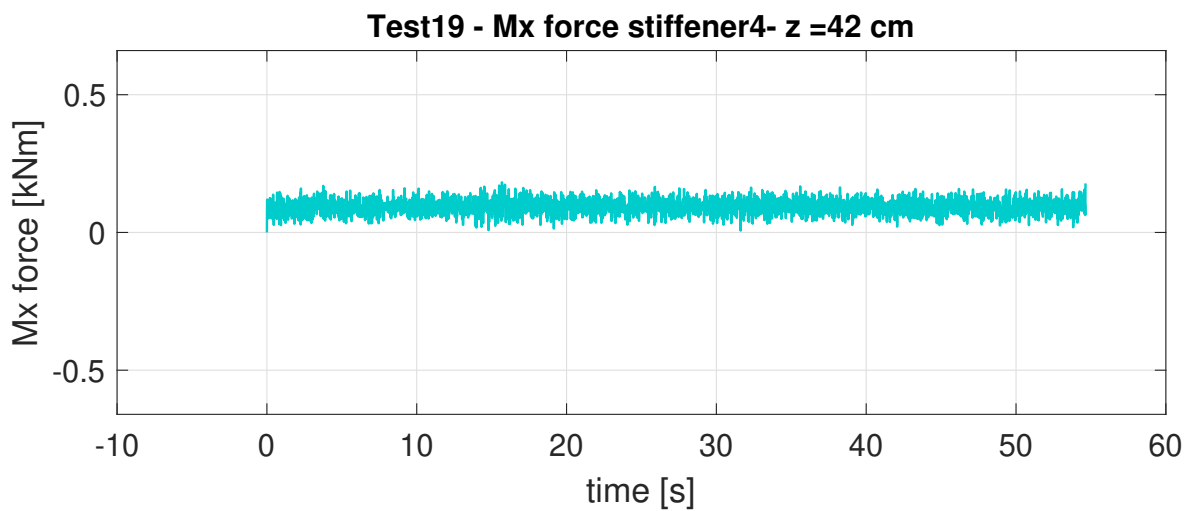
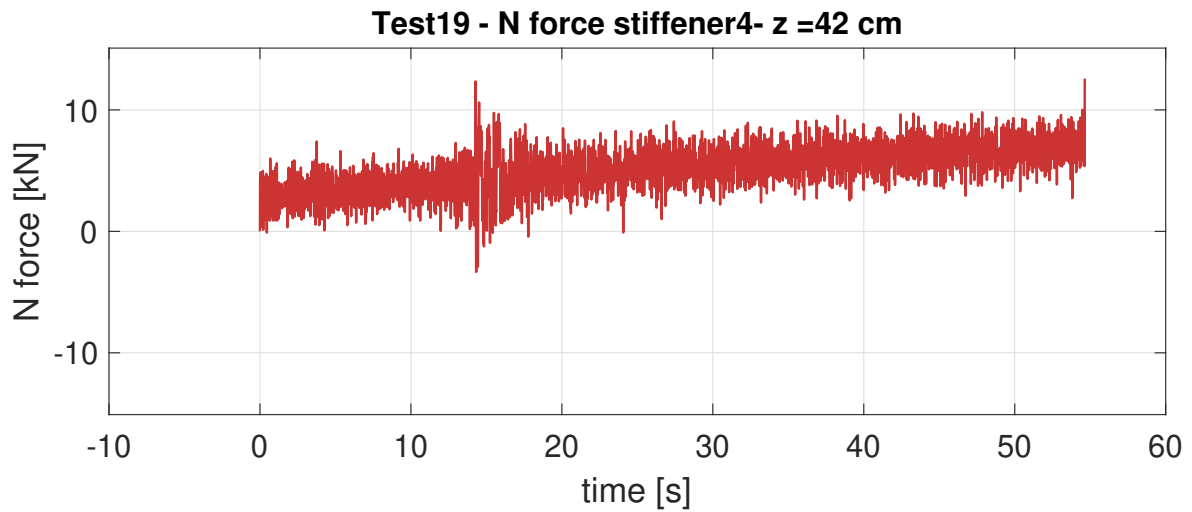
– Montante numero 8

**Test123 - N force stiffener8- z =250 cm****Test123 - Mx force stiffener8- z =250 cm****Test123 - My force stiffener8- z =250 cm**

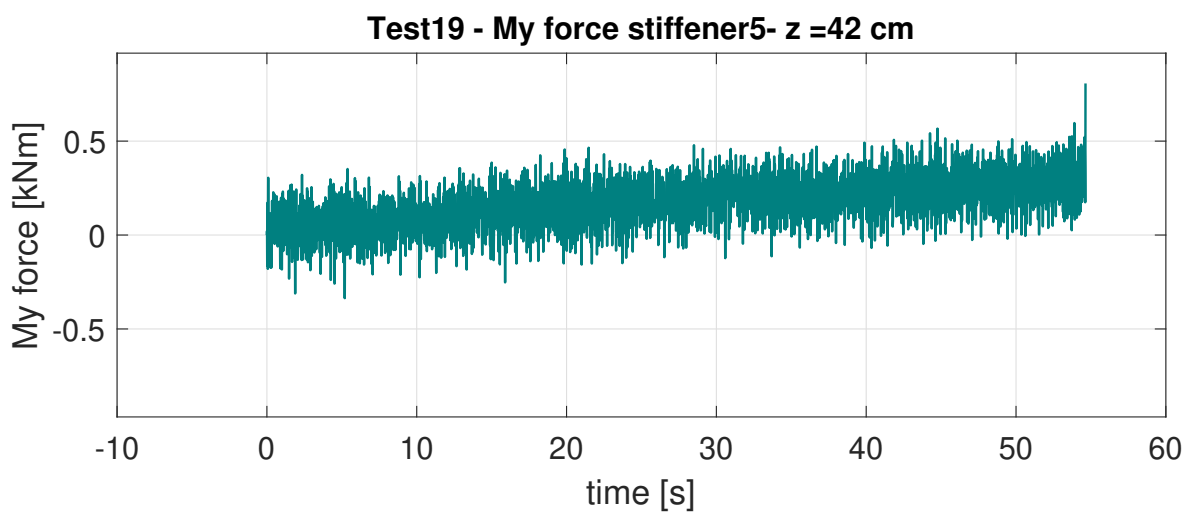
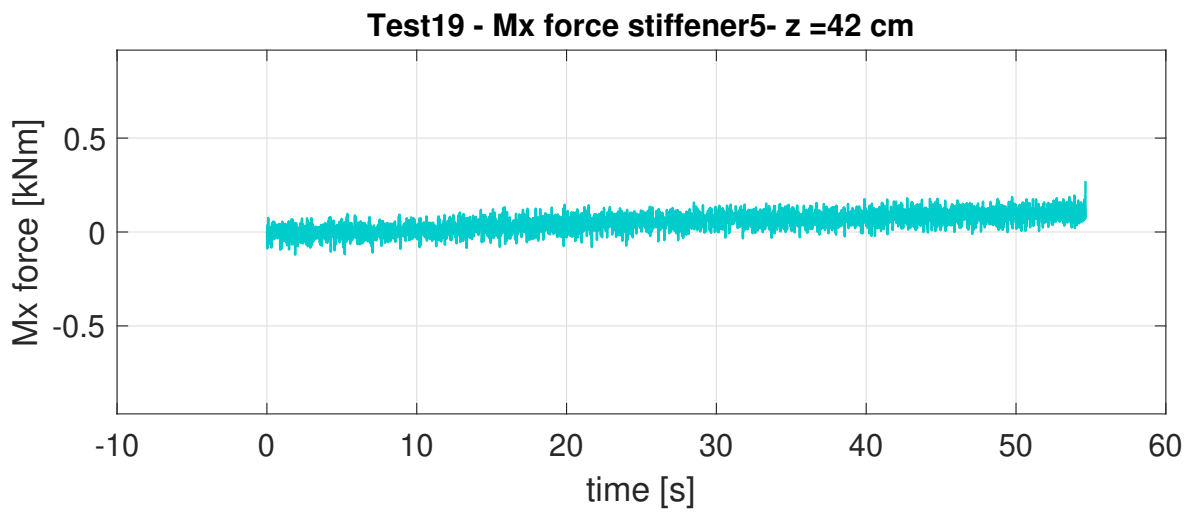
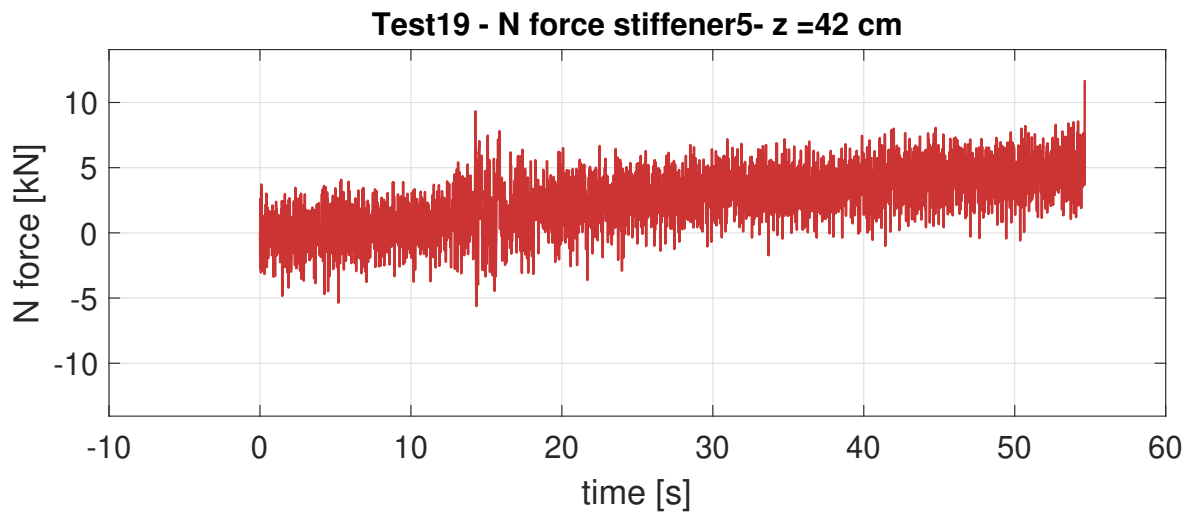
- Terremoto RS3 0.1 g

Quota z = 42 cm

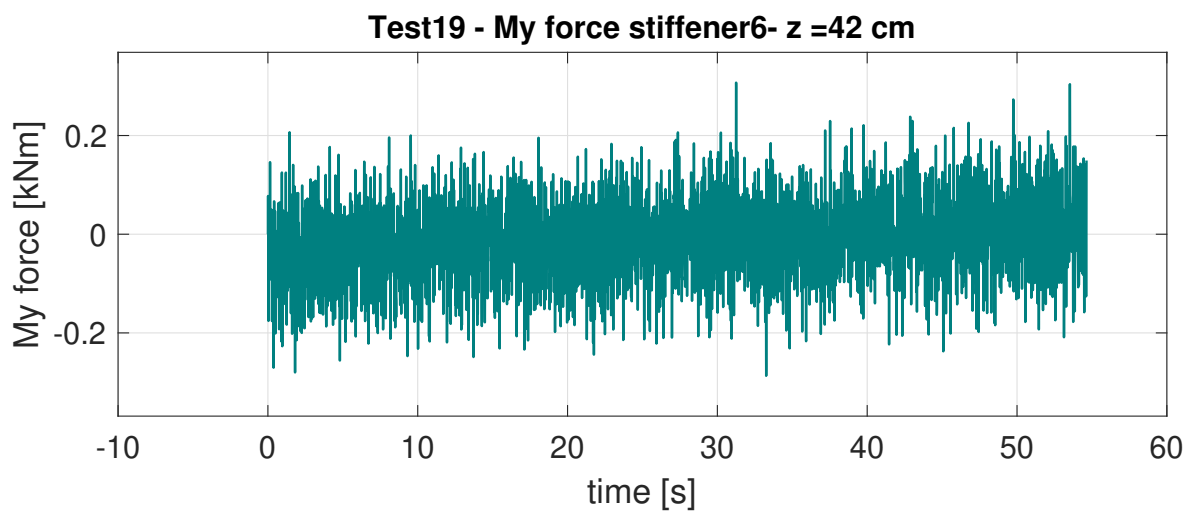
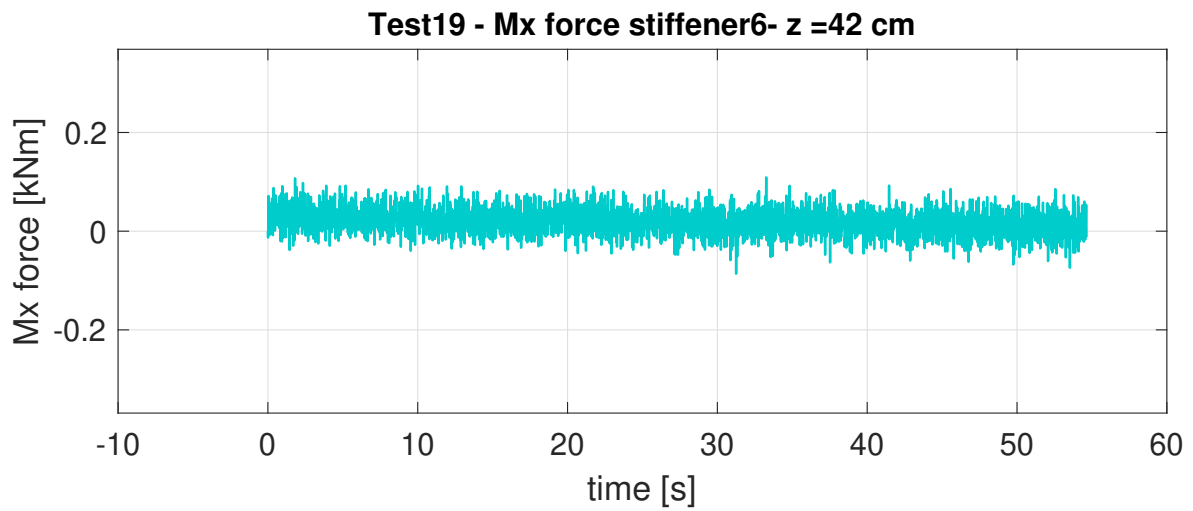
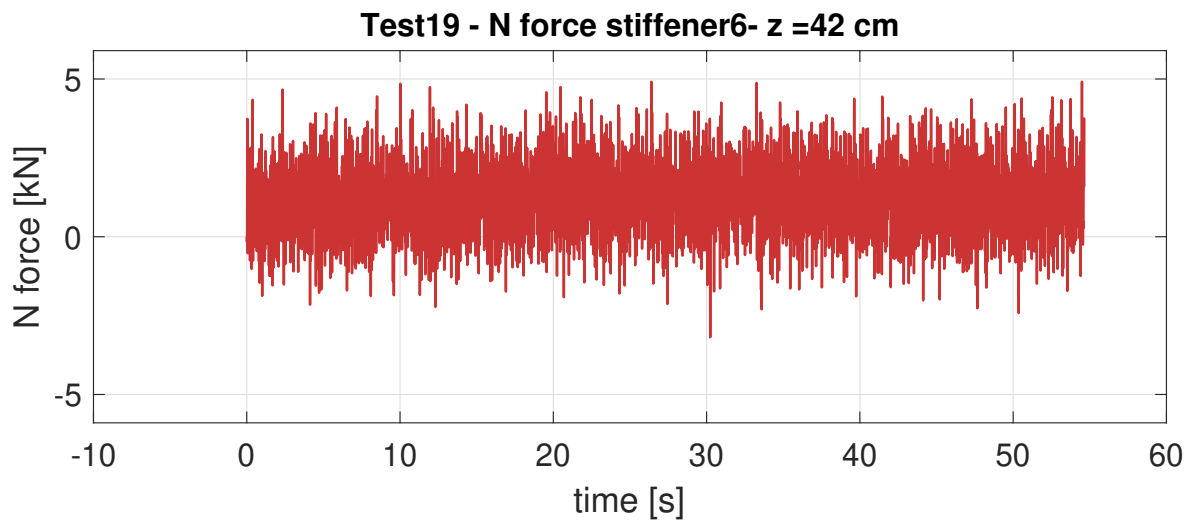
– Montante numero 4



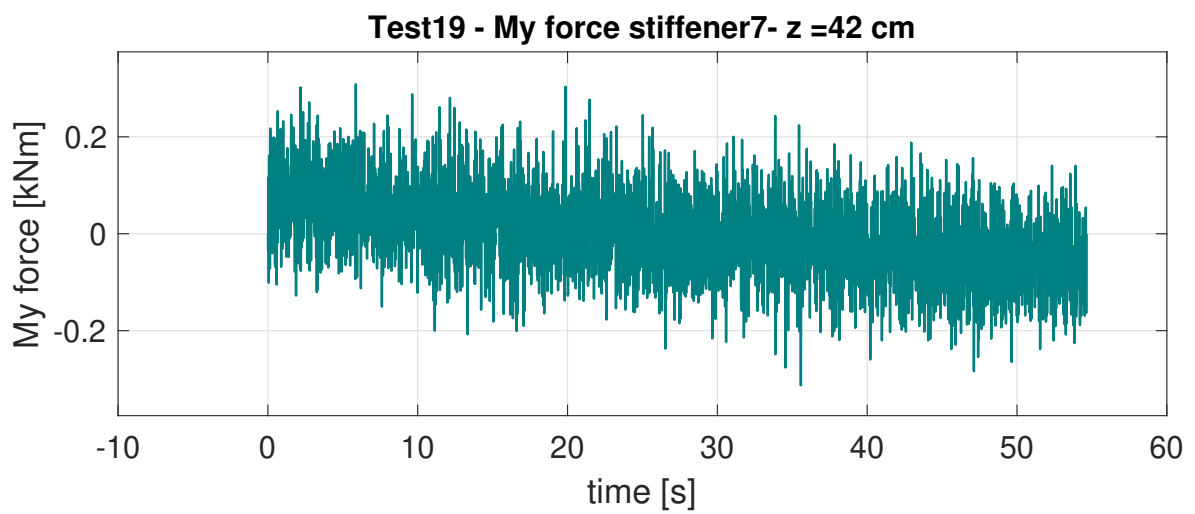
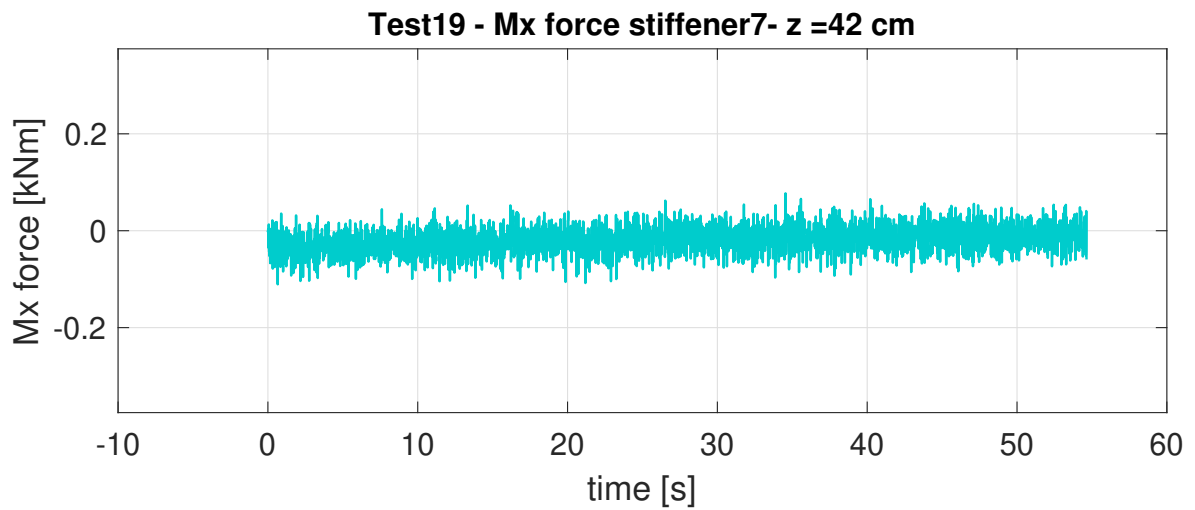
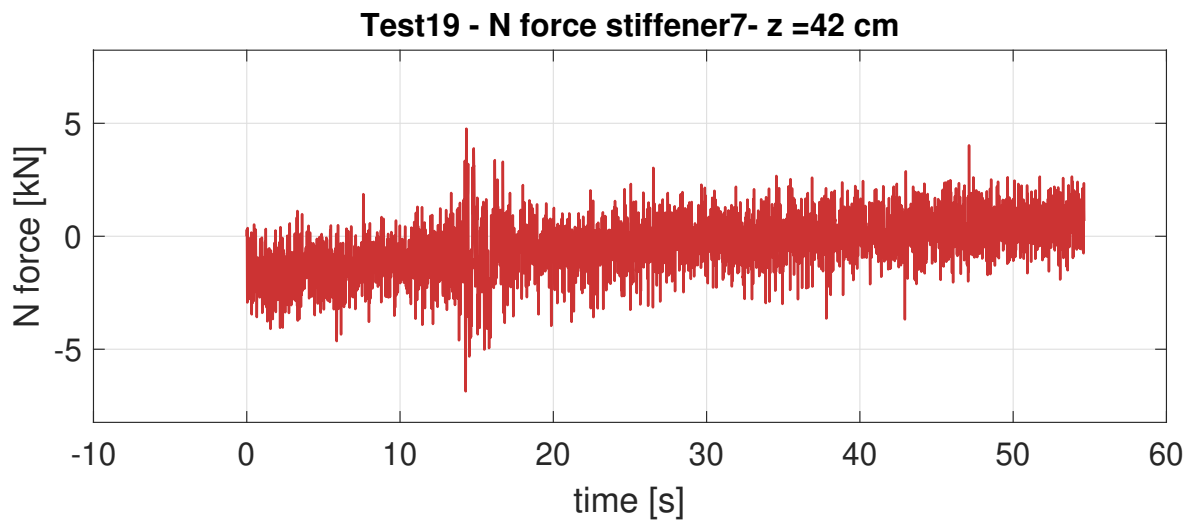
- Montante numero 5



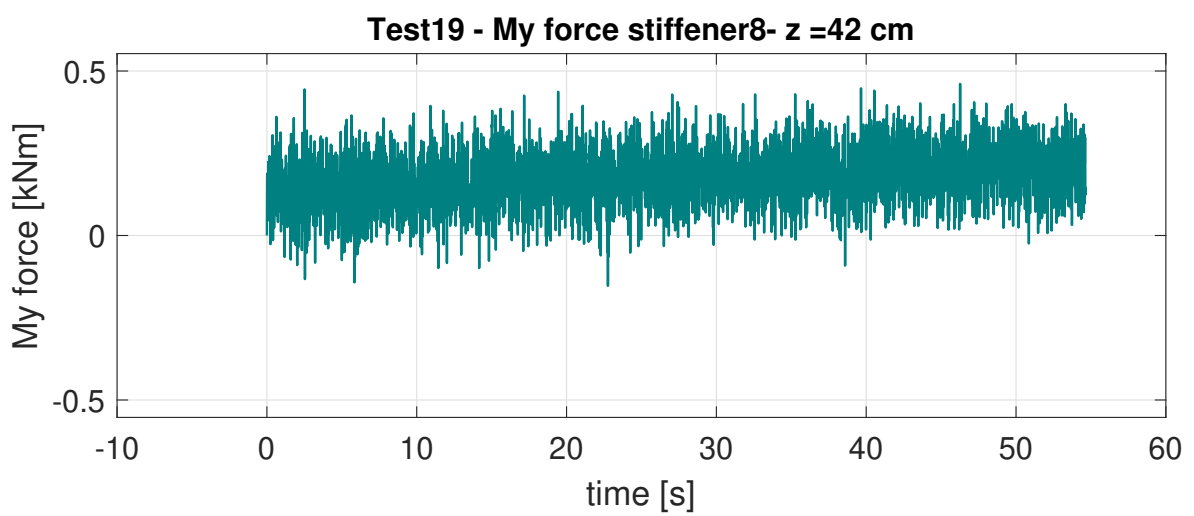
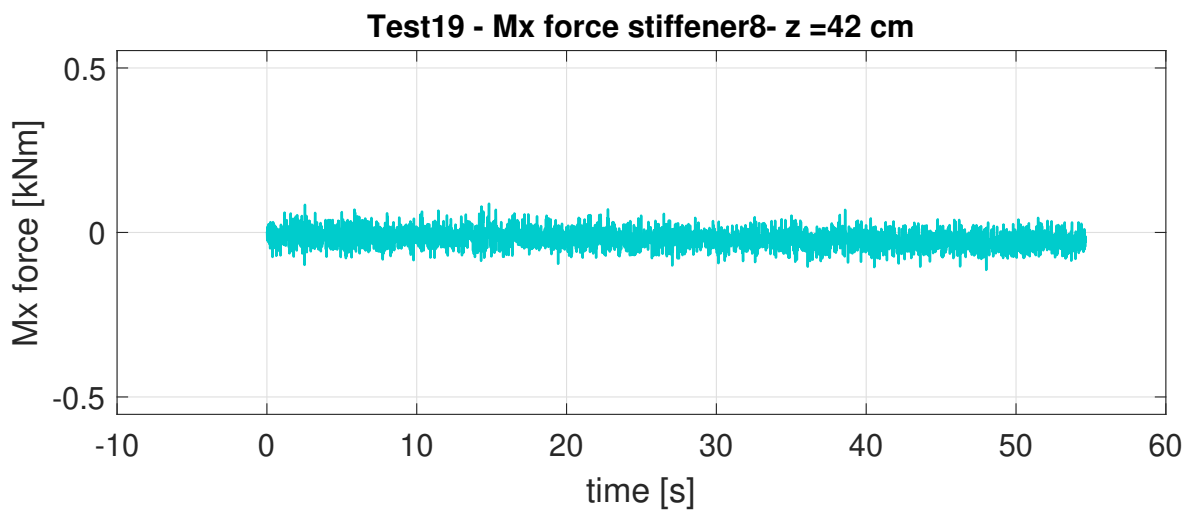
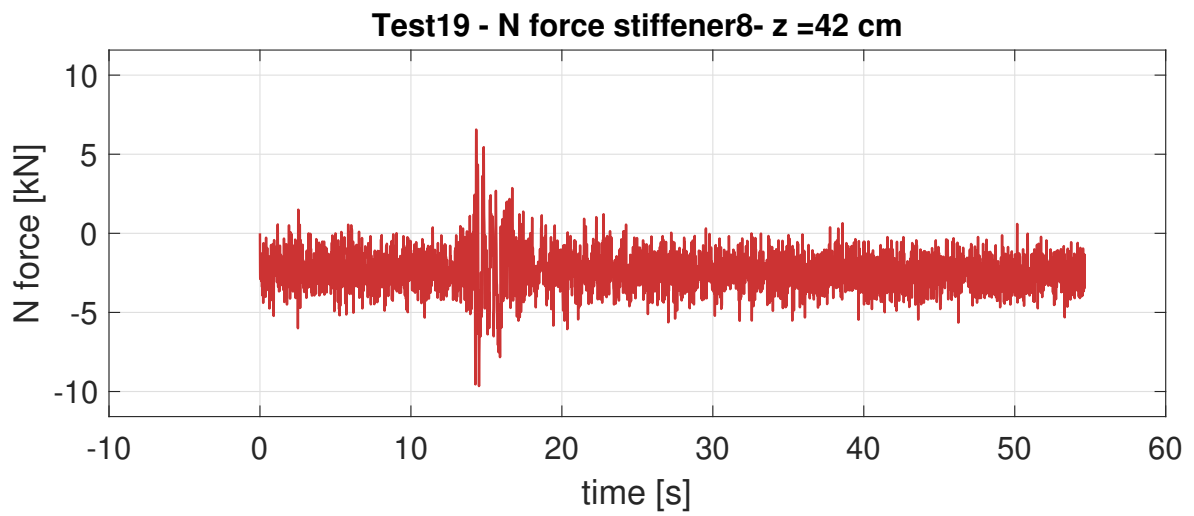
- Montante numero 6



- Montante numero 7



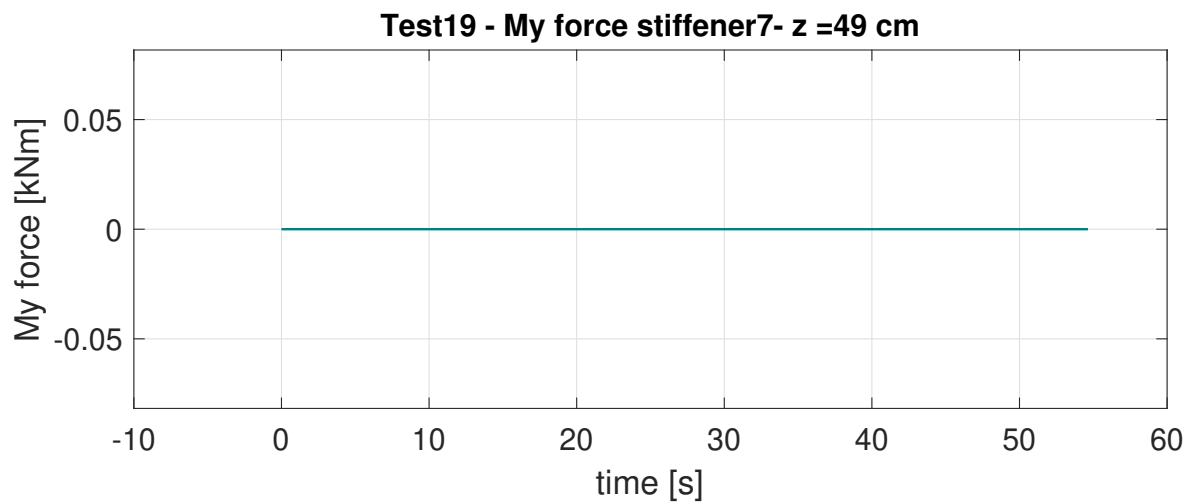
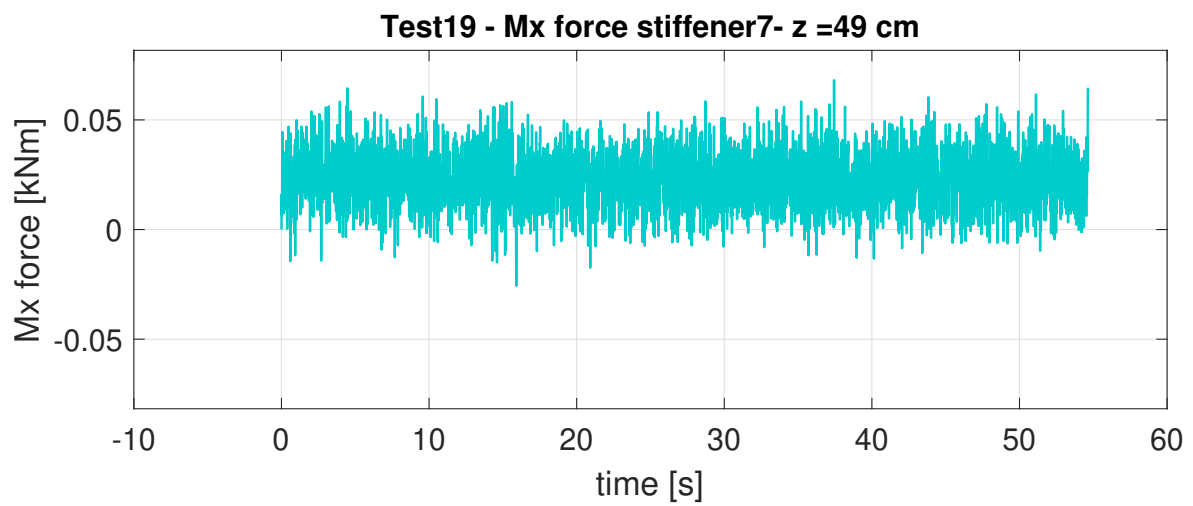
- Montante numero 8



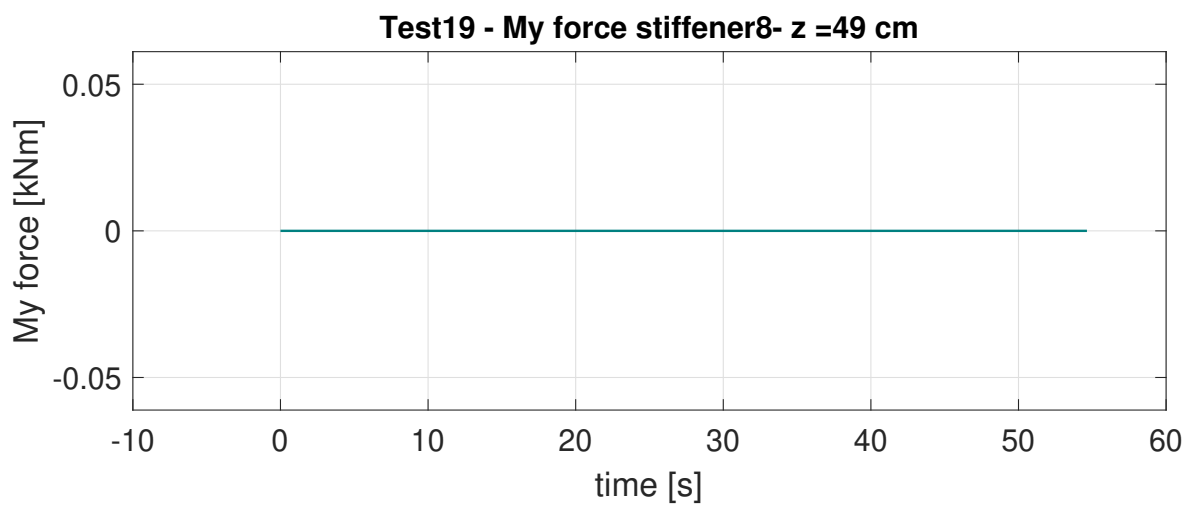
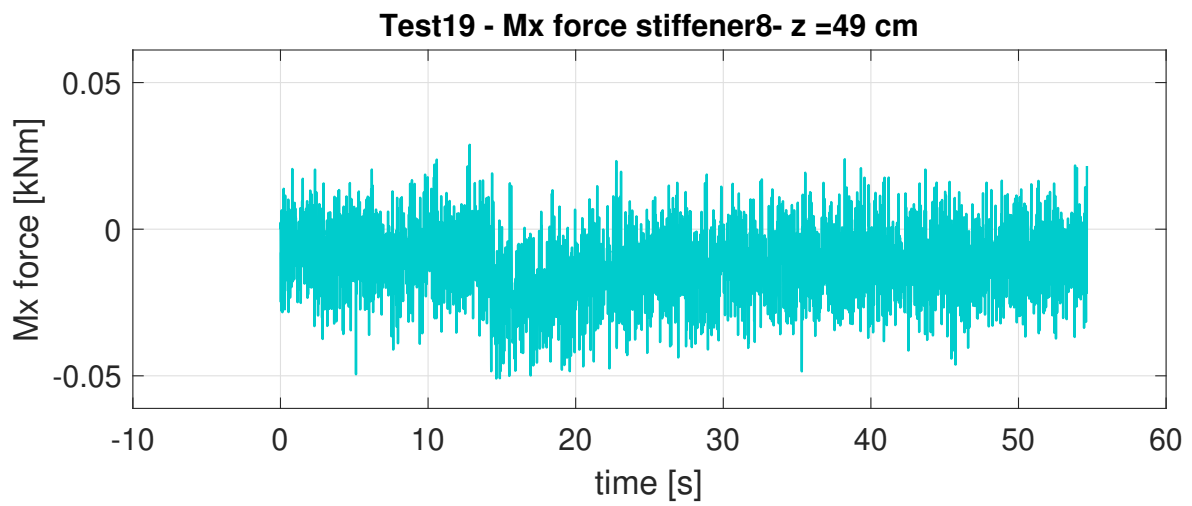
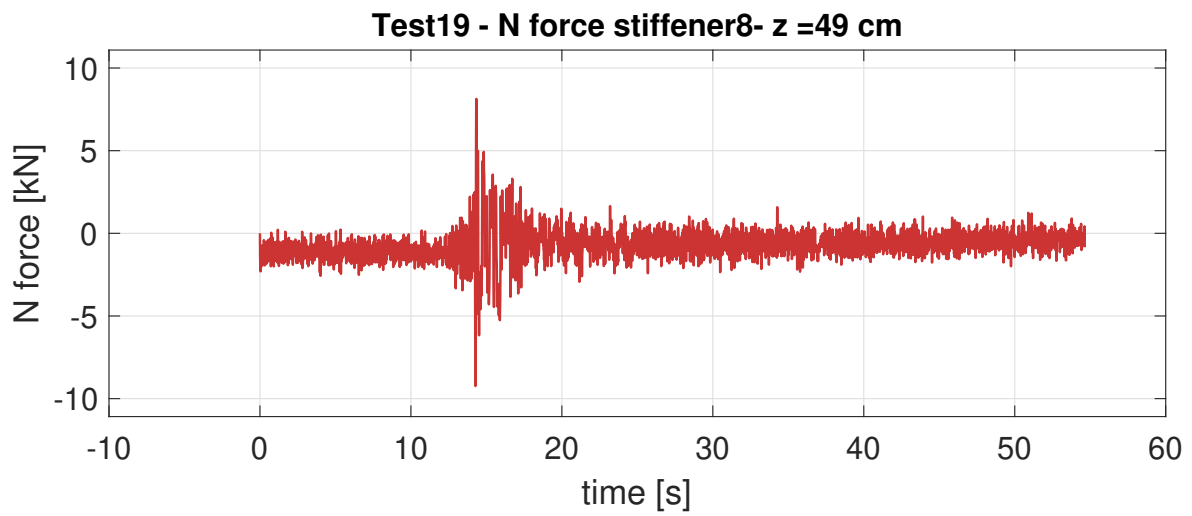


**Quota z = 49 cm**

– Montante numero 7

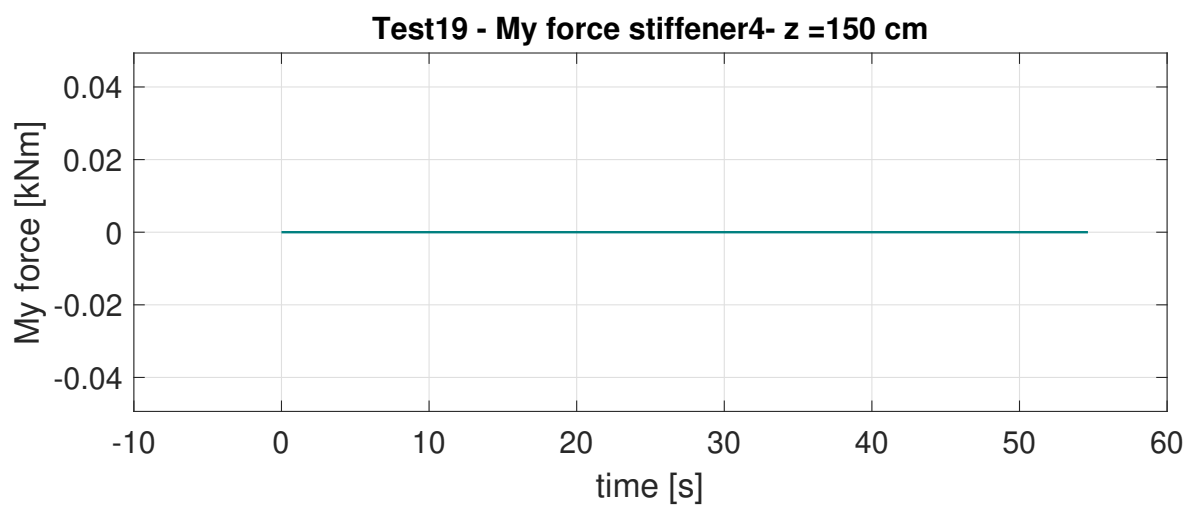
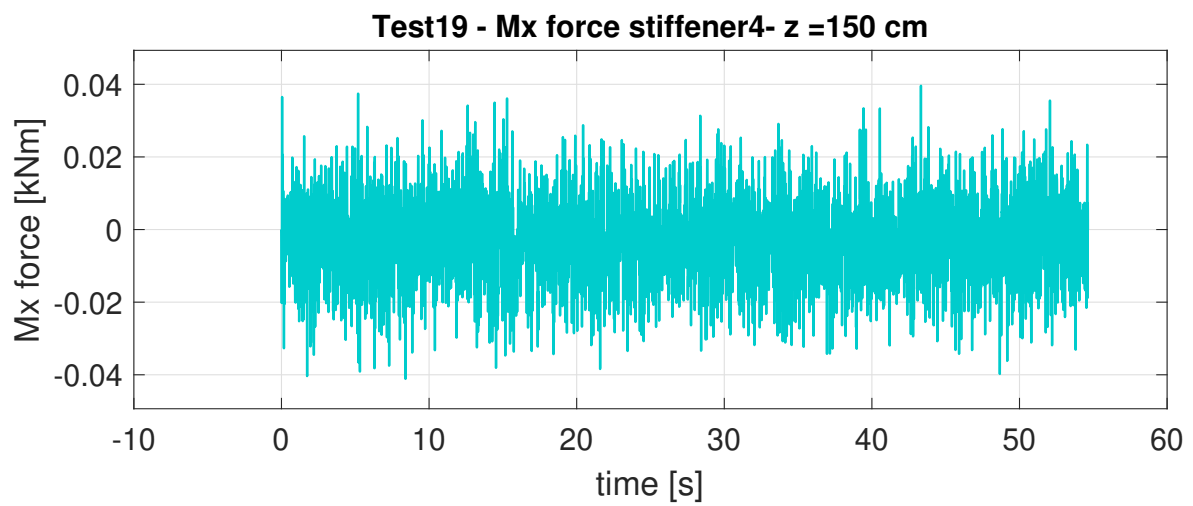


– Montante numero 8

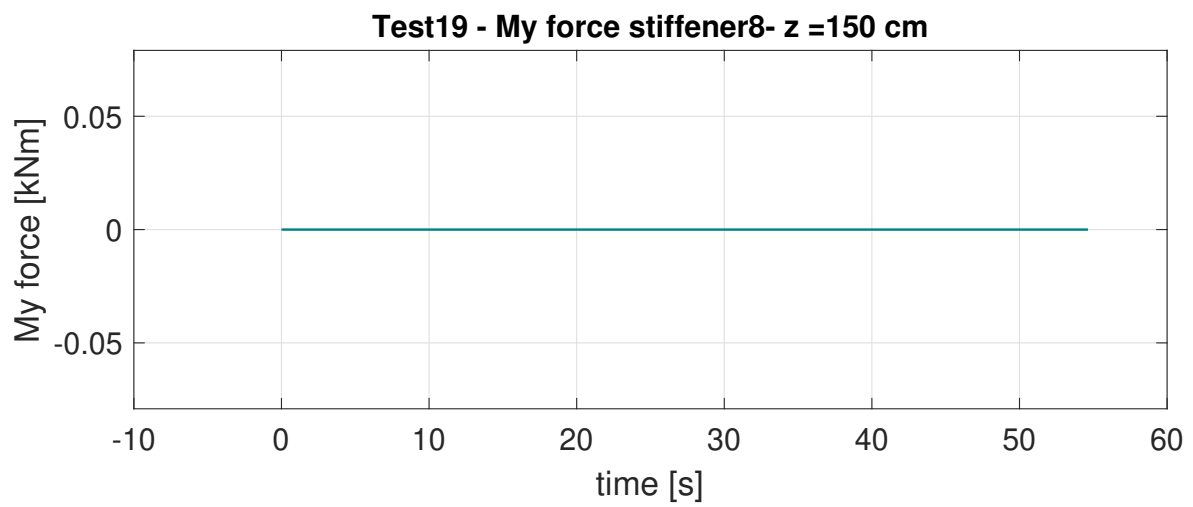
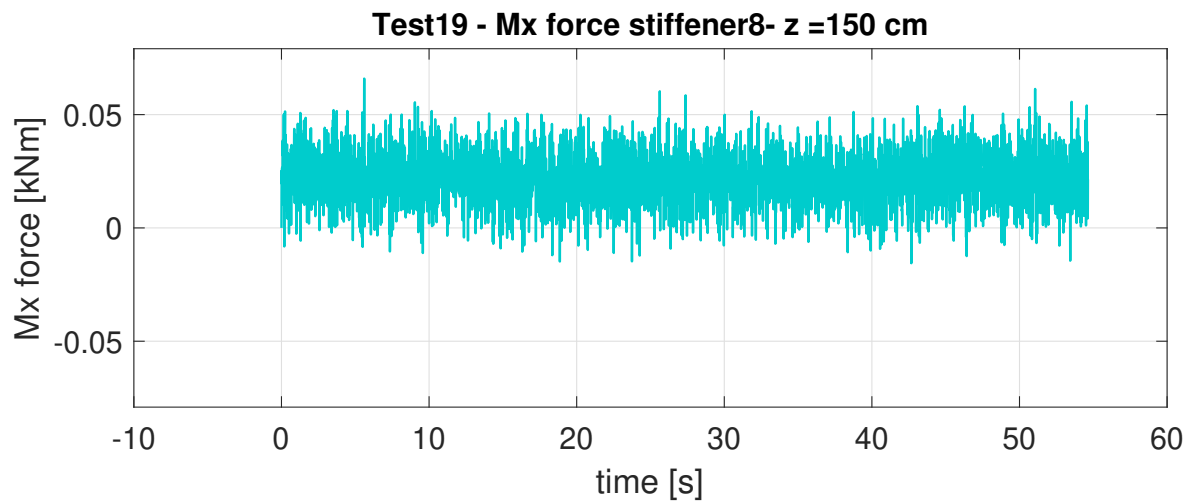
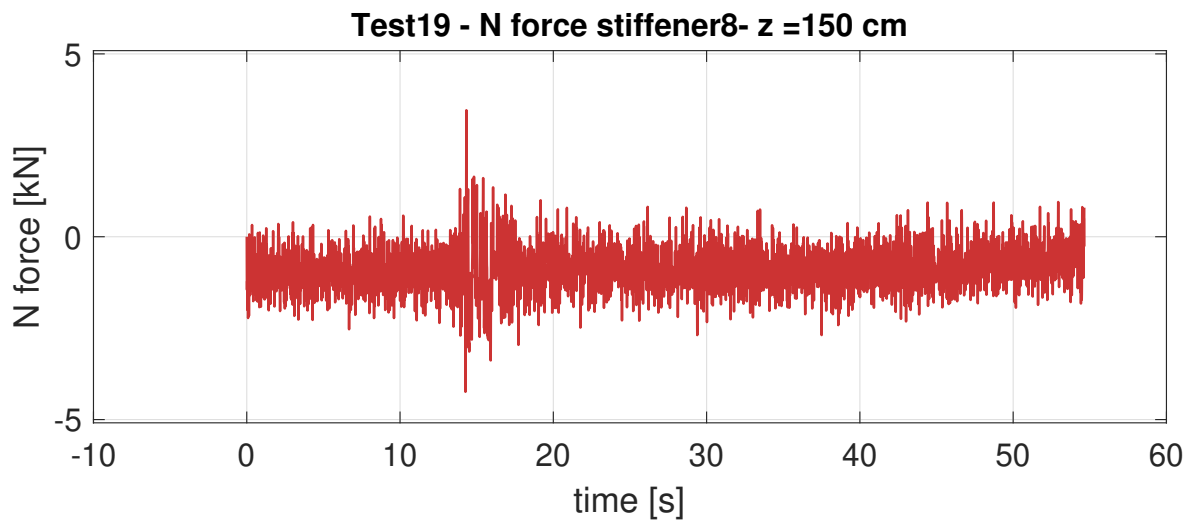


**Quota z = 150 cm**

– Montante numero 4

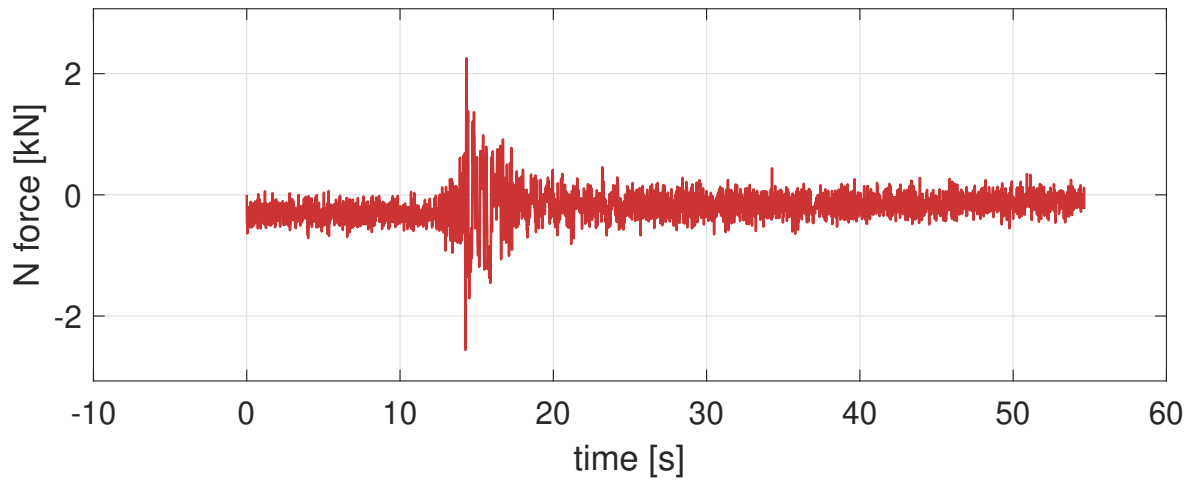
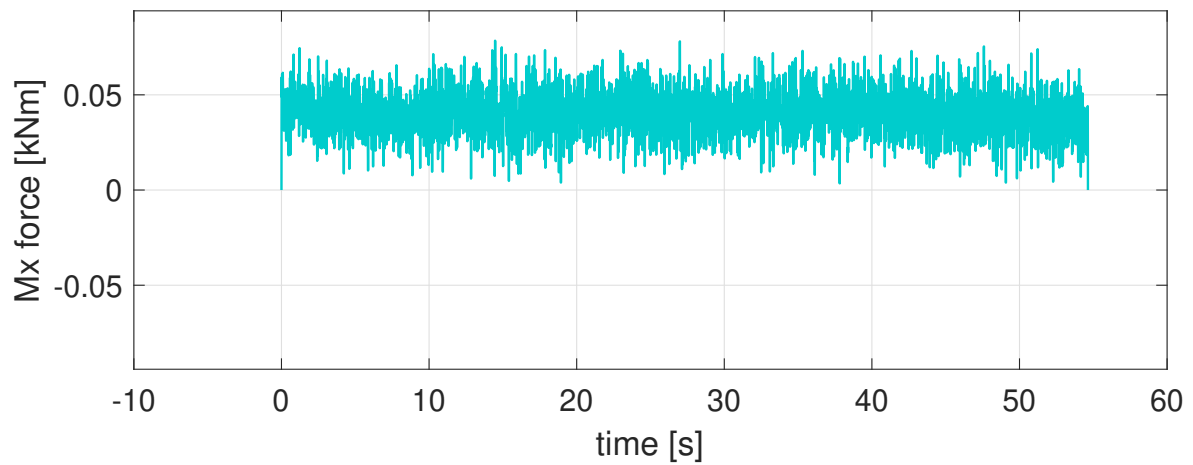
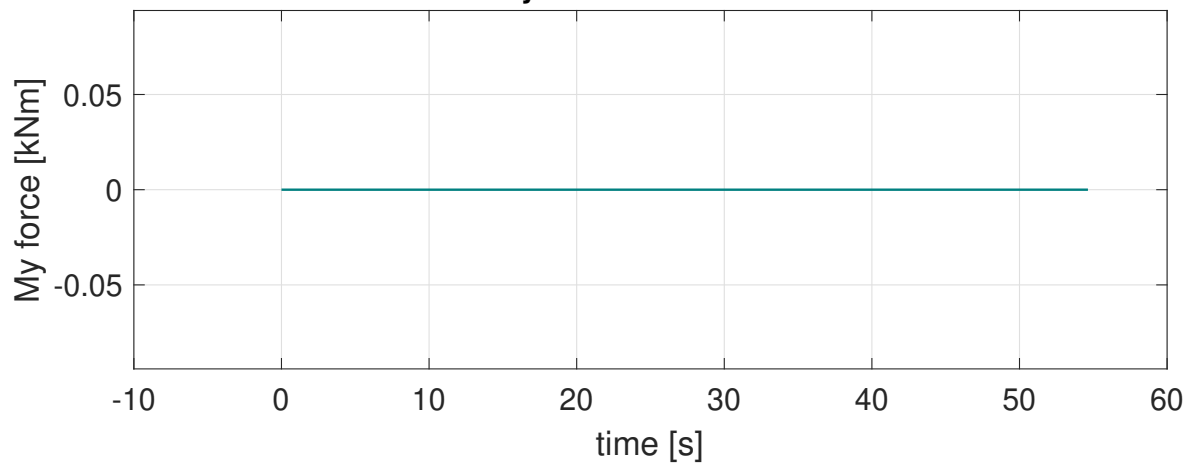


– Montante numero 8



**Quota z = 250 cm**

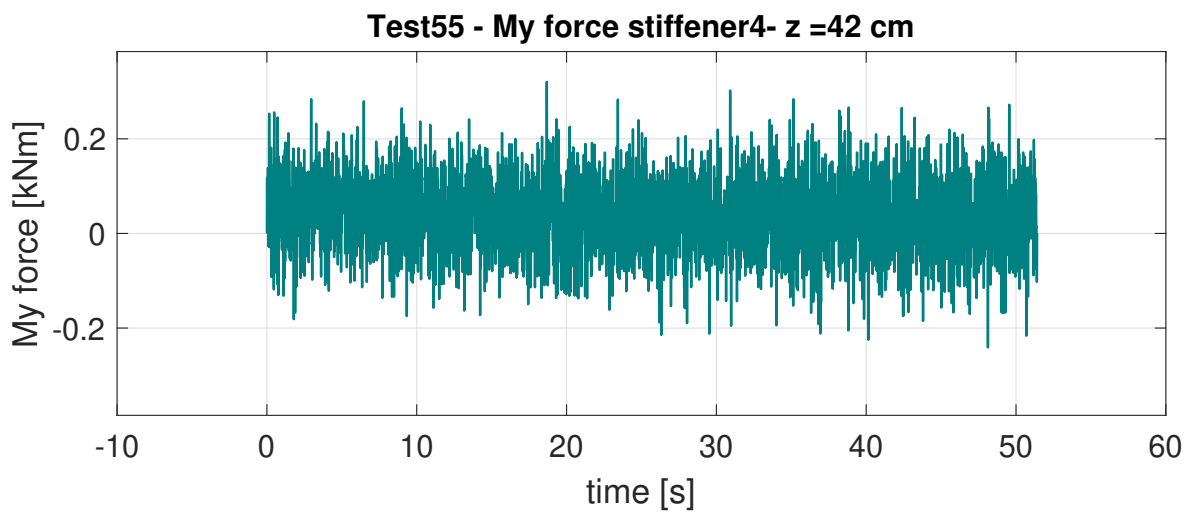
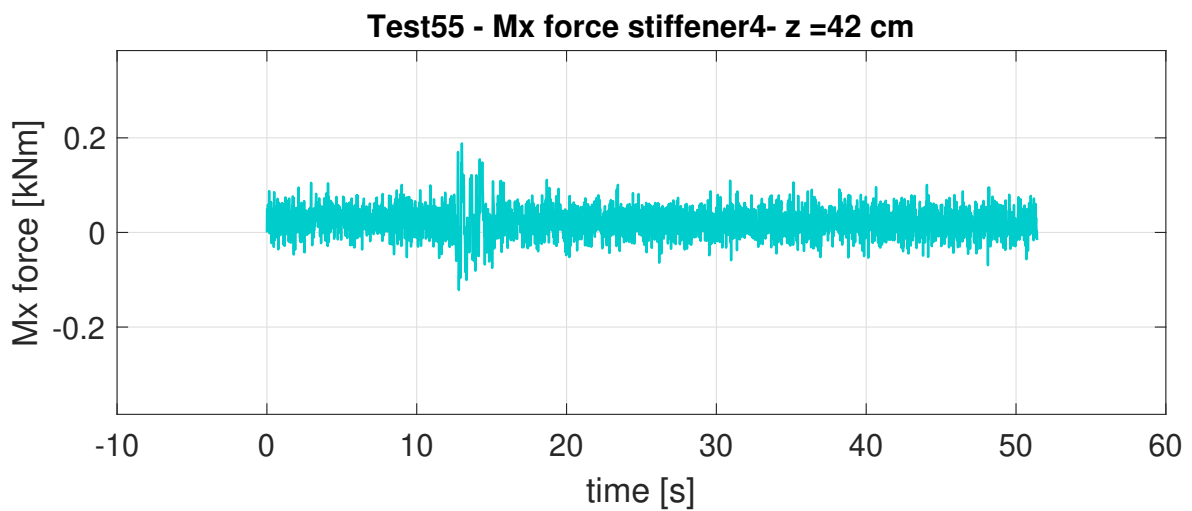
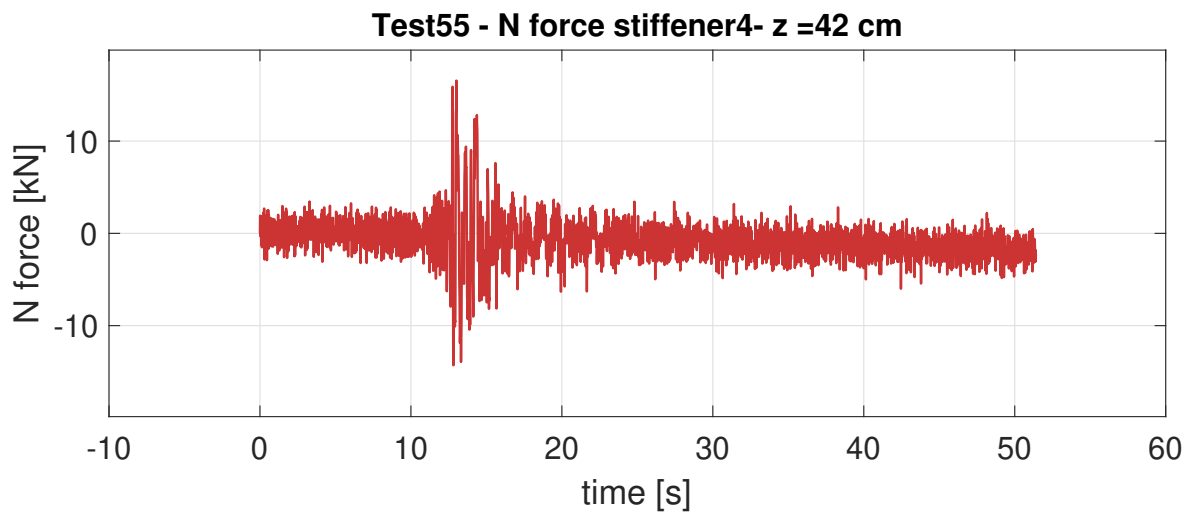
– Montante numero 8

**Test19 - N force stiffener8- z =250 cm****Test19 - Mx force stiffener8- z =250 cm****Test19 - My force stiffener8- z =250 cm**

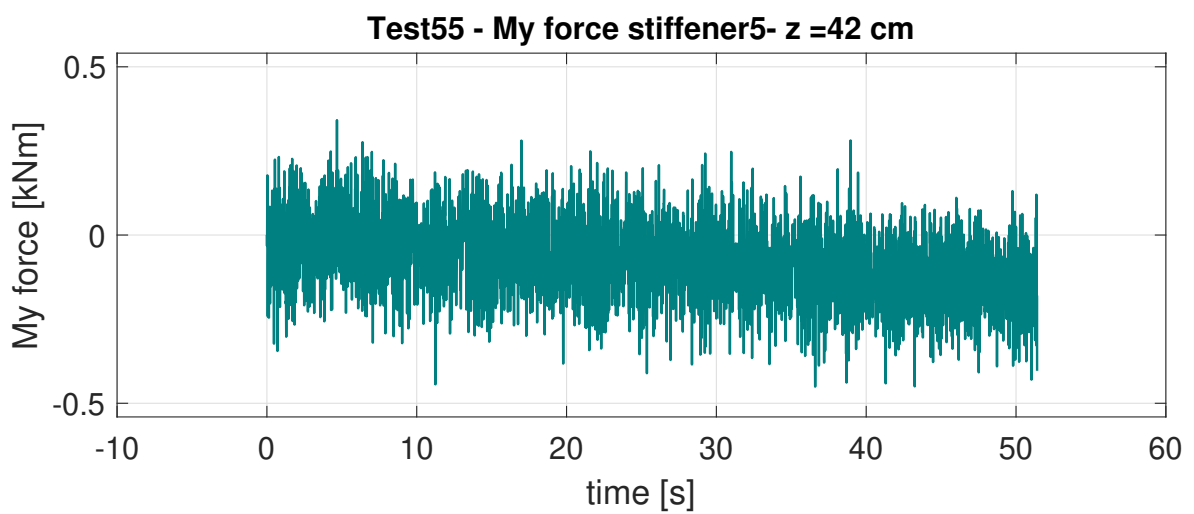
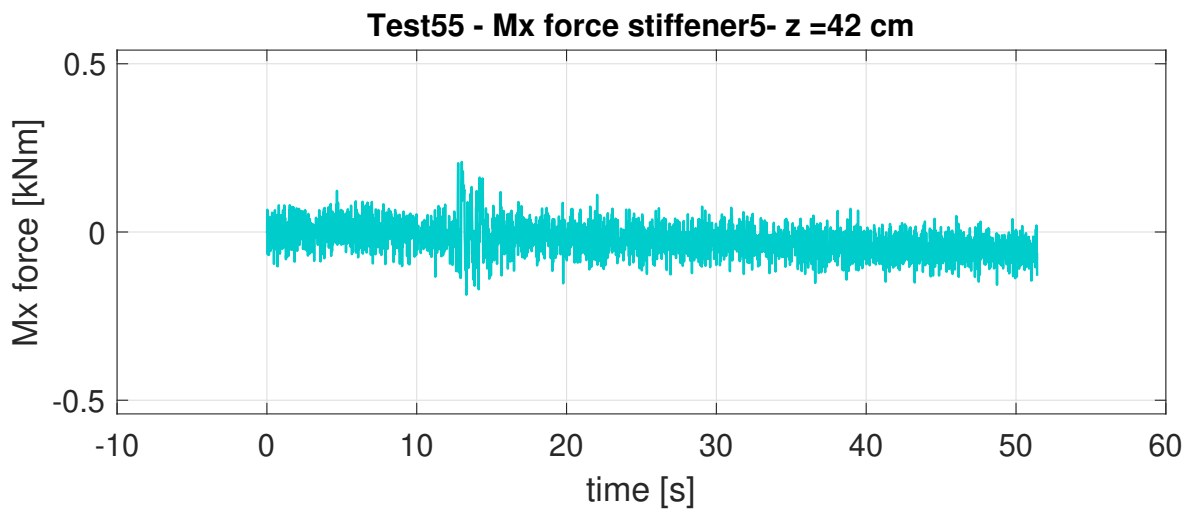
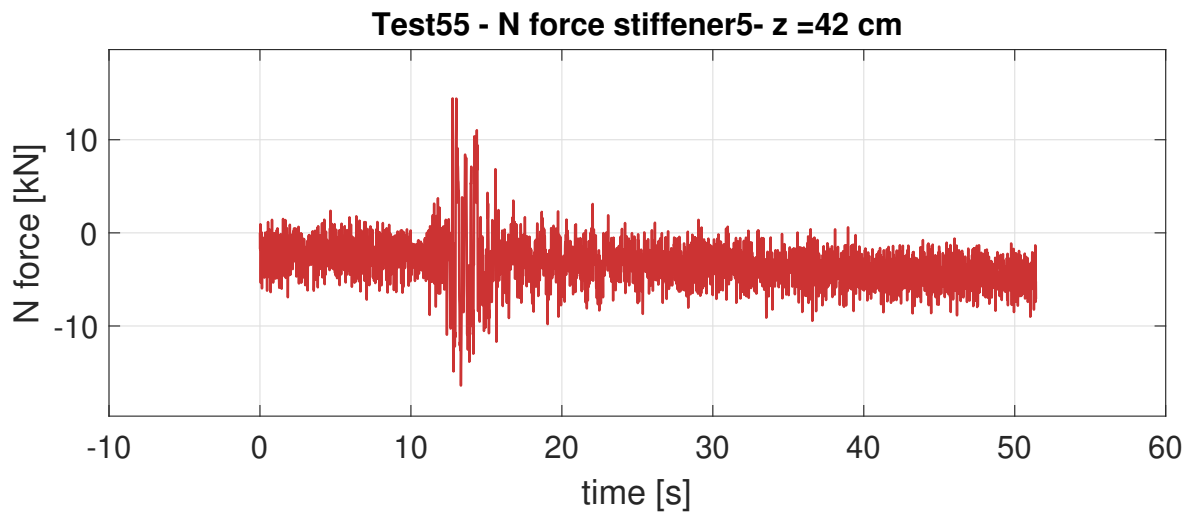
- Terremoto RS3 0.3 g

Quota z = 42 cm

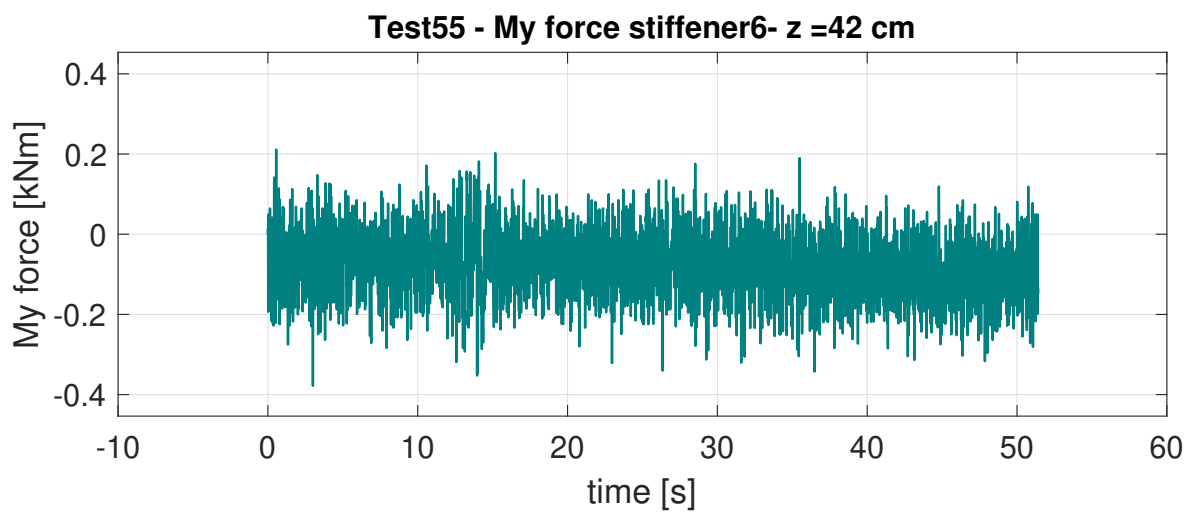
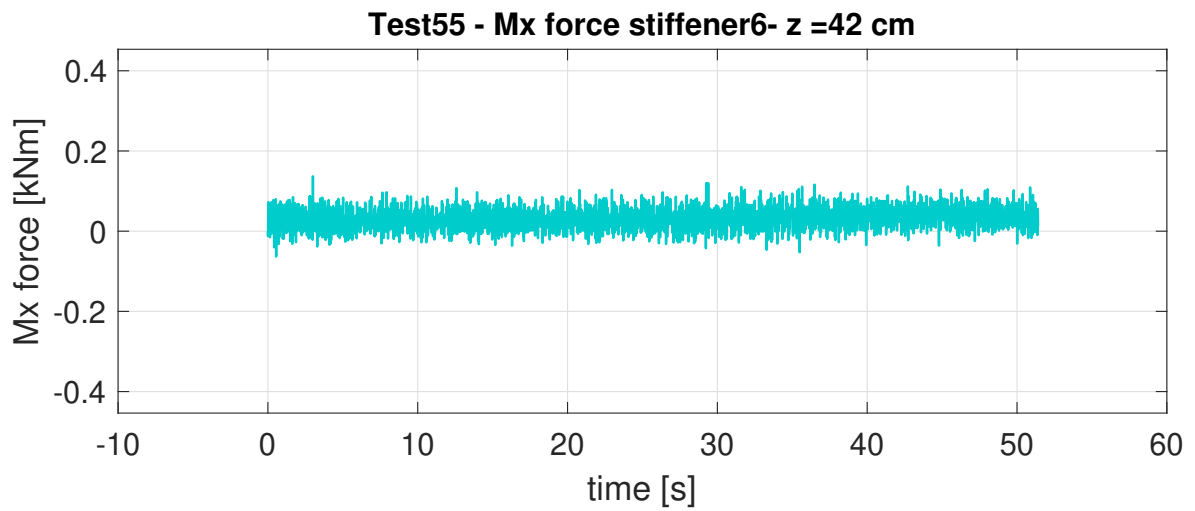
– Montante numero 4



- Montante numero 5

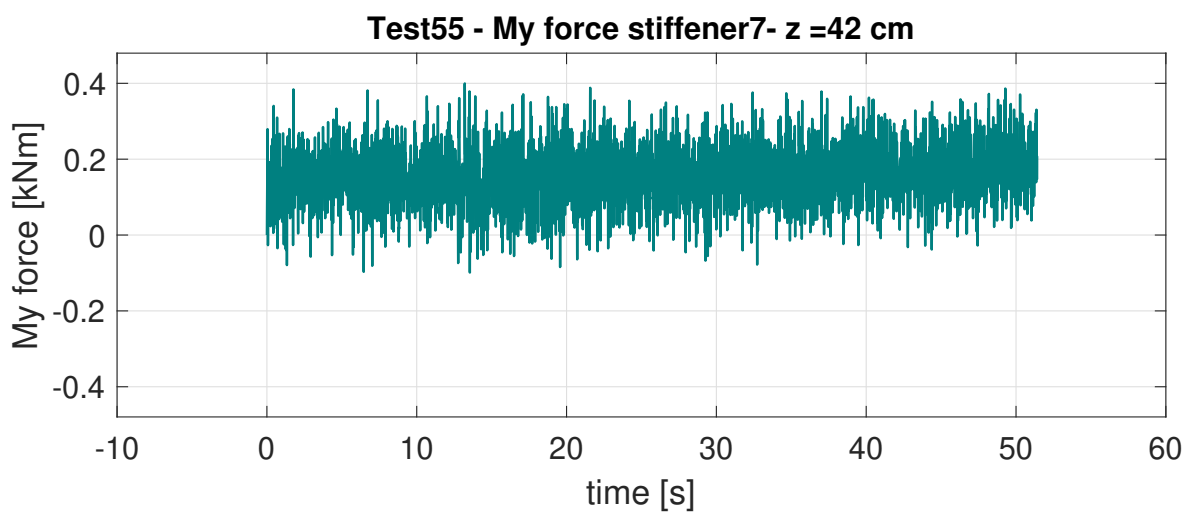
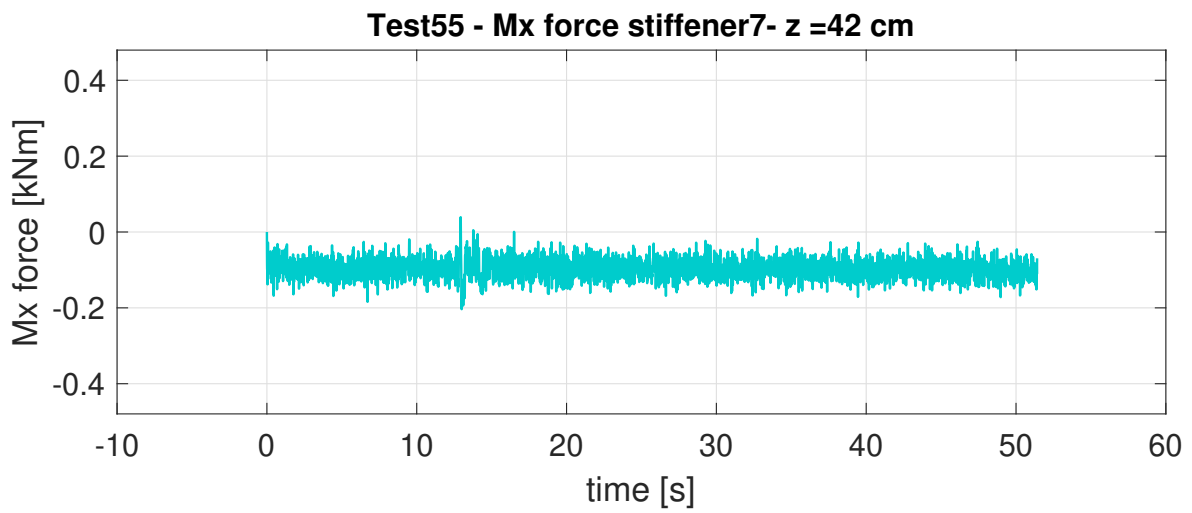
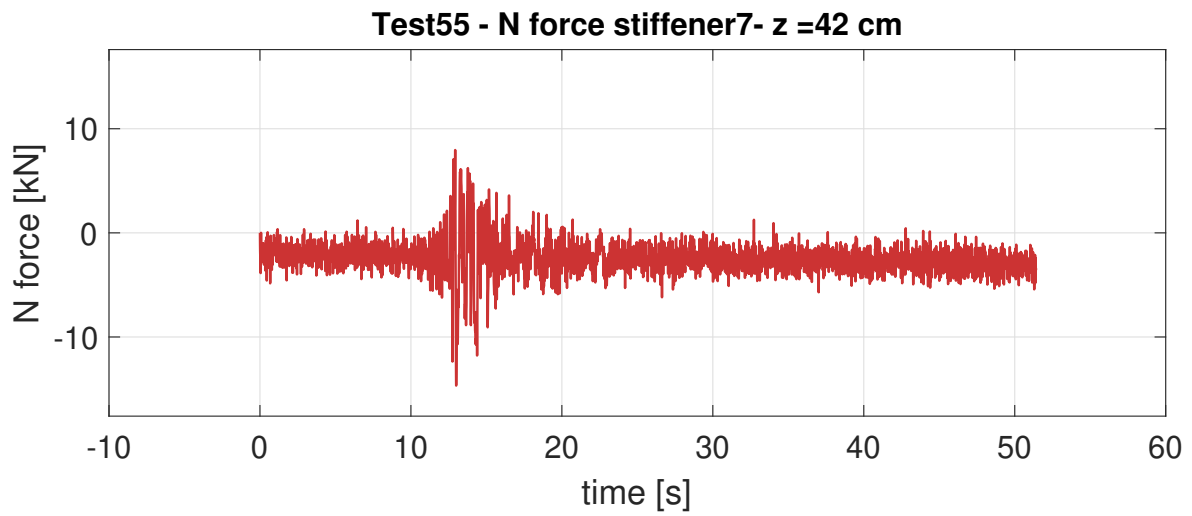


– Montante numero 6

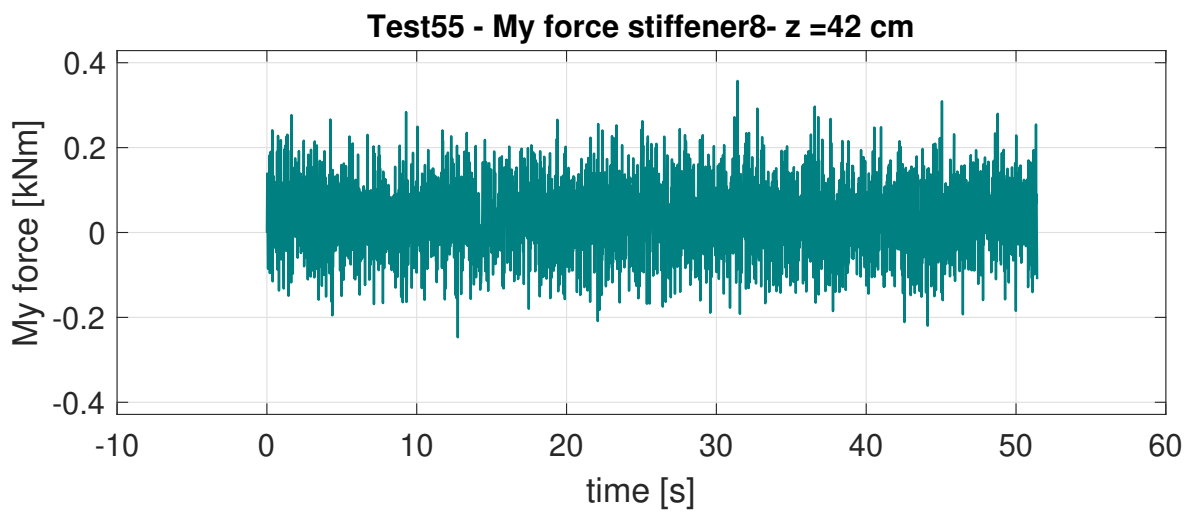
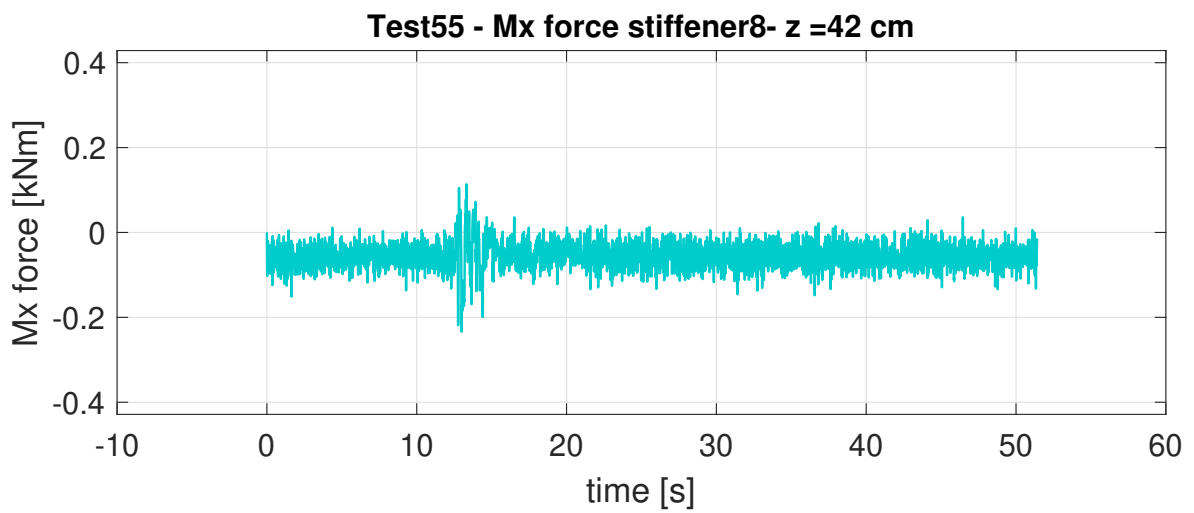
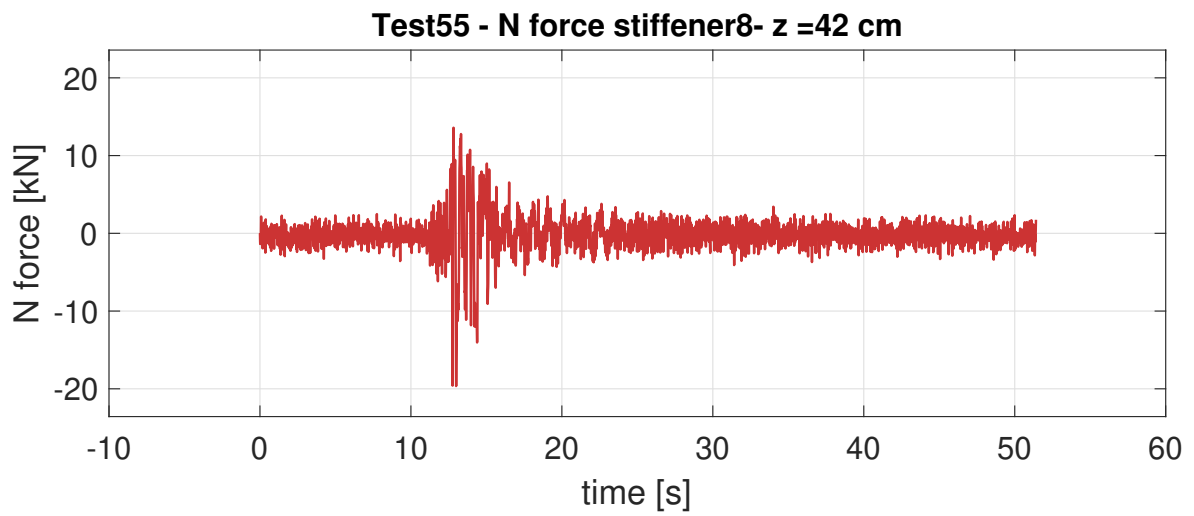




– Montante numero 7

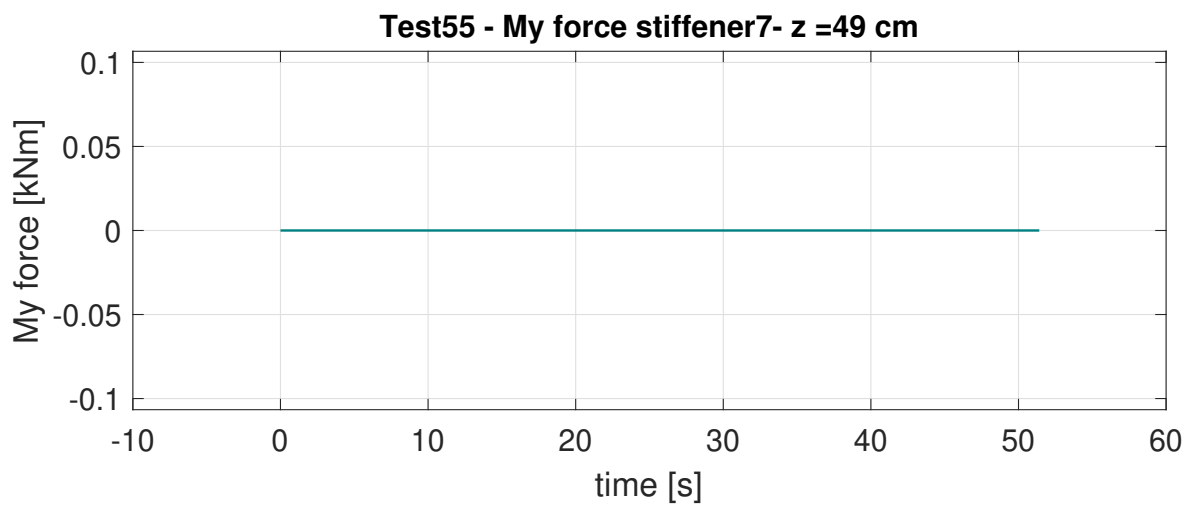
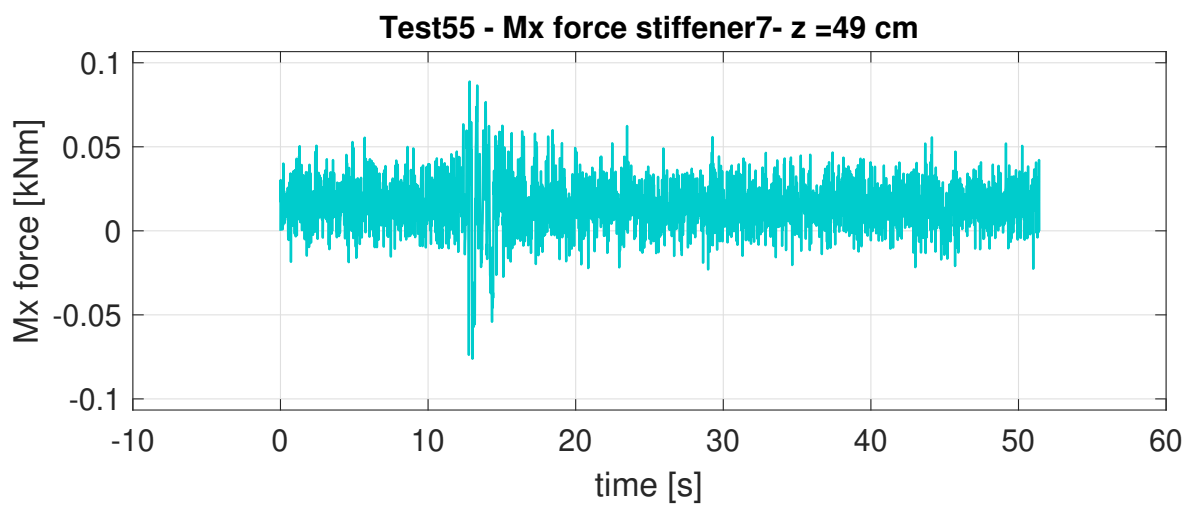
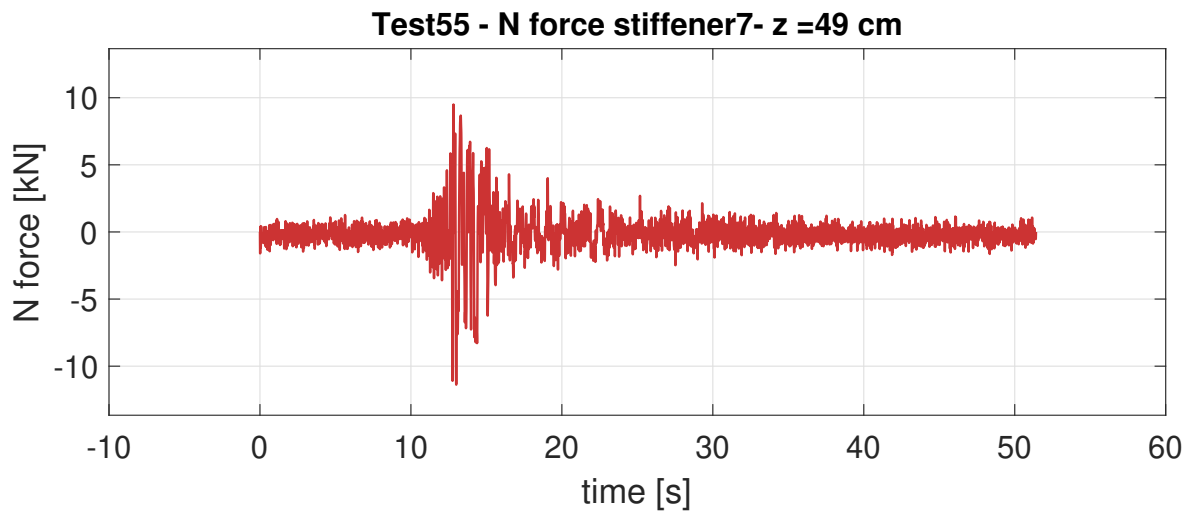


– Montante numero 8

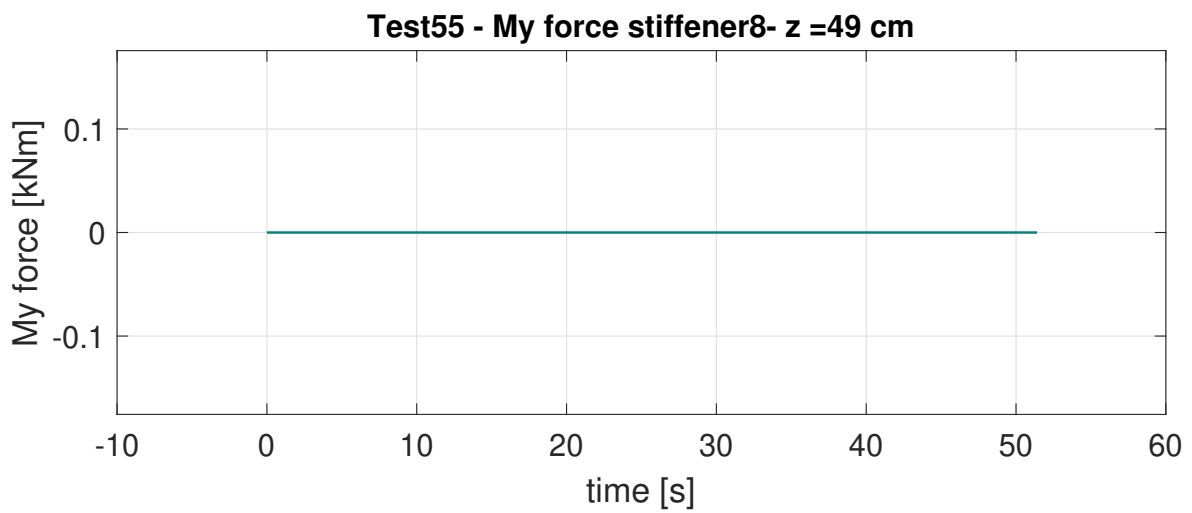
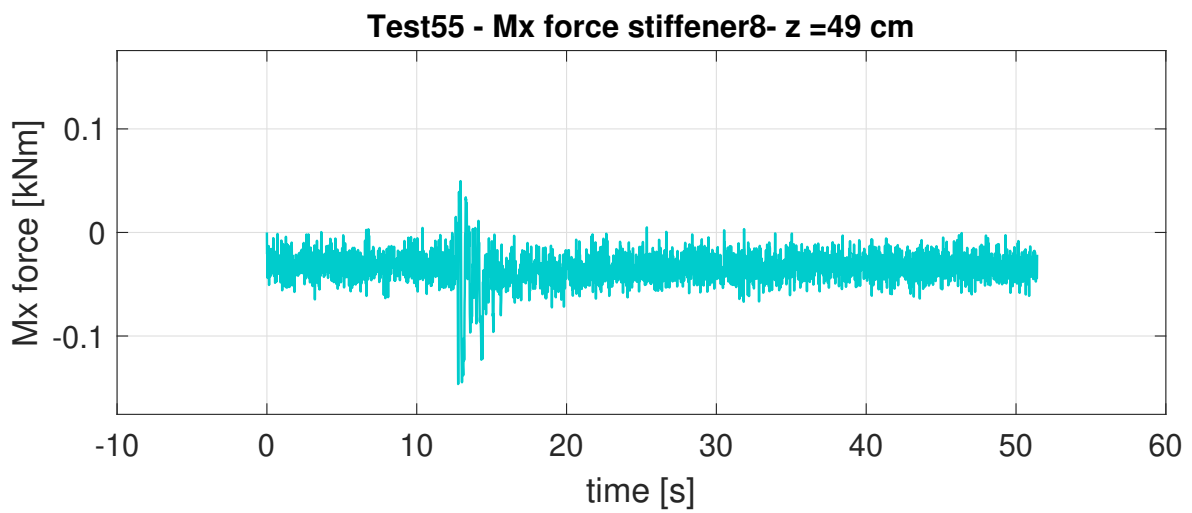
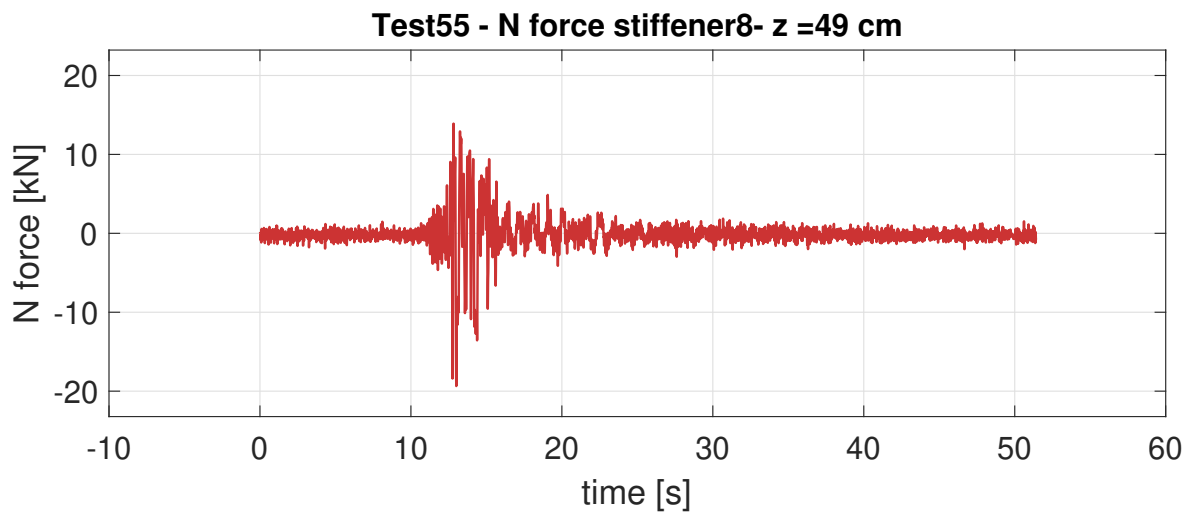


**Quota z = 49 cm**

– Montante numero 7

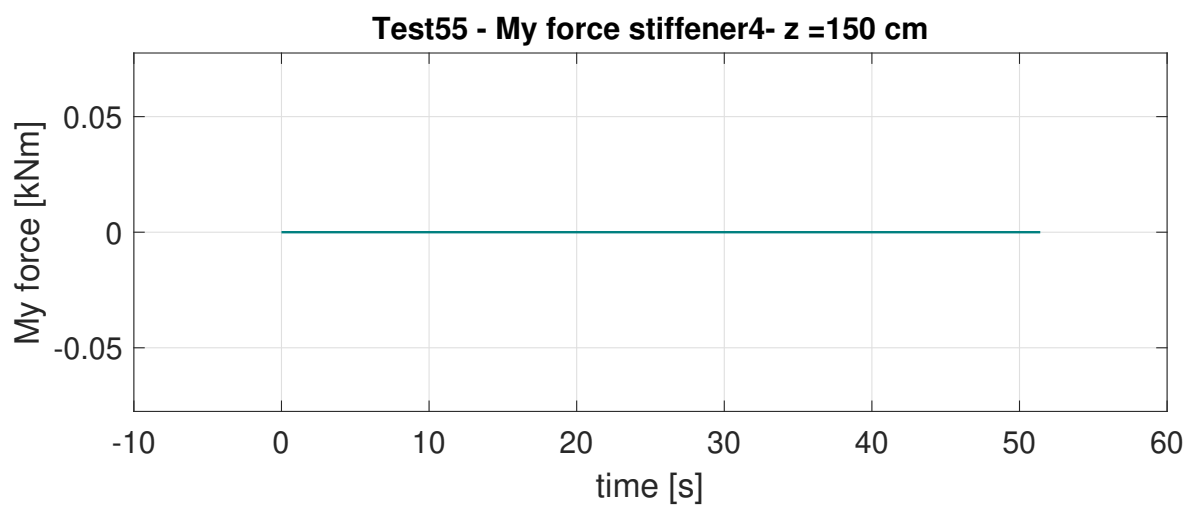
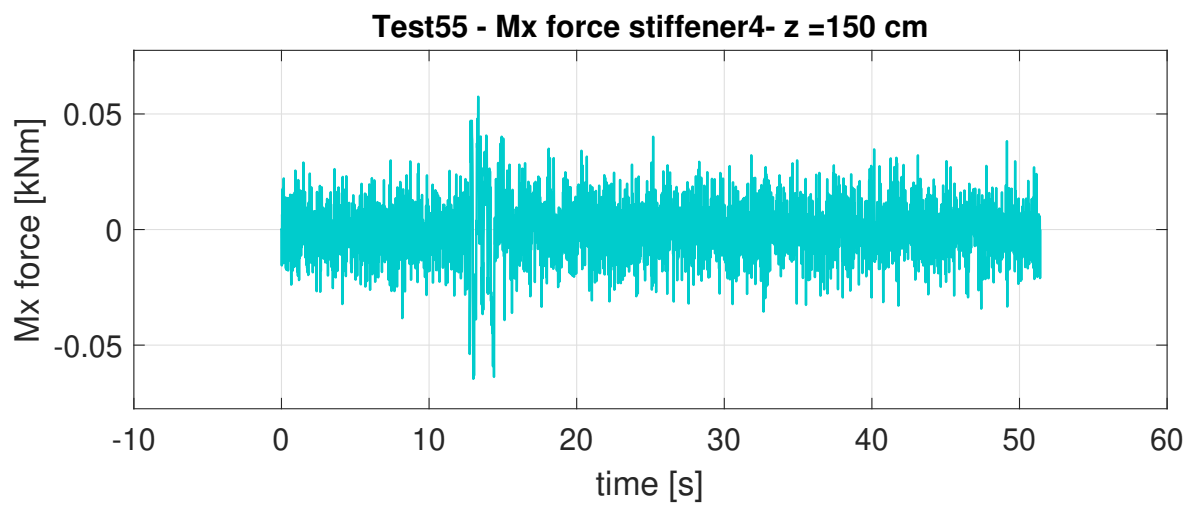
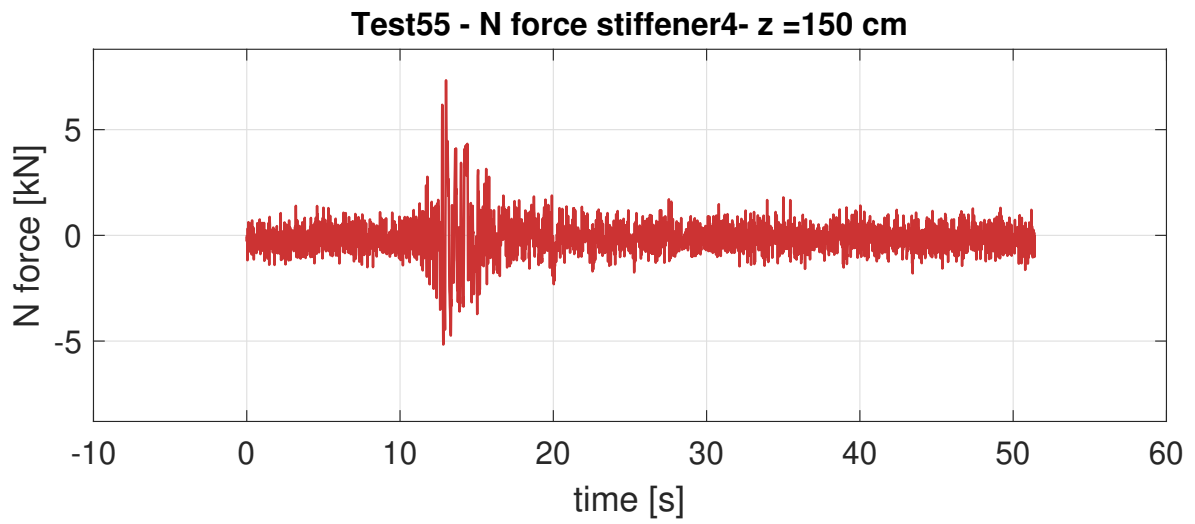


– Montante numero 8

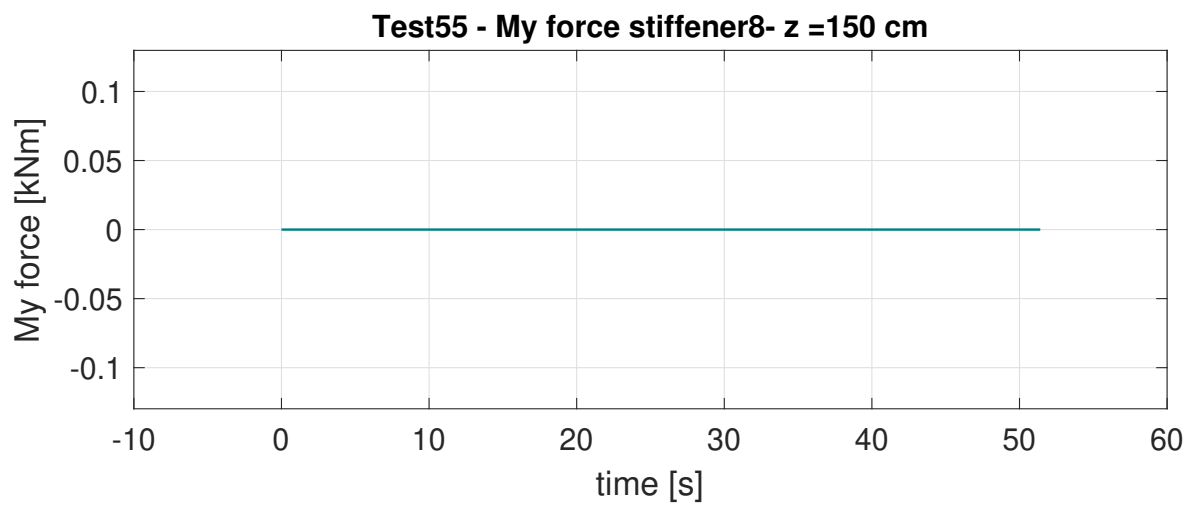
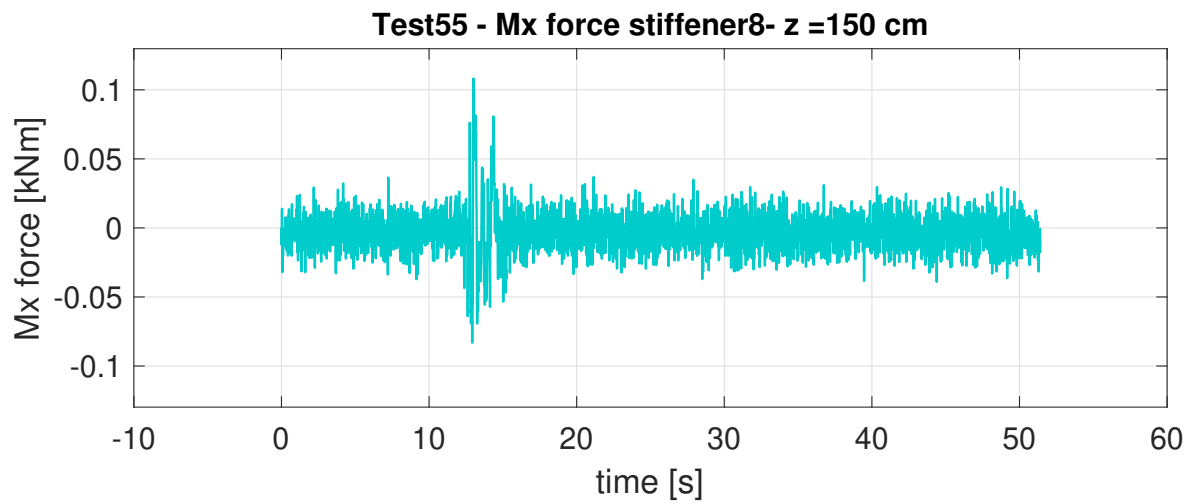
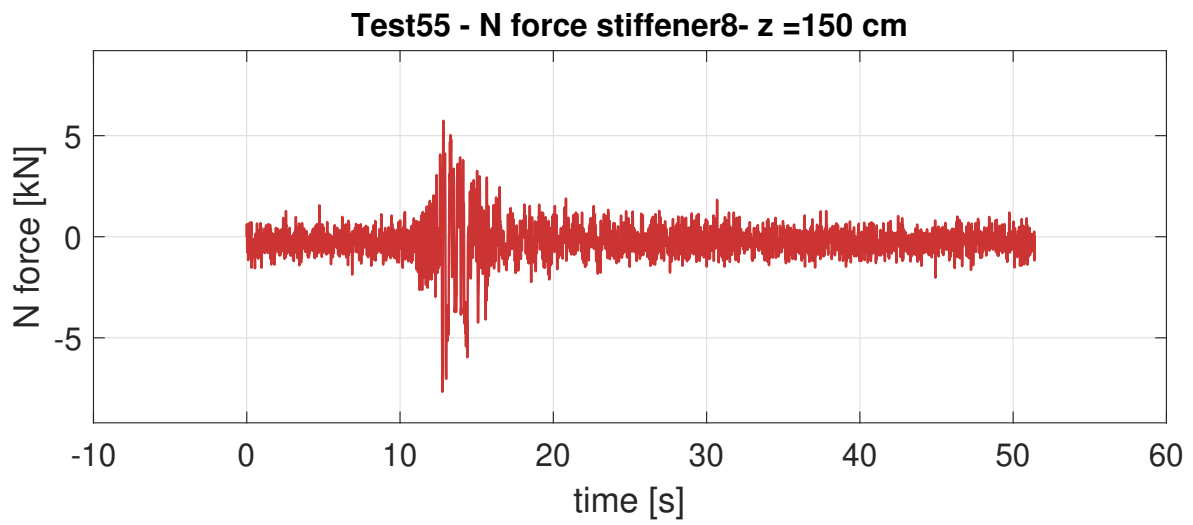


**Quota z = 150 cm**

– Montante numero 4

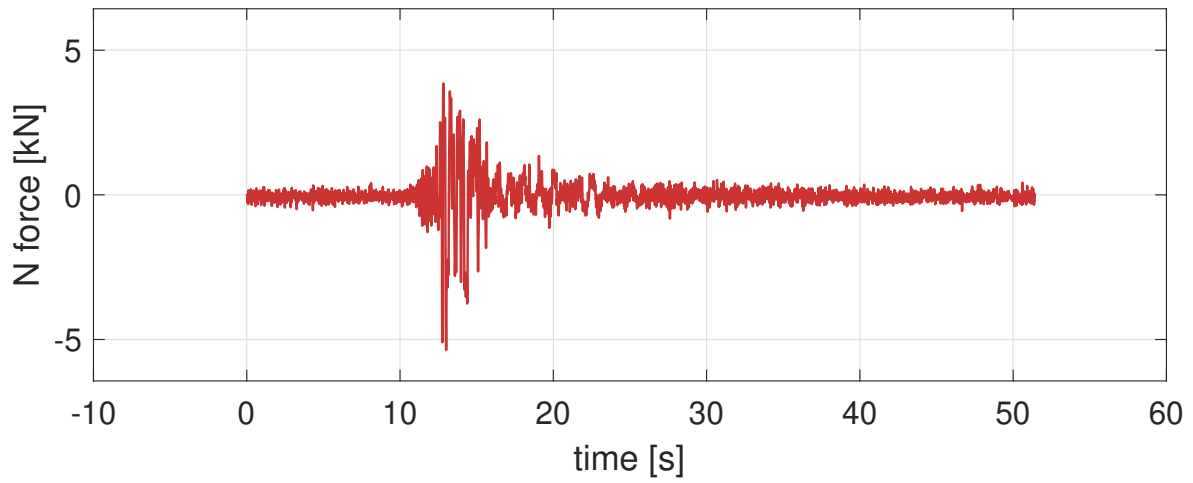
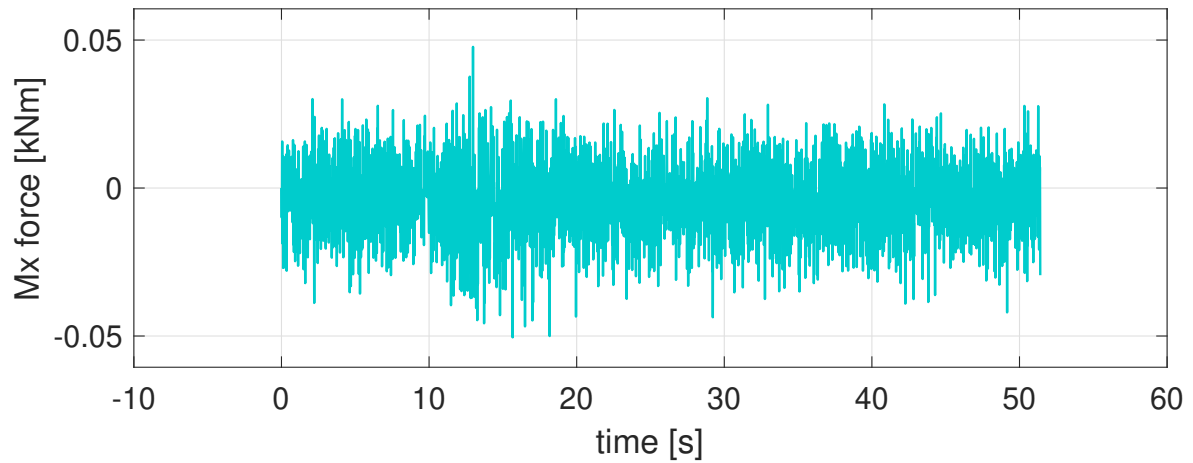
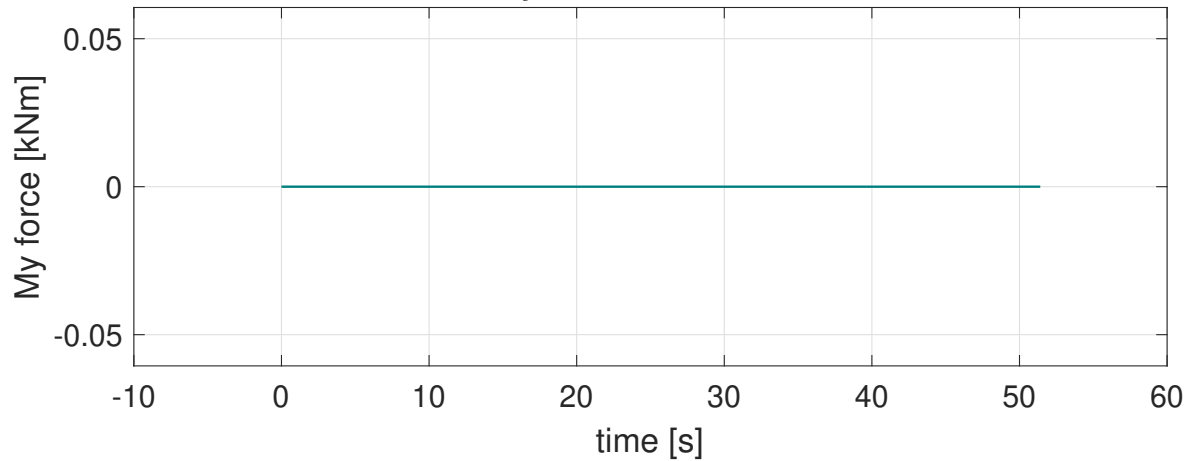


– Montante numero 8



**Quota z = 250 cm**

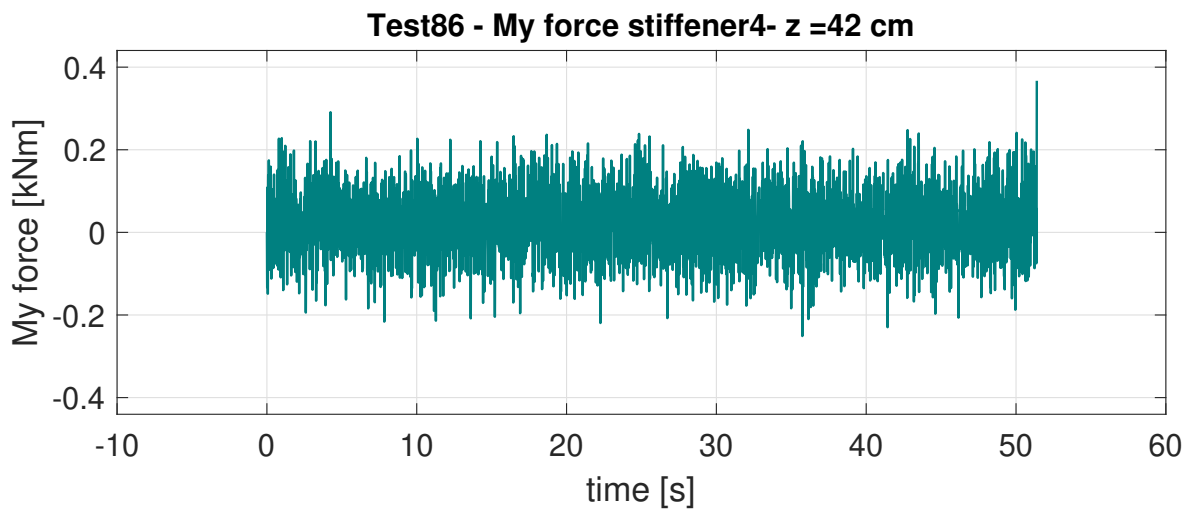
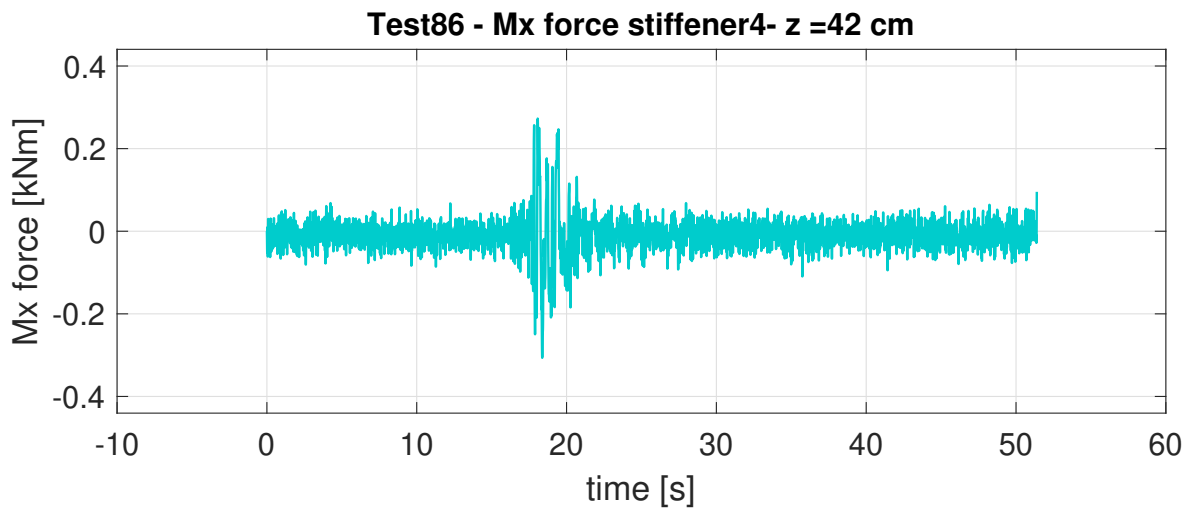
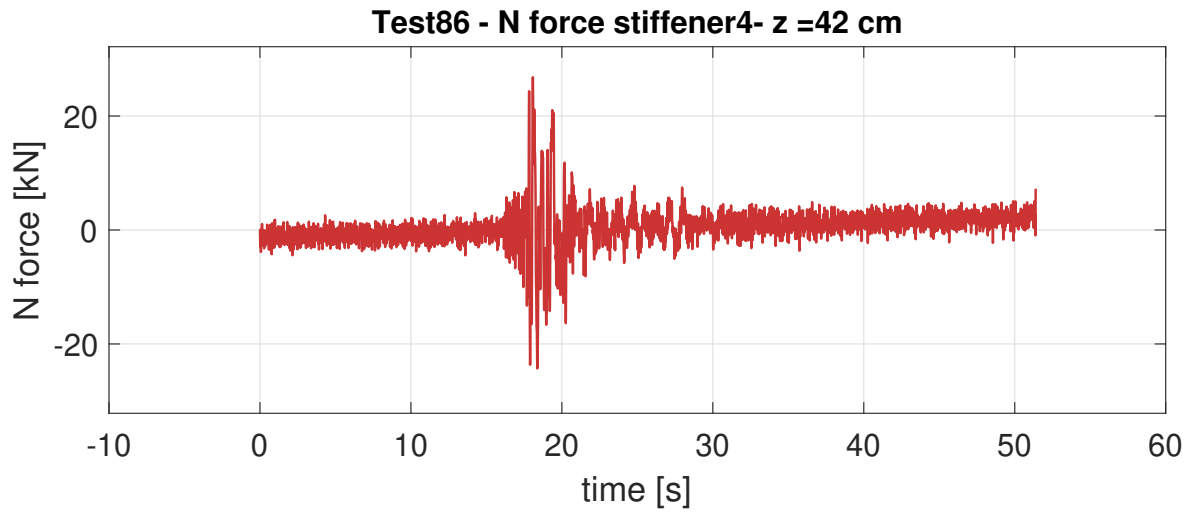
– Montante numero 8

**Test55 - N force stiffener8- z =250 cm****Test55 - Mx force stiffener8- z =250 cm****Test55 - My force stiffener8- z =250 cm**

- Terremoto RS3 0.5 g

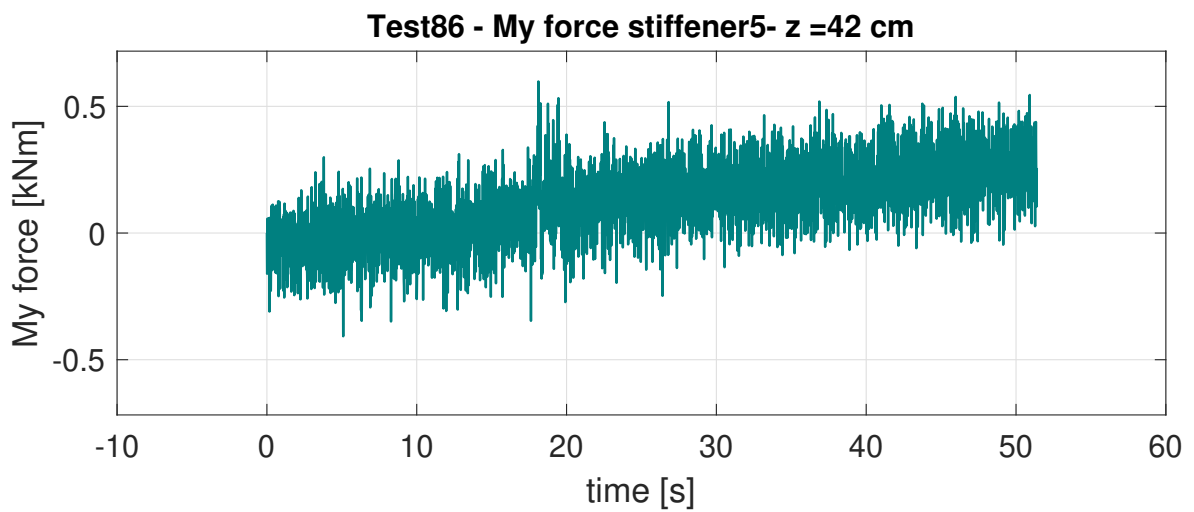
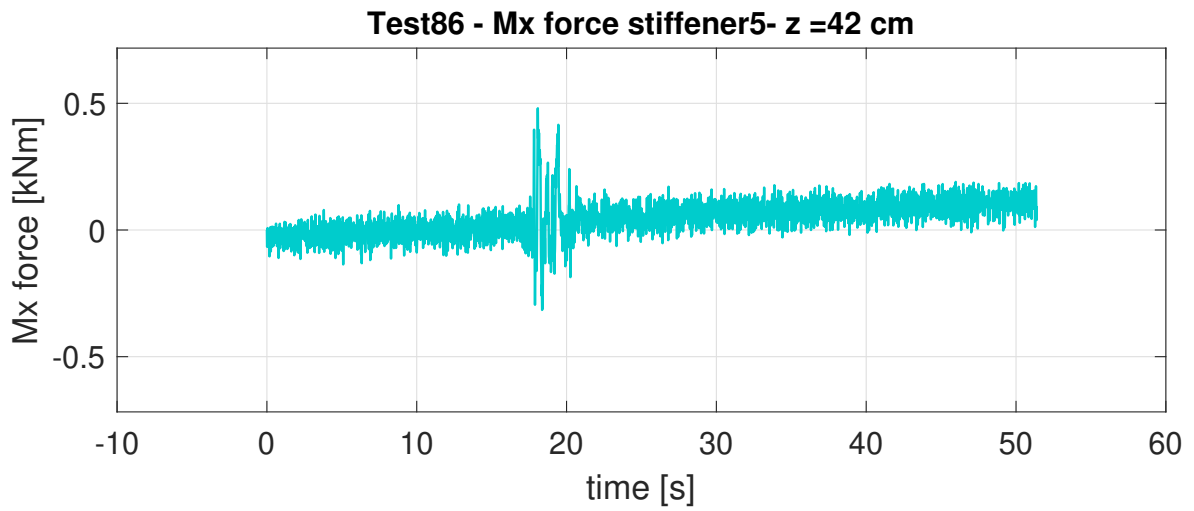
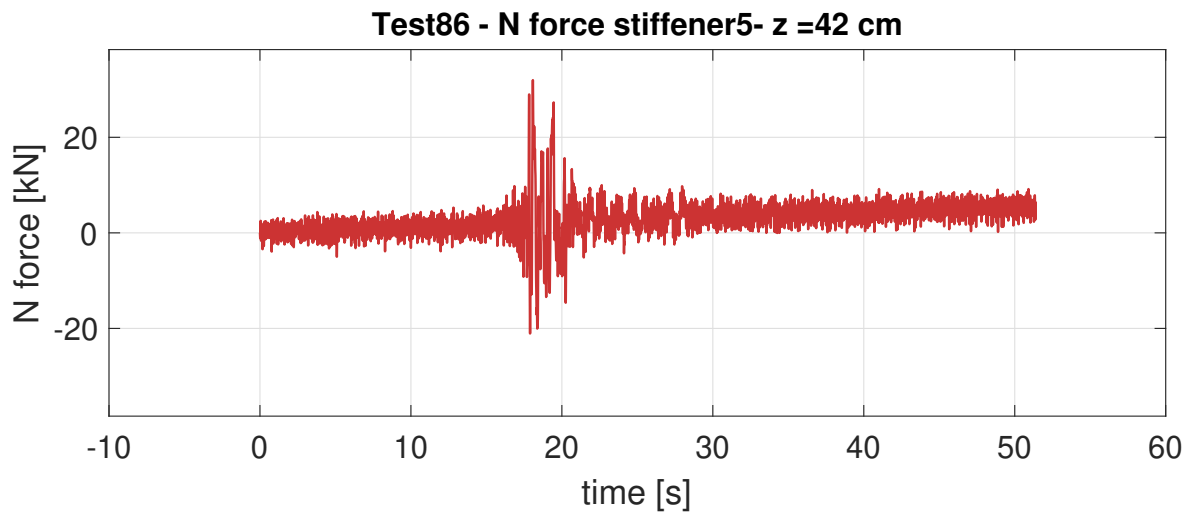
Quota z = 42 cm

– Montante numero 4

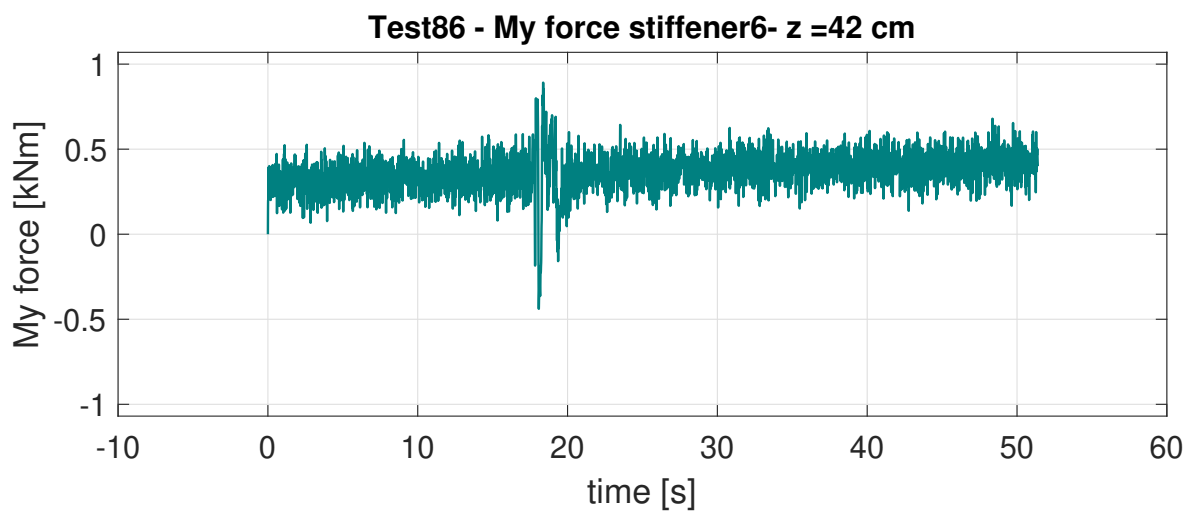
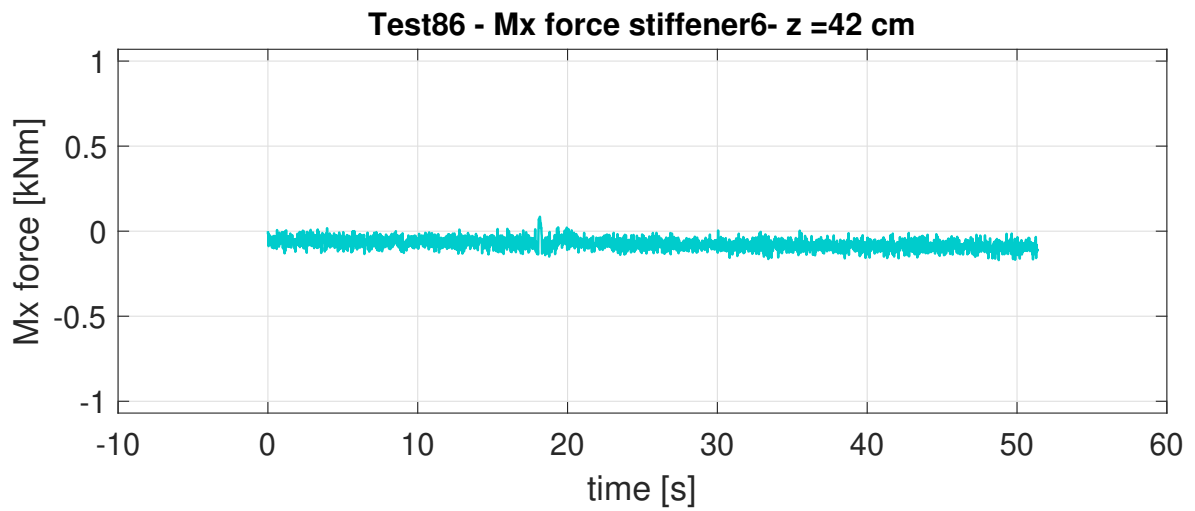
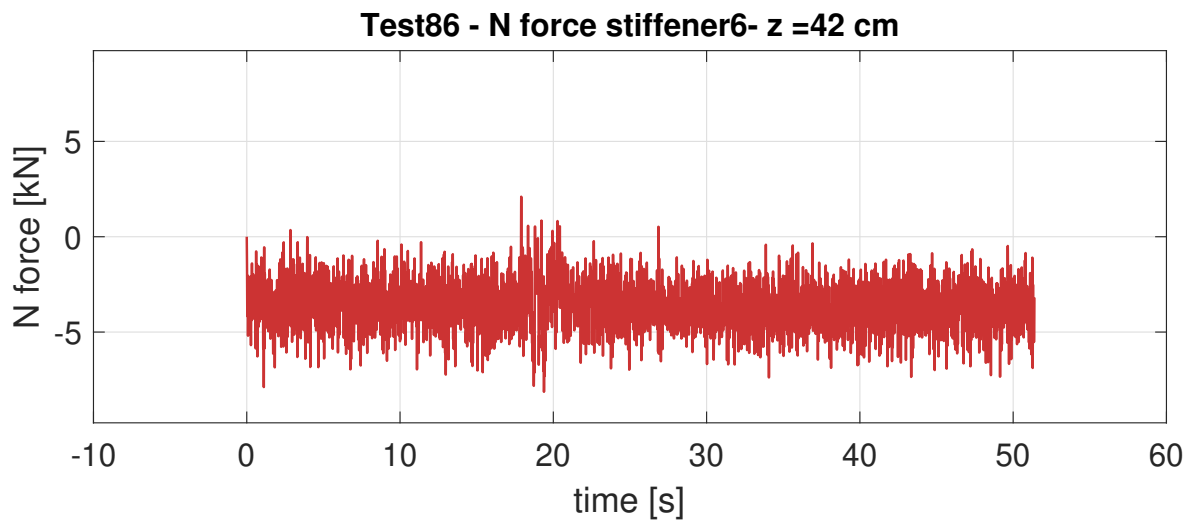




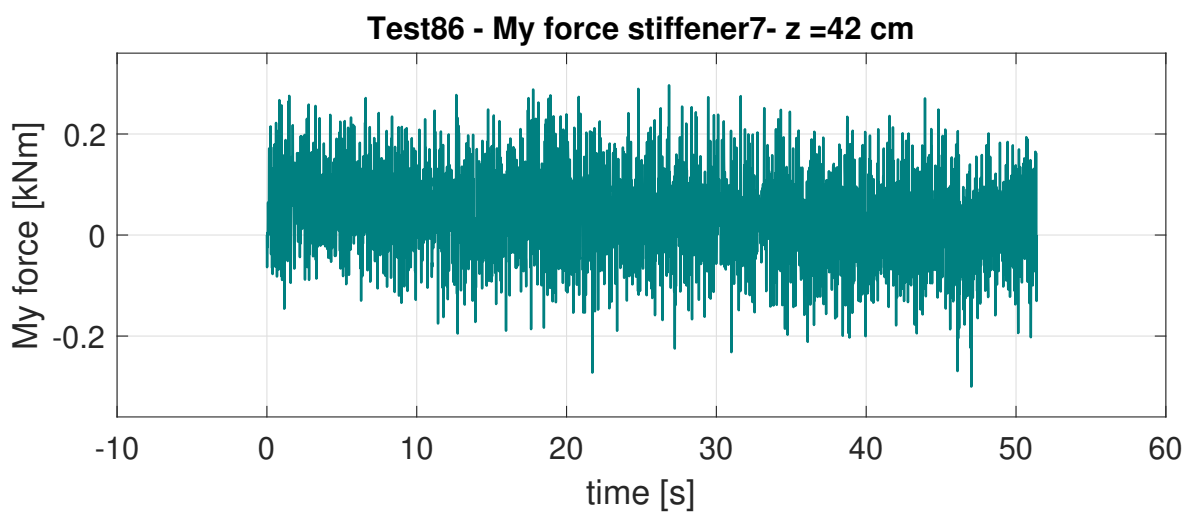
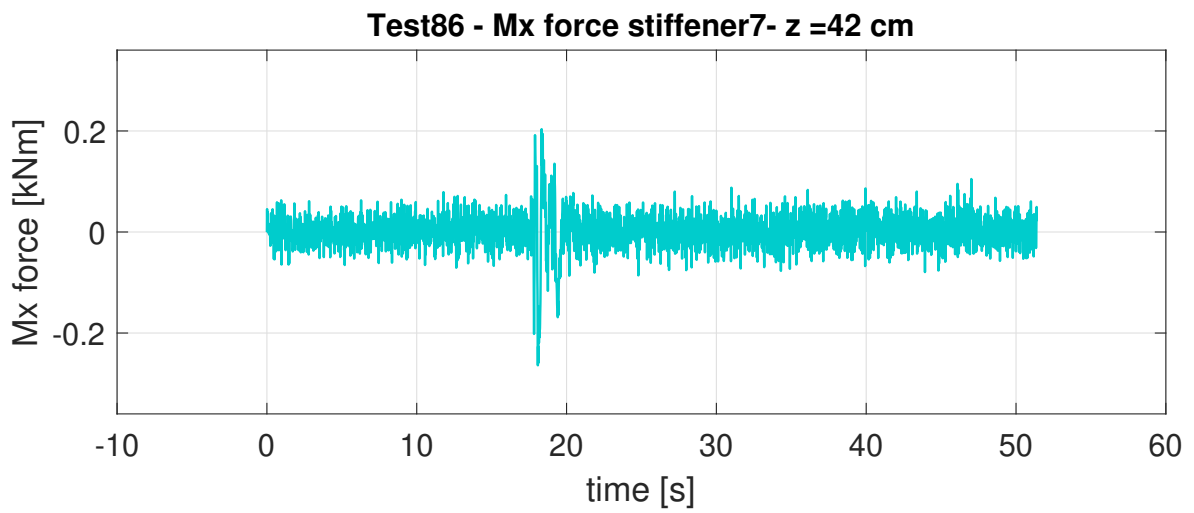
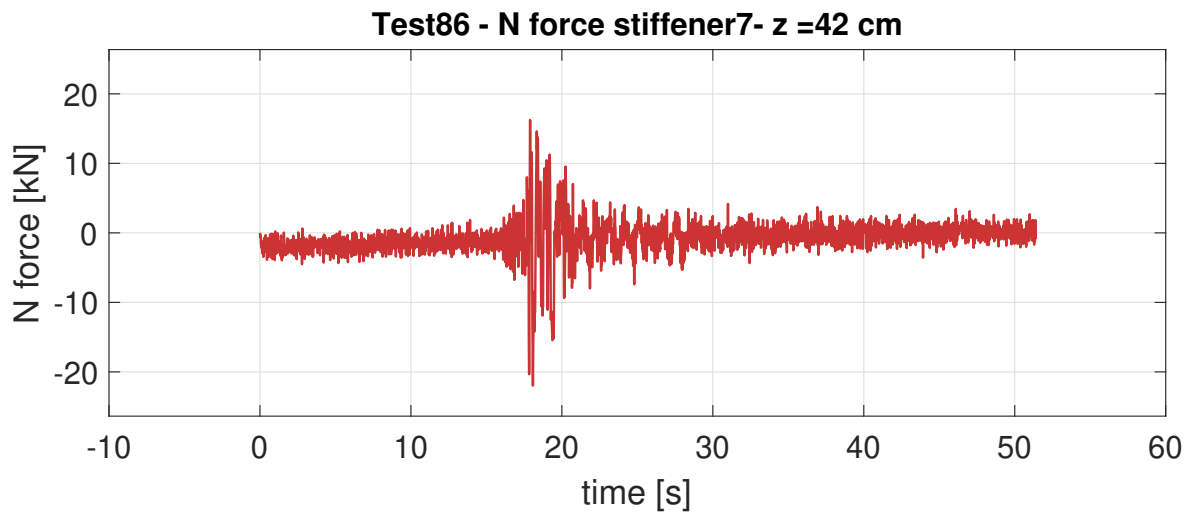
- Montante numero 5



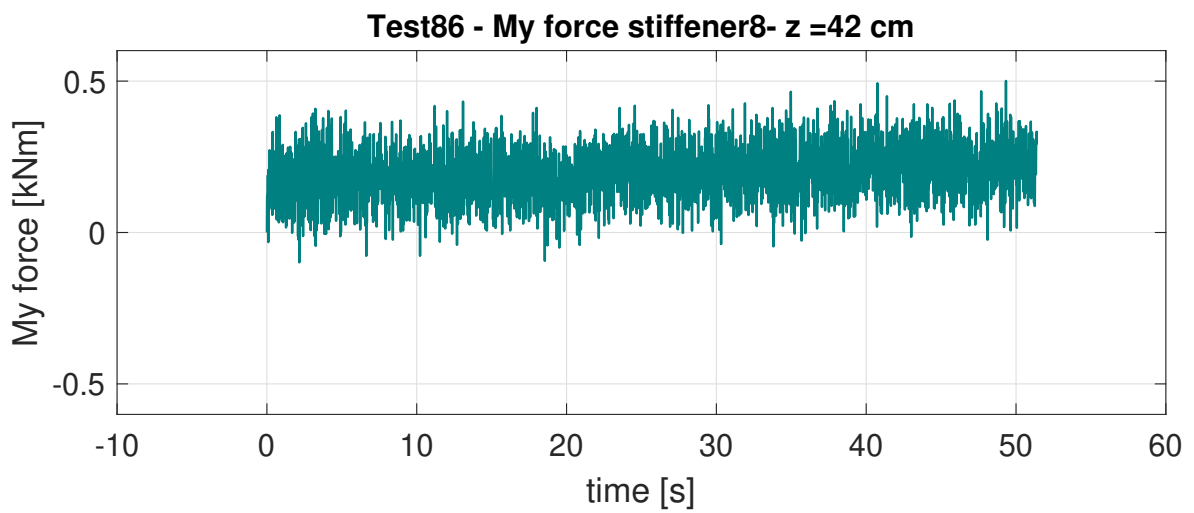
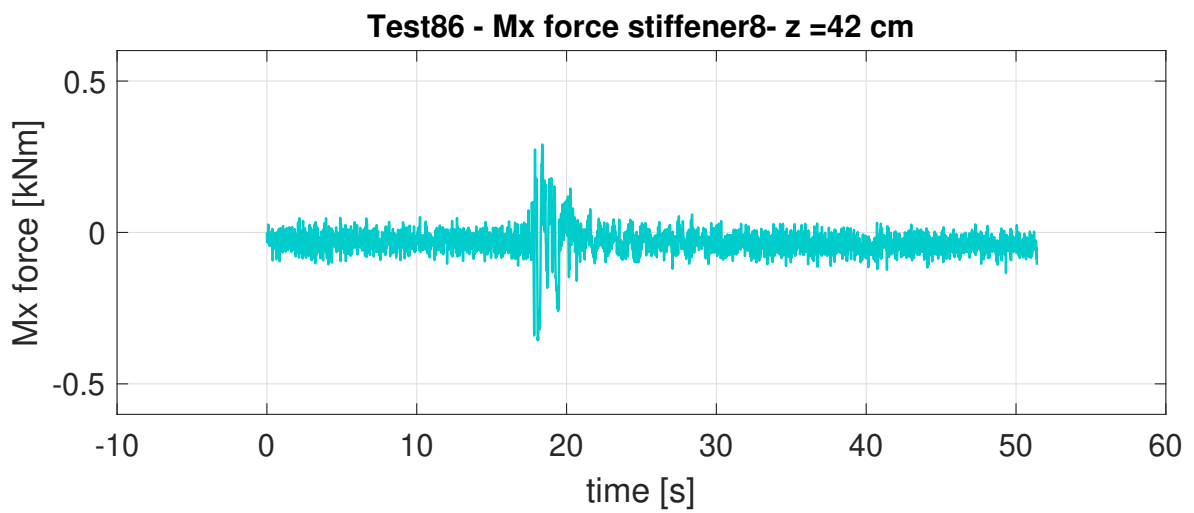
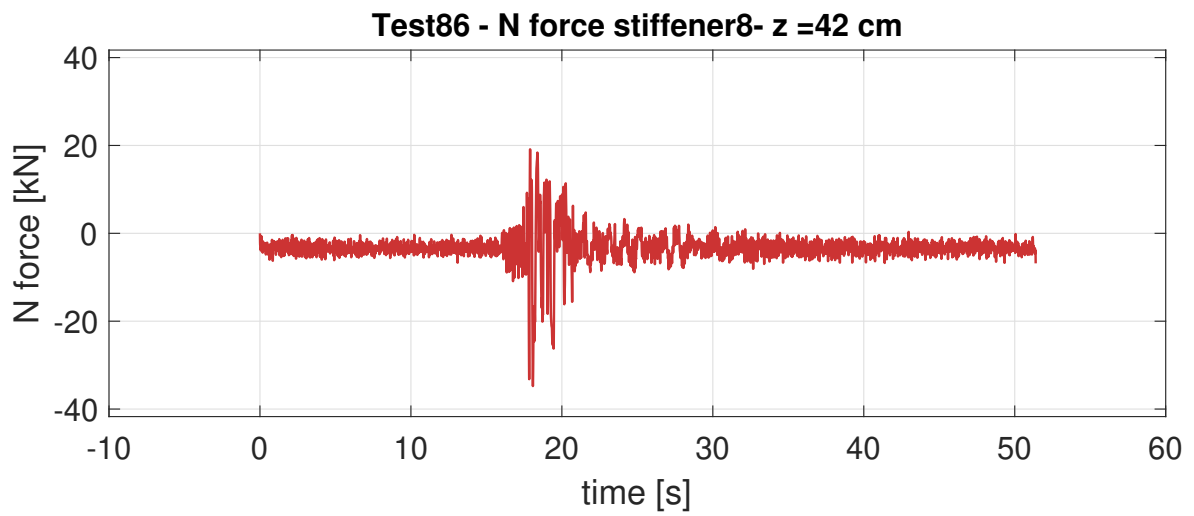
– Montante numero 6



- Montante numero 7

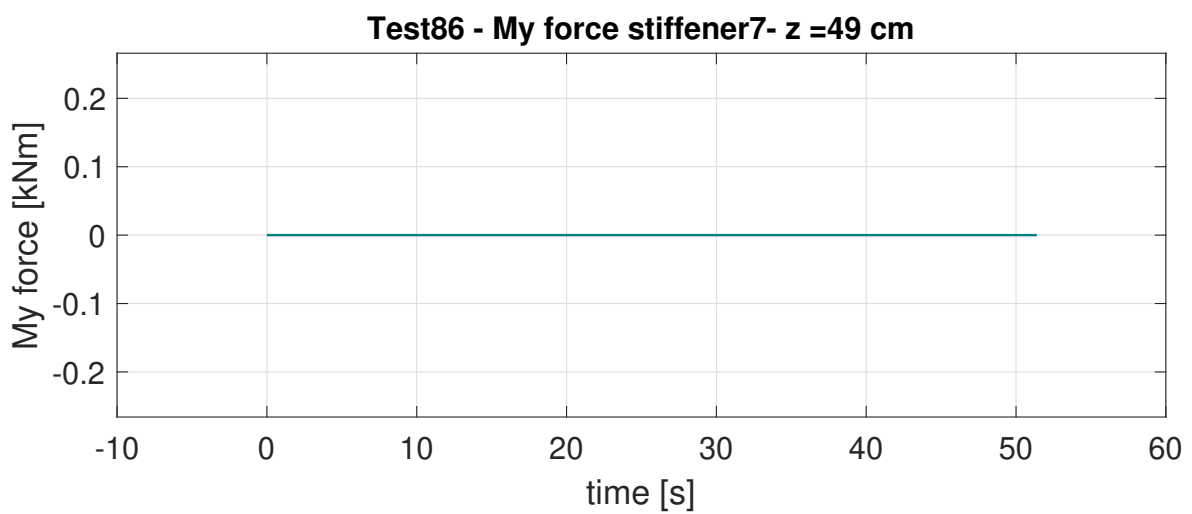
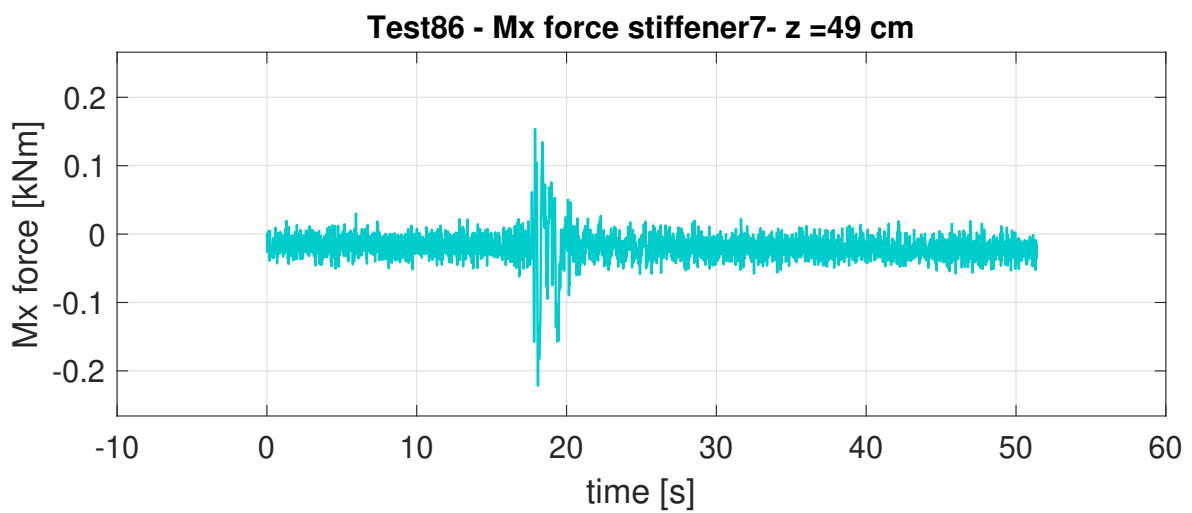
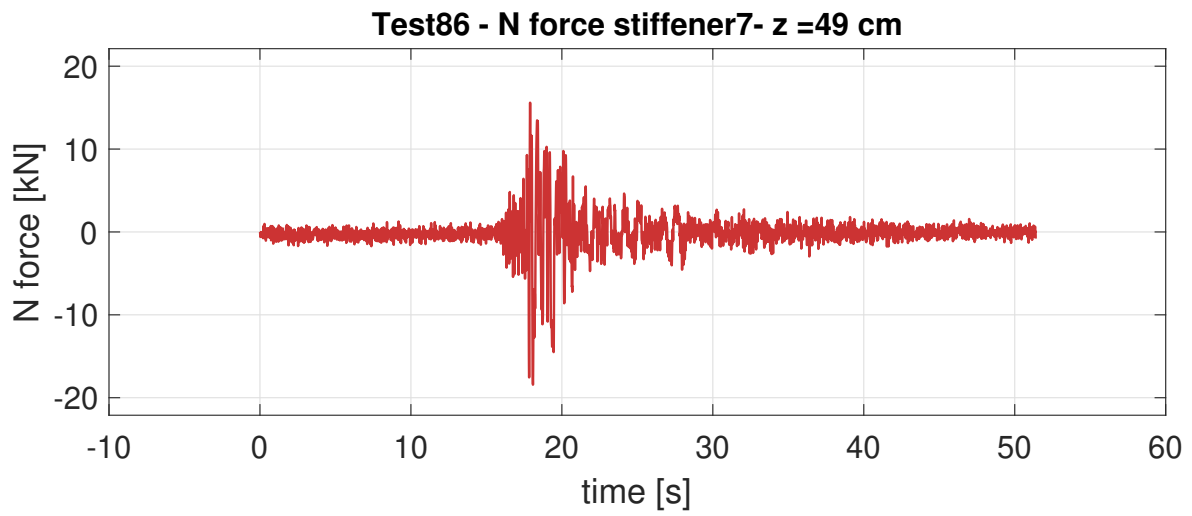


– Montante numero 8

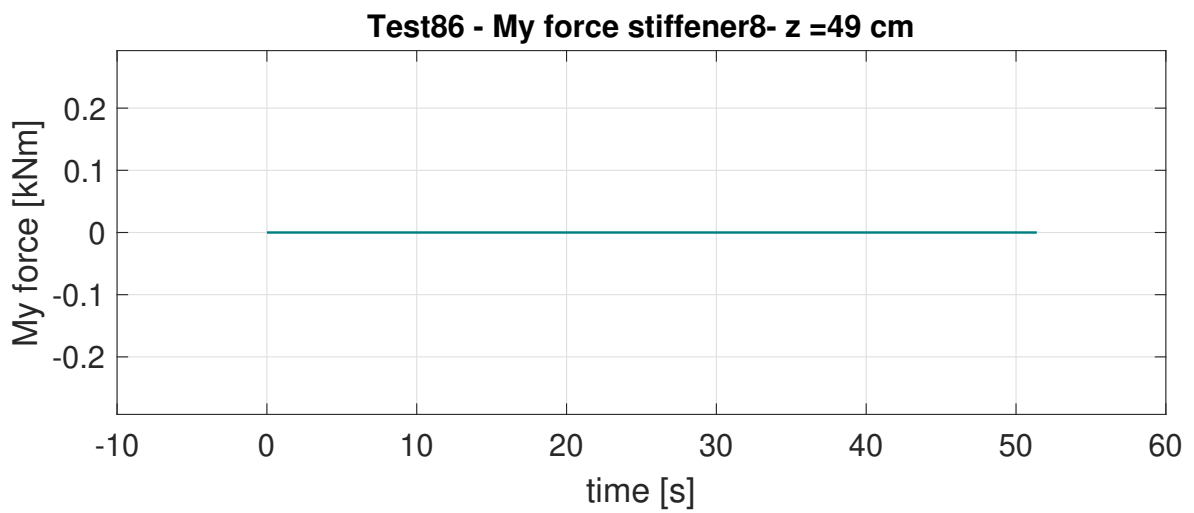
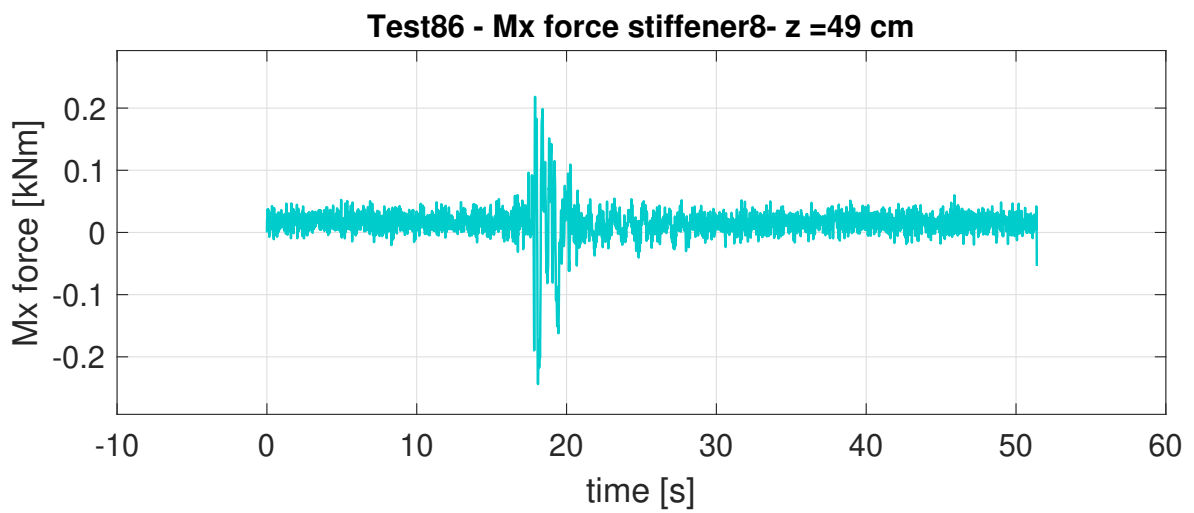
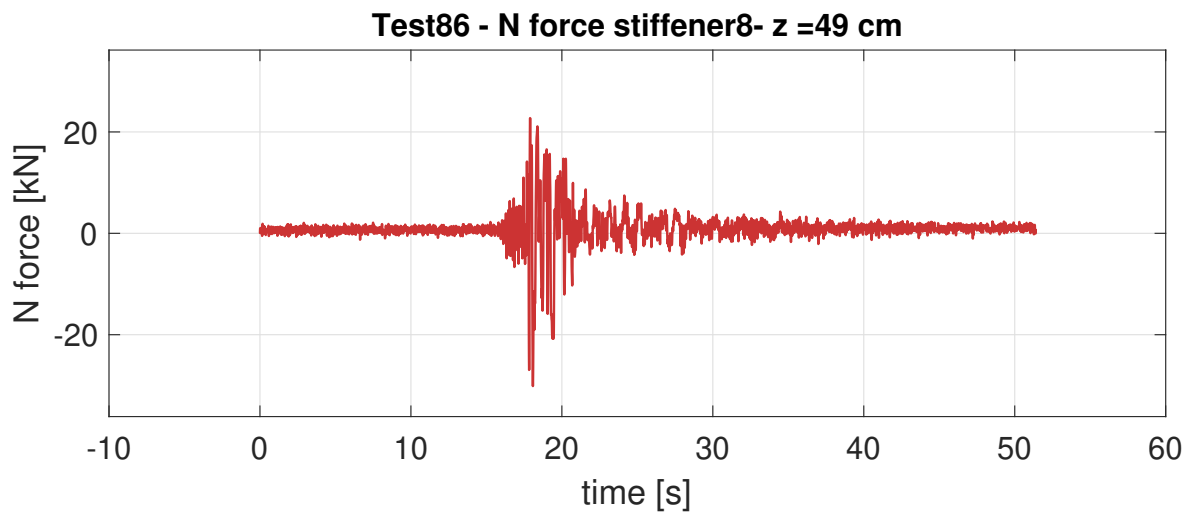


**Quota z = 49 cm**

– Montante numero 7

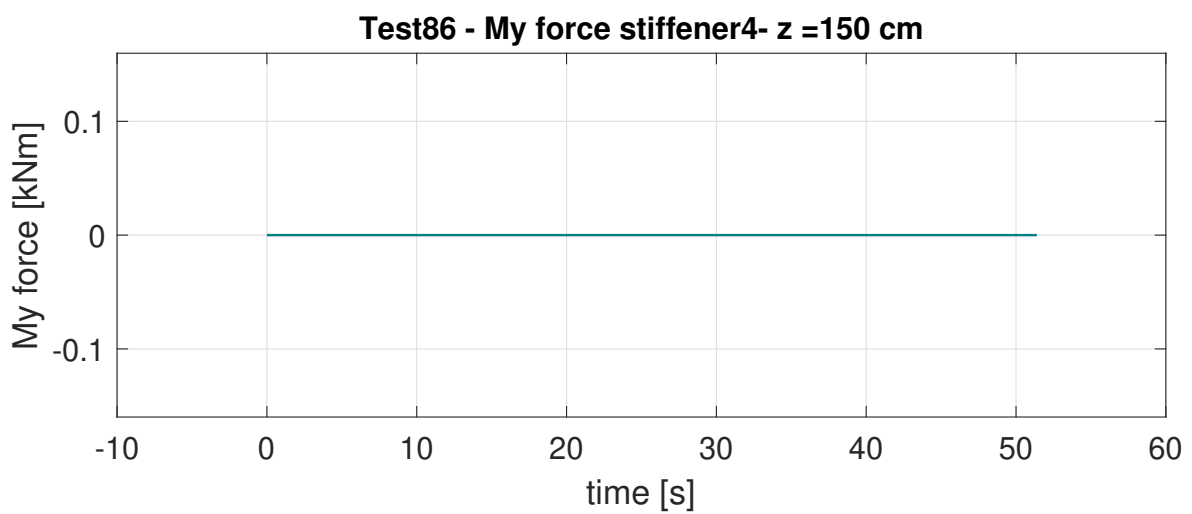
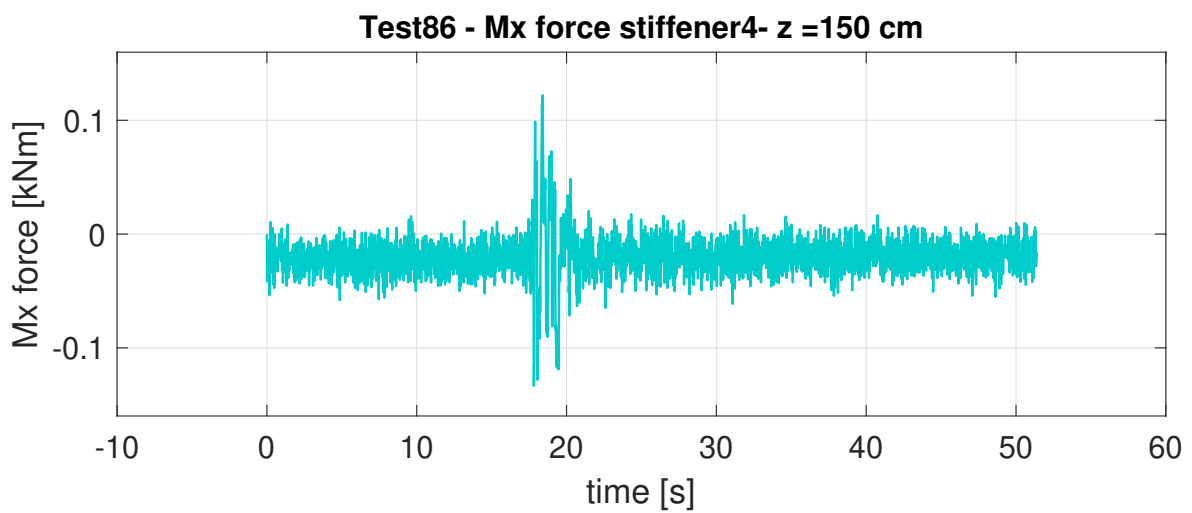
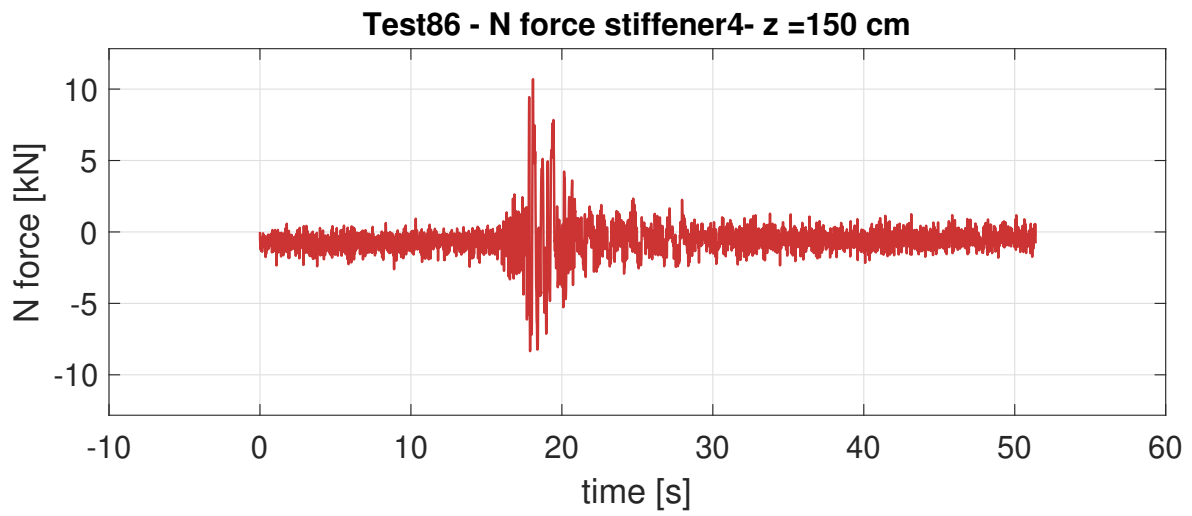


– Montante numero 8

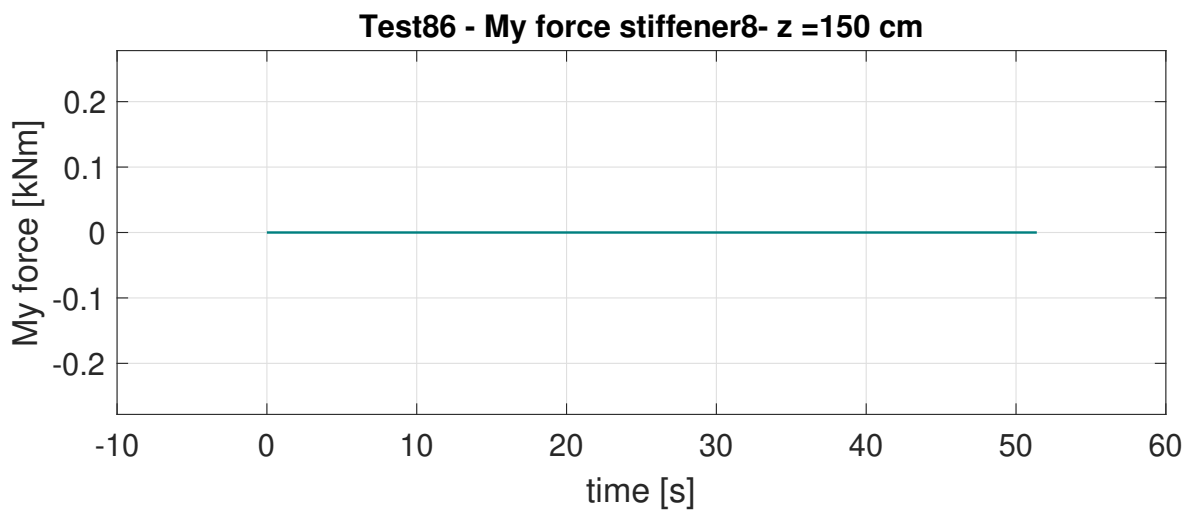
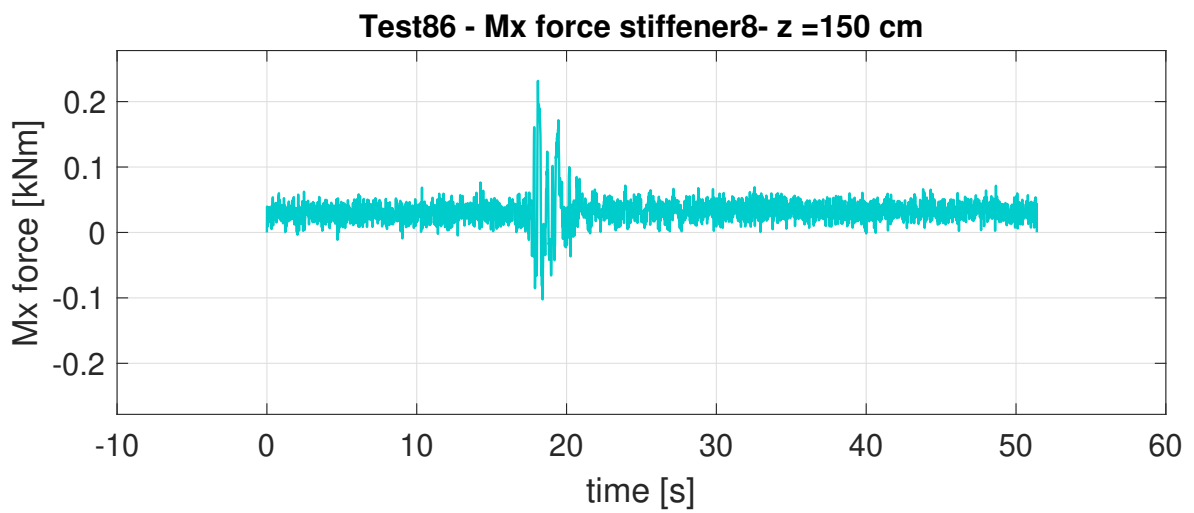
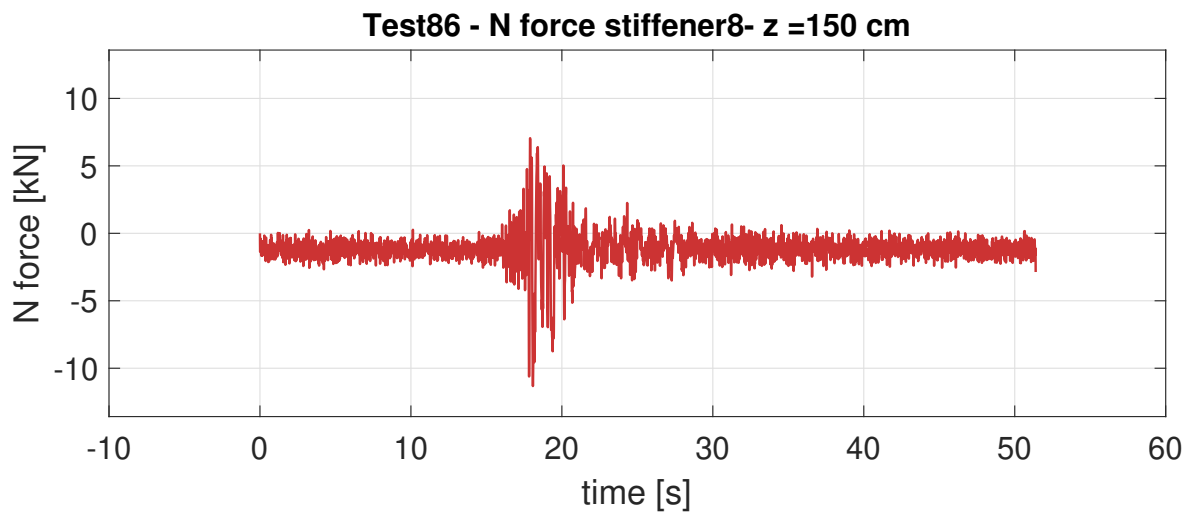


**Quota z = 150 cm**

– Montante numero 4



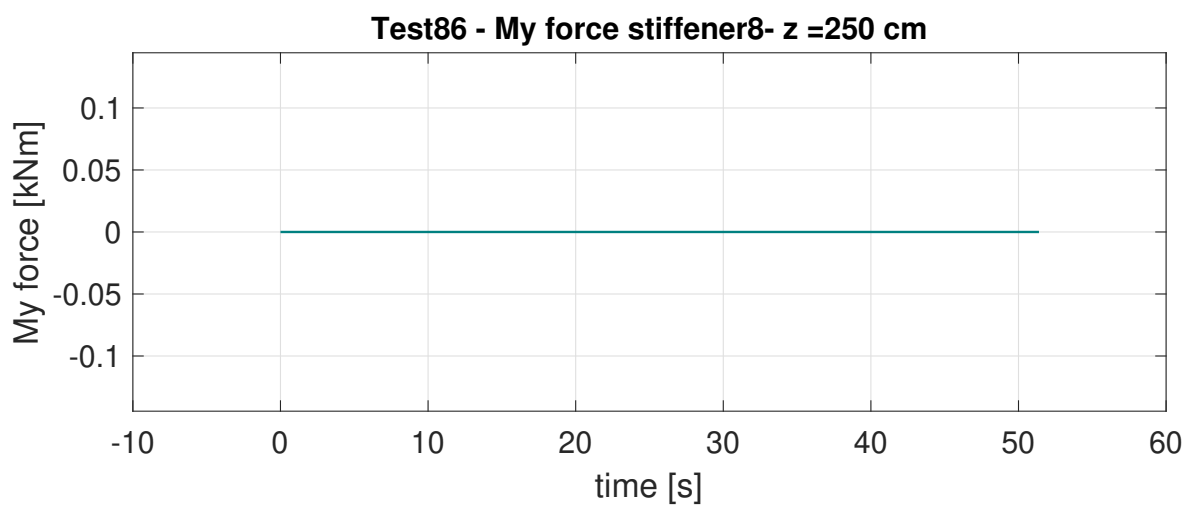
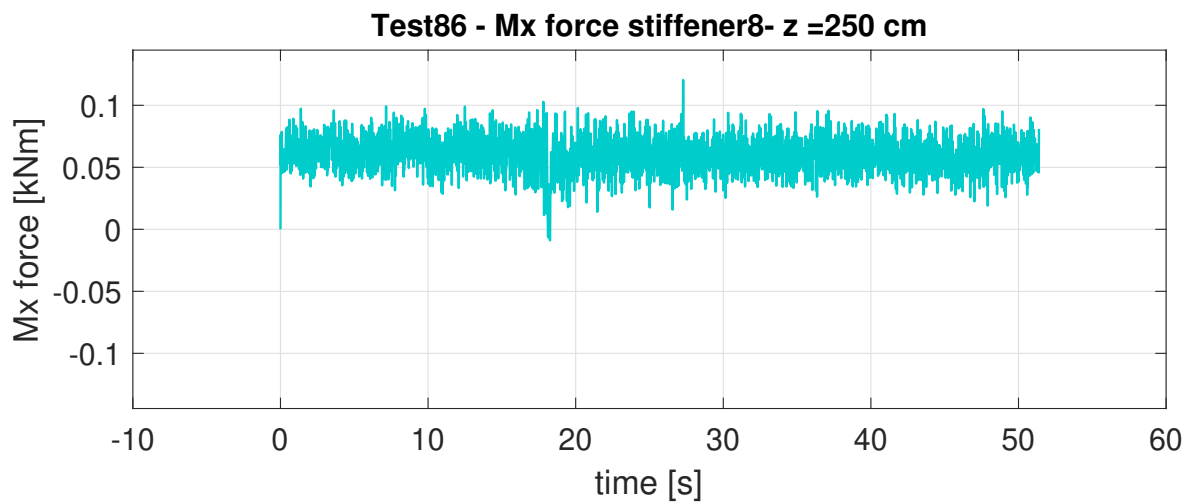
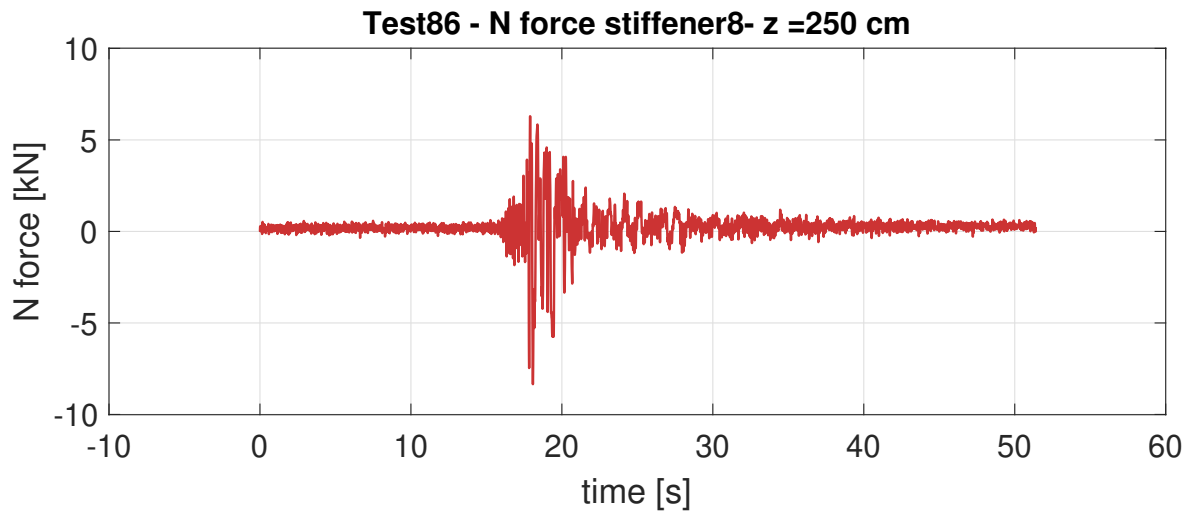
– Montante numero 8





**Quota z = 250 cm**

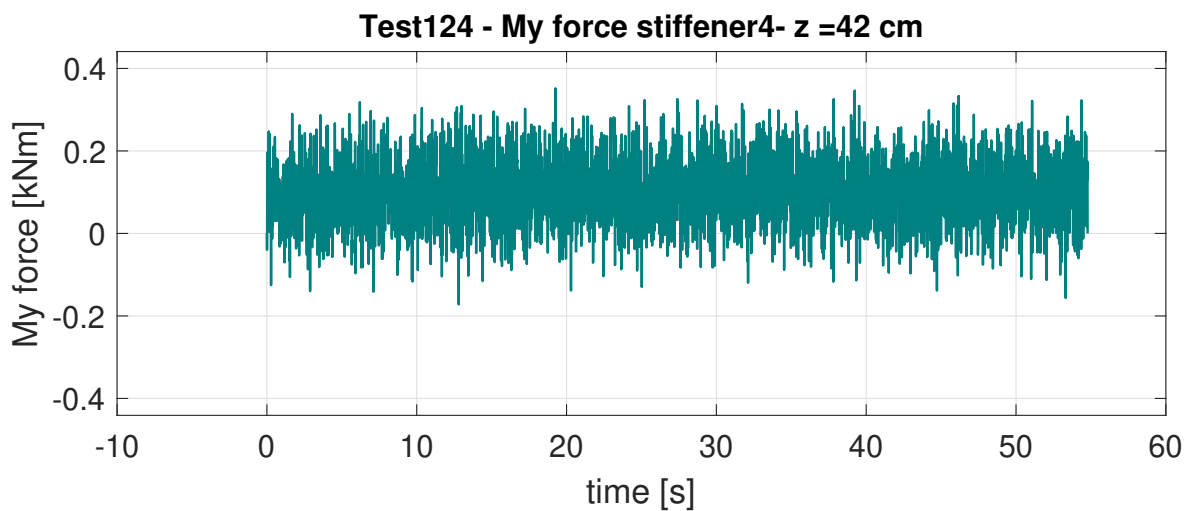
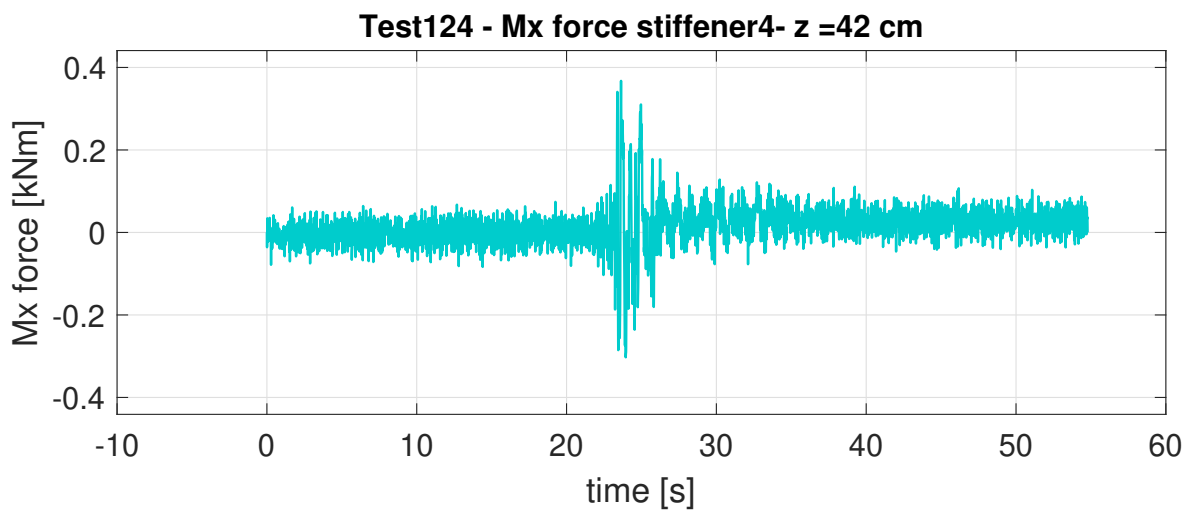
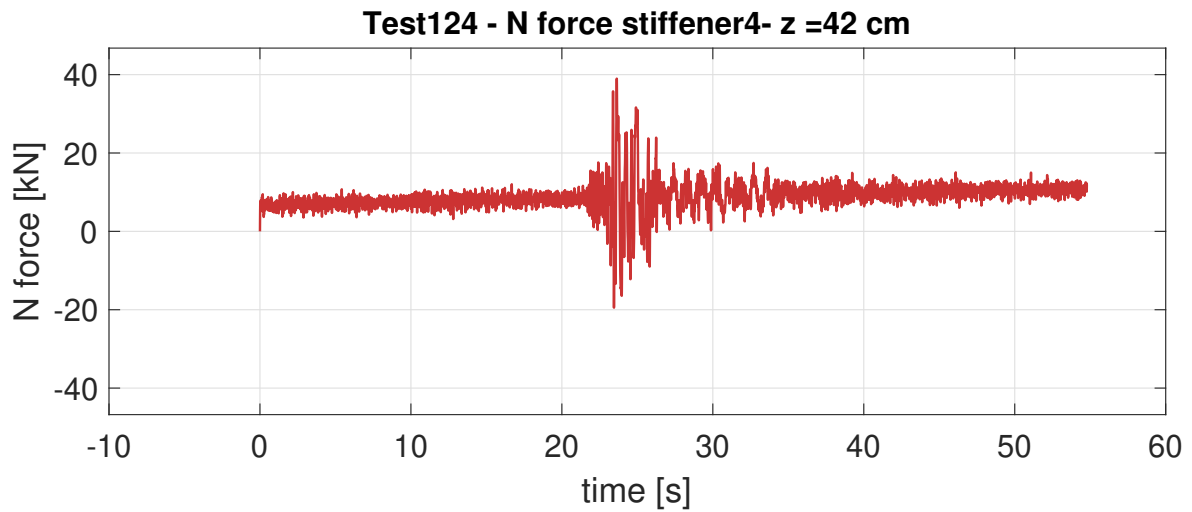
– Montante numero 8



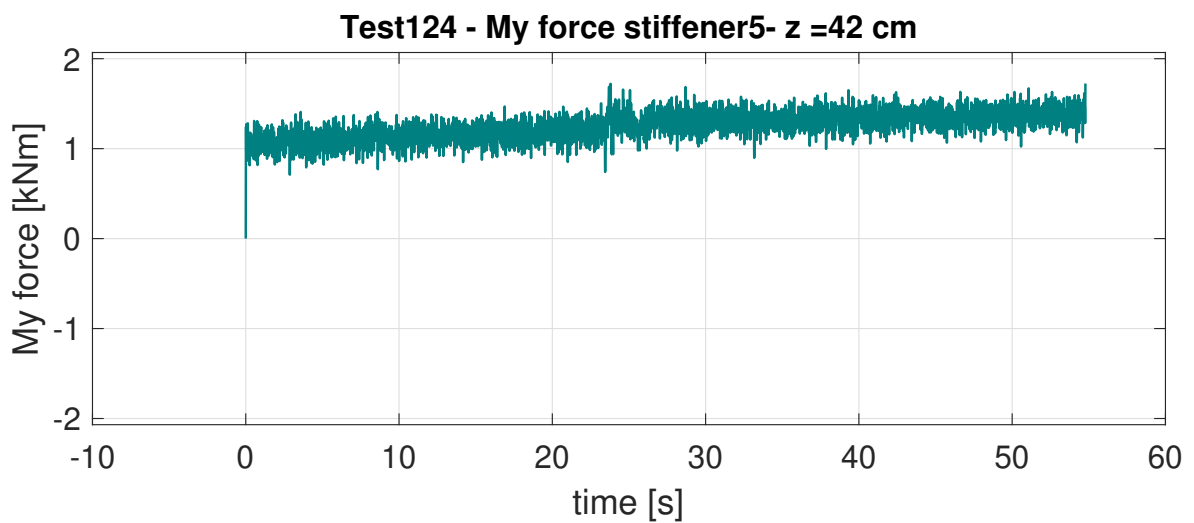
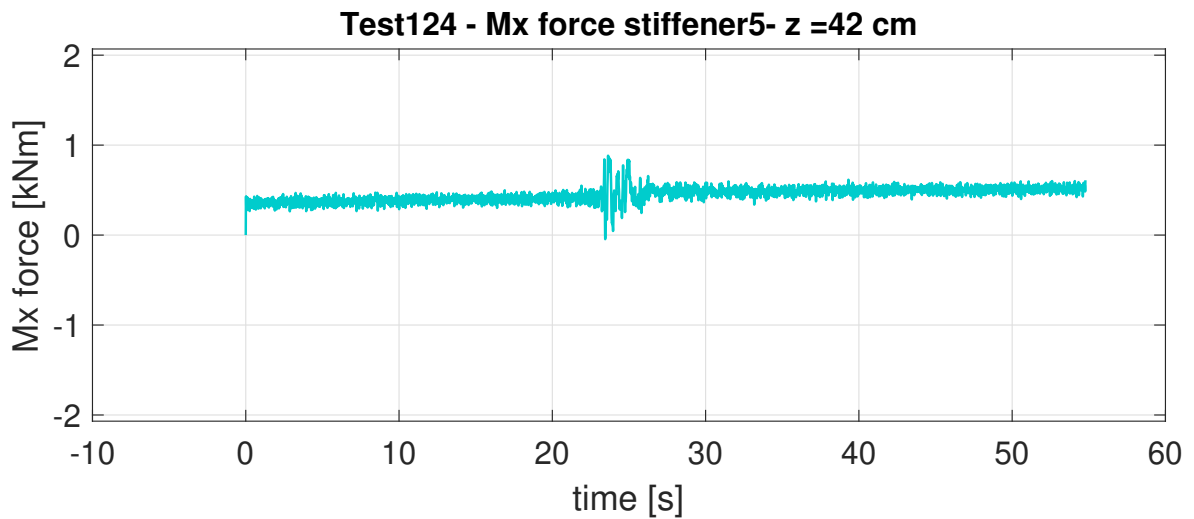
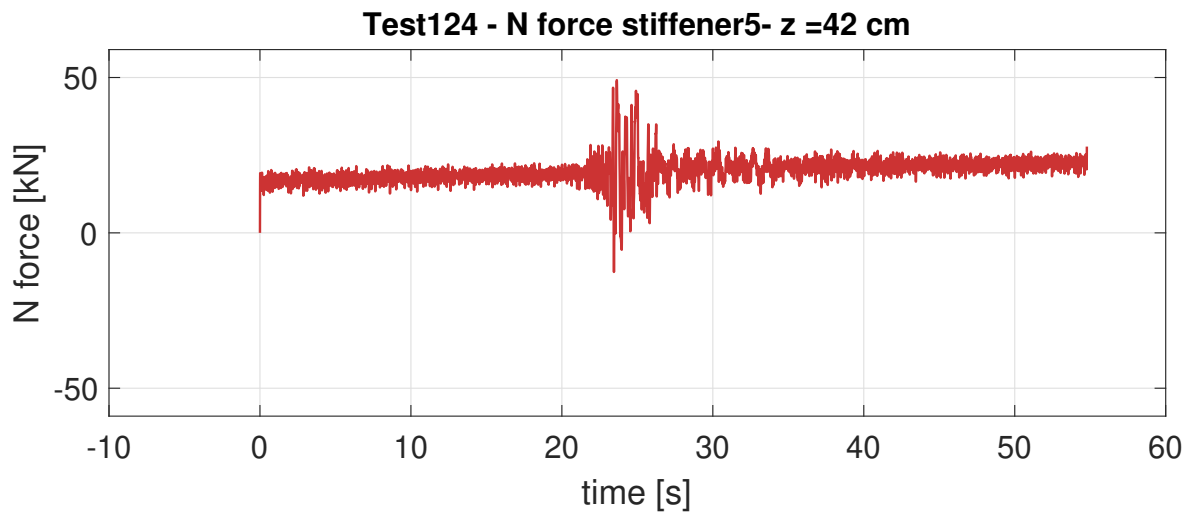
- Terremoto RS3 0.6 g

Quota z = 42 cm

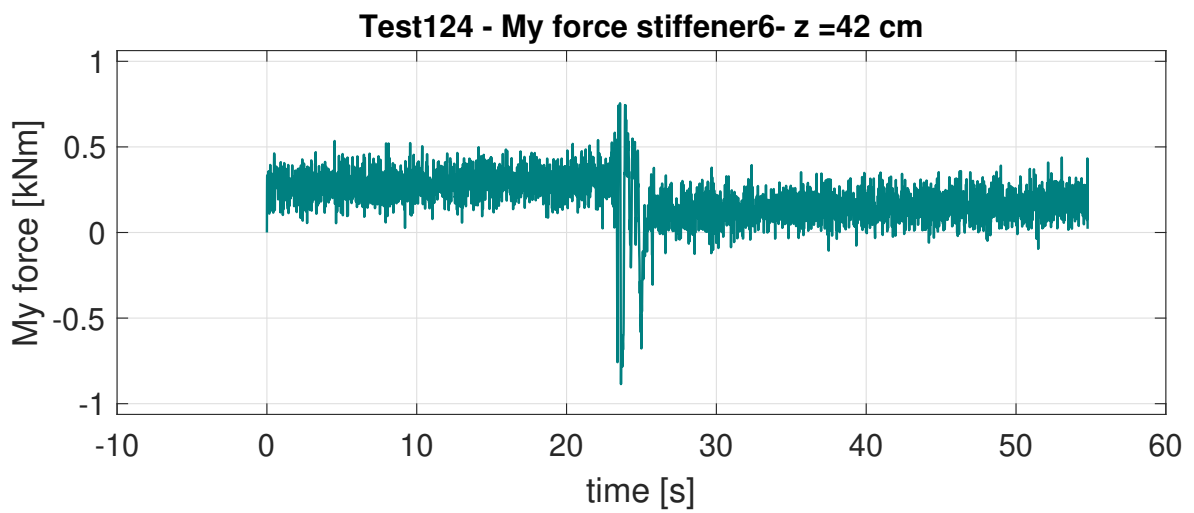
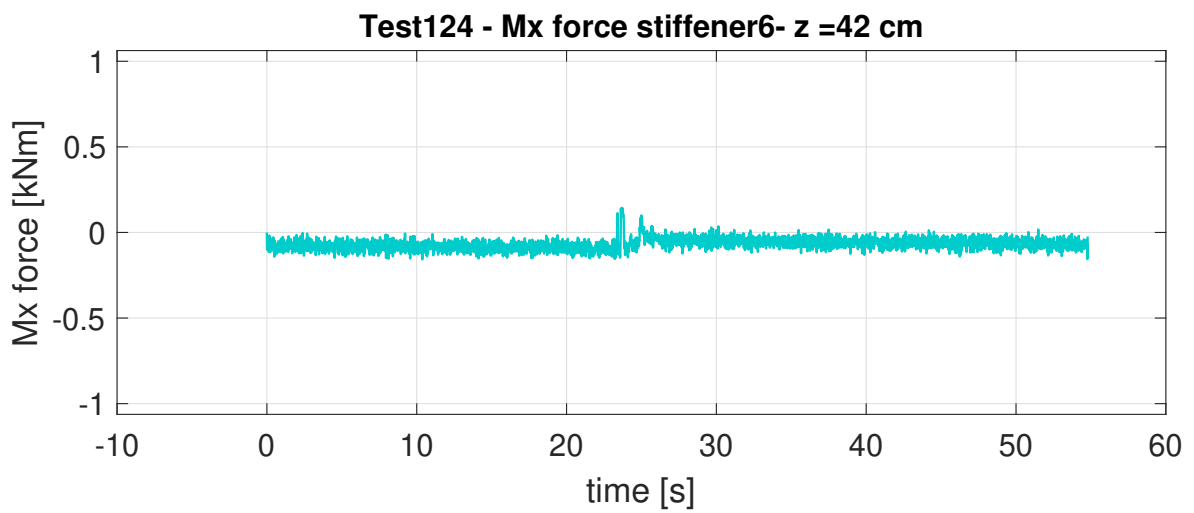
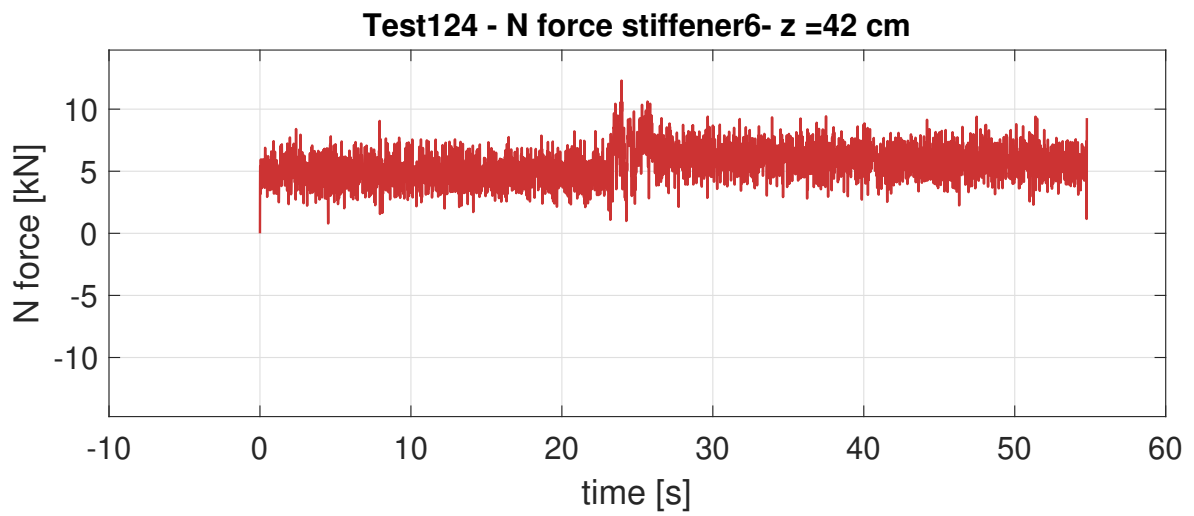
– Montante numero 4



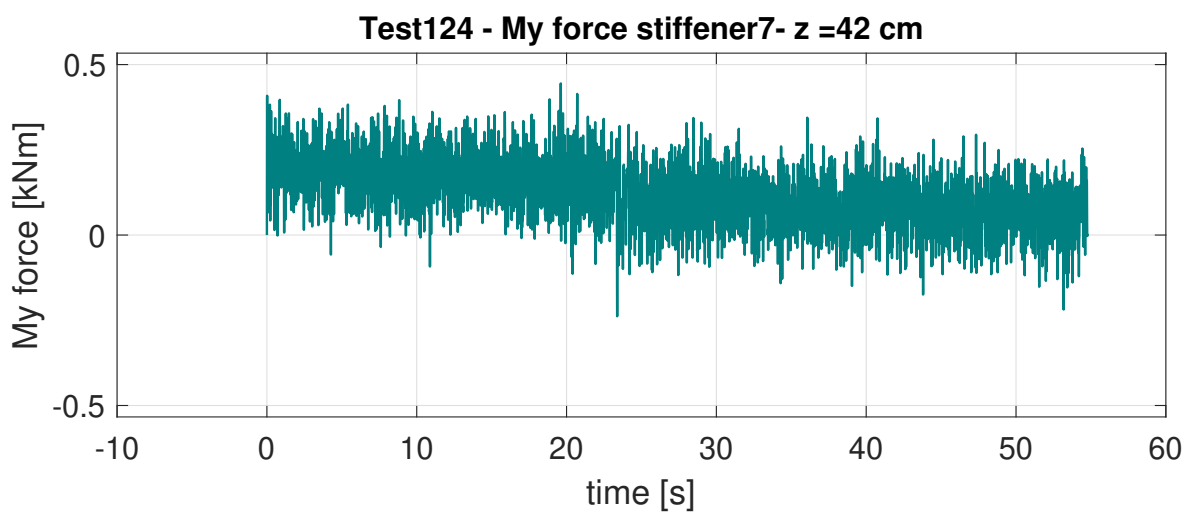
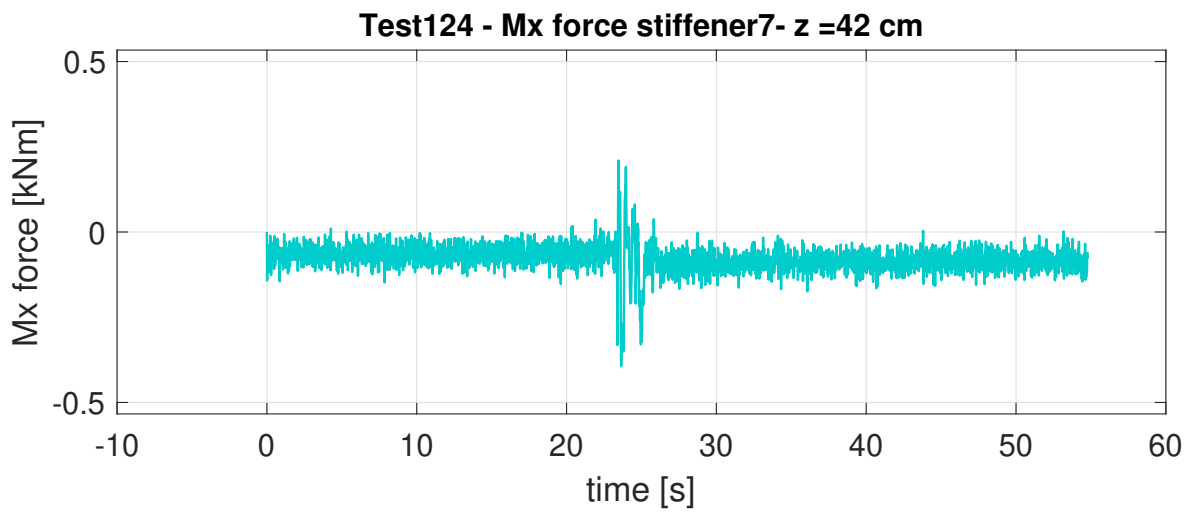
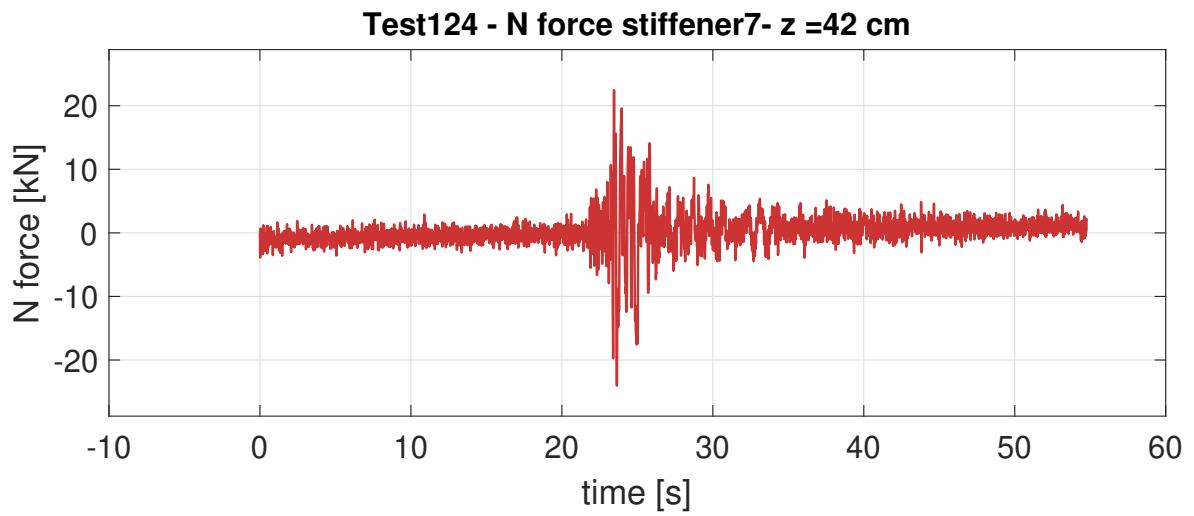
- Montante numero 5



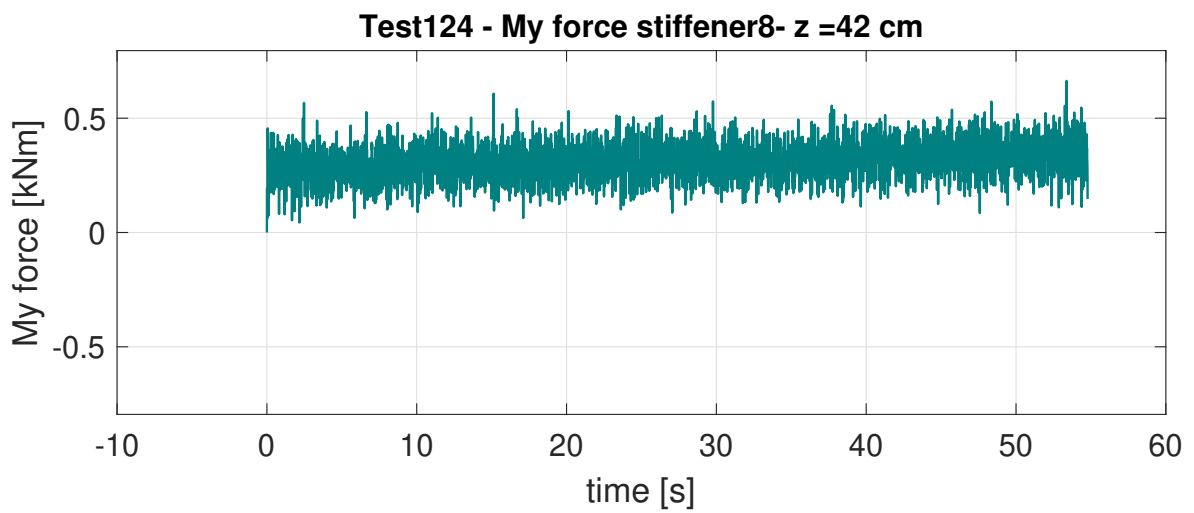
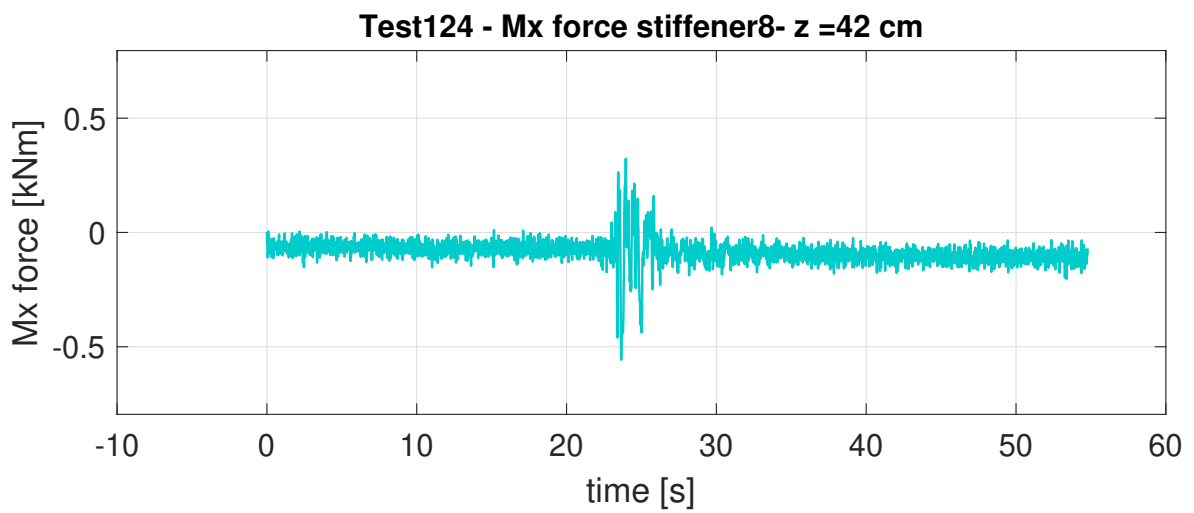
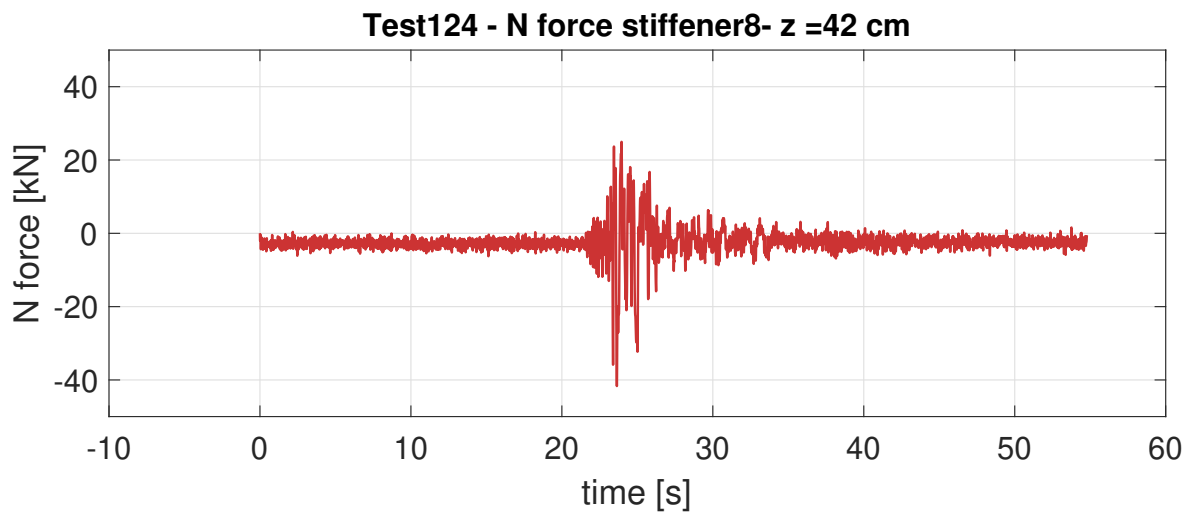
– Montante numero 6



- Montante numero 7

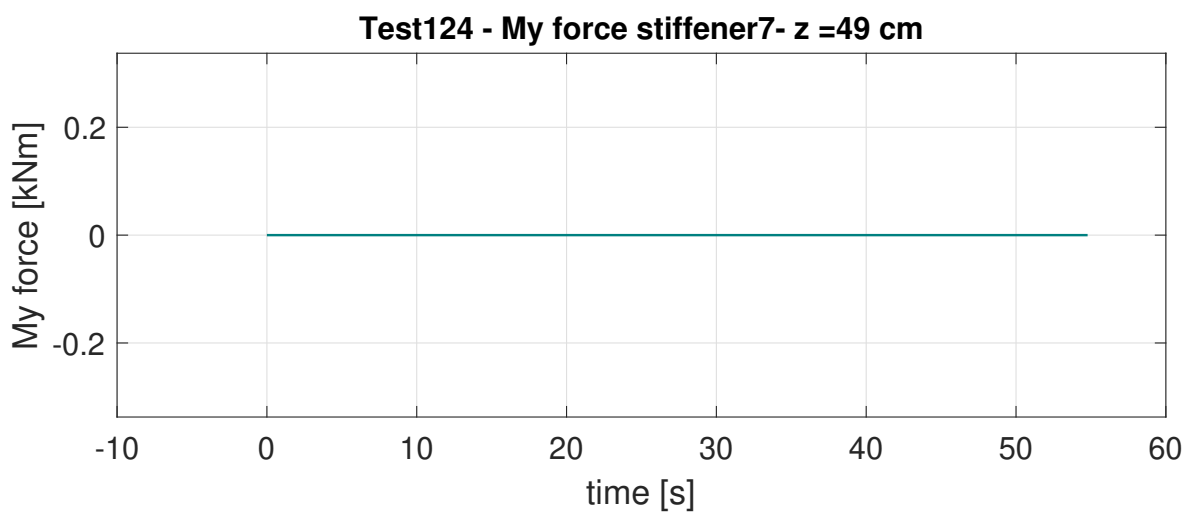
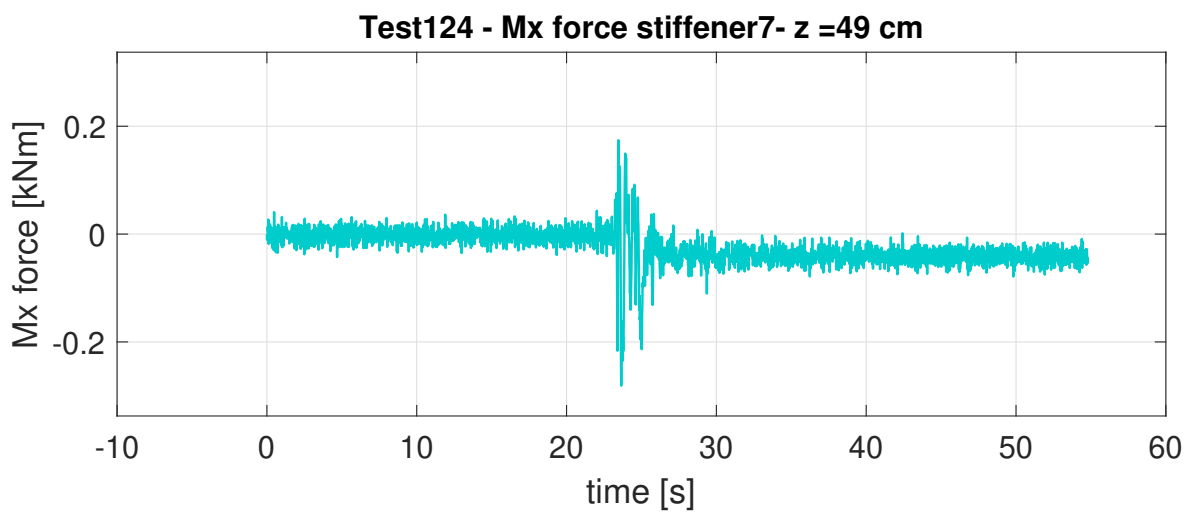
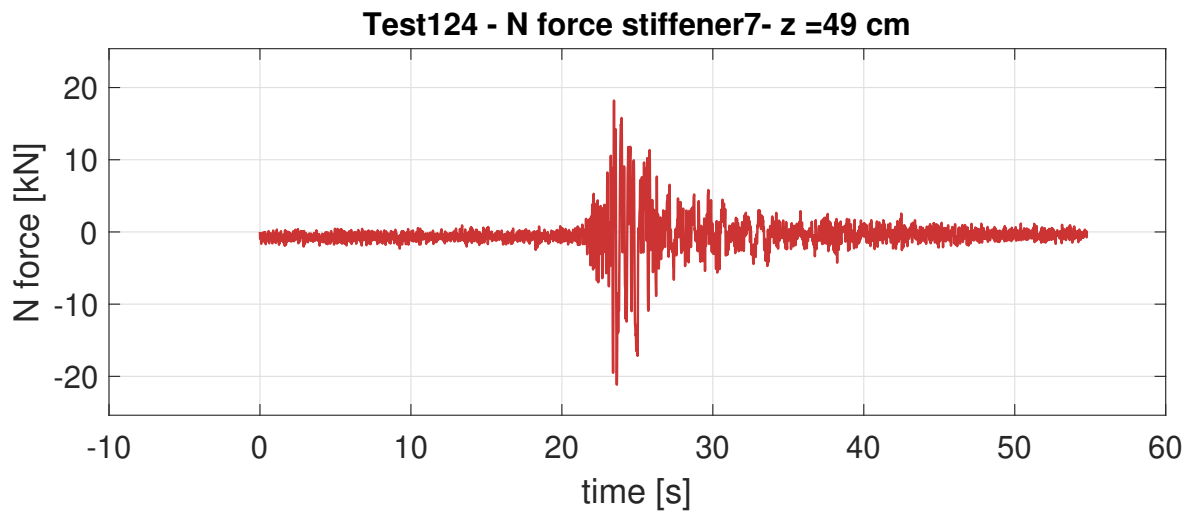


– Montante numero 8

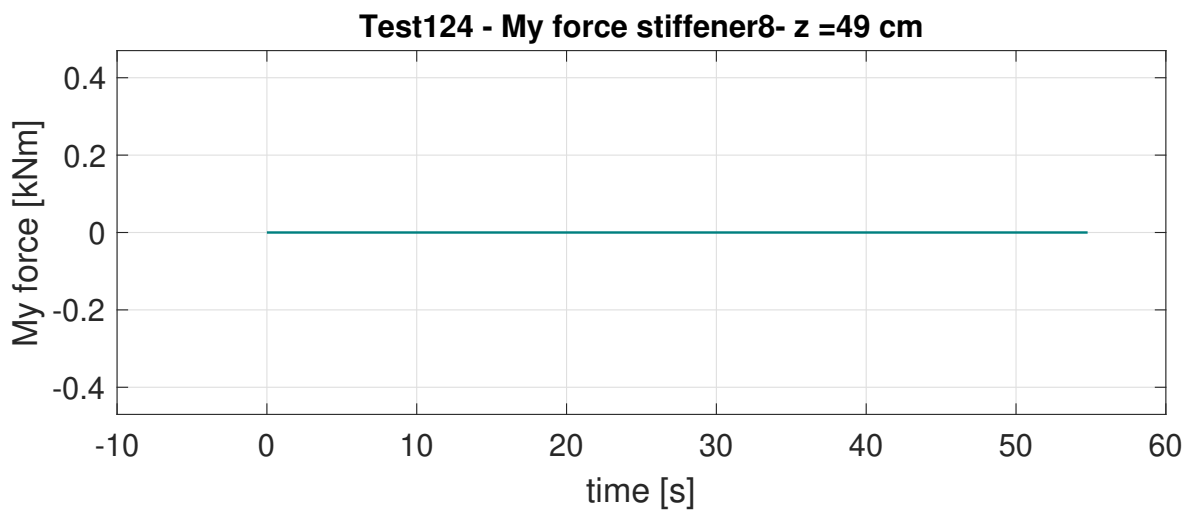
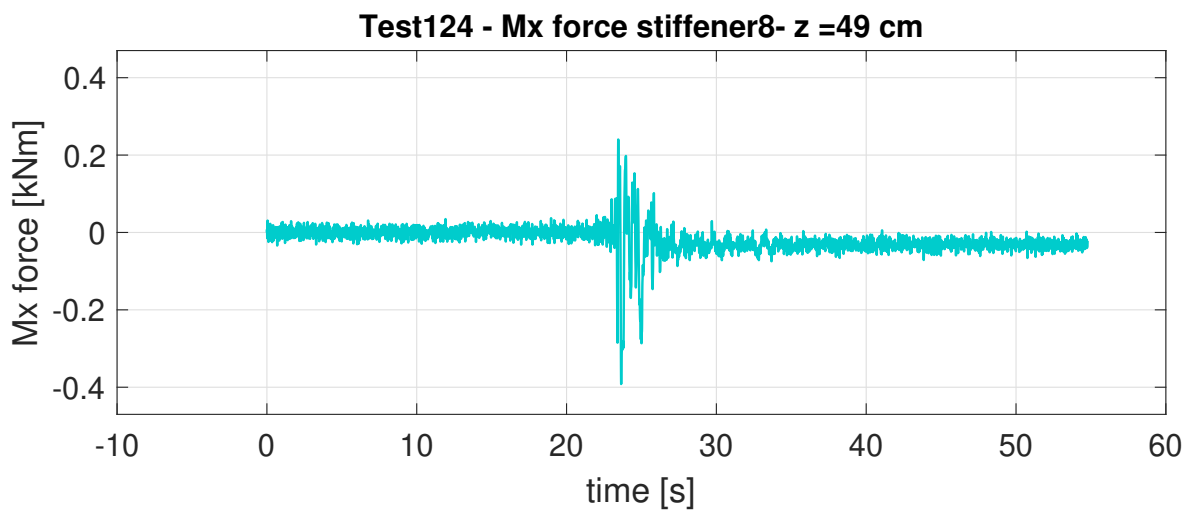
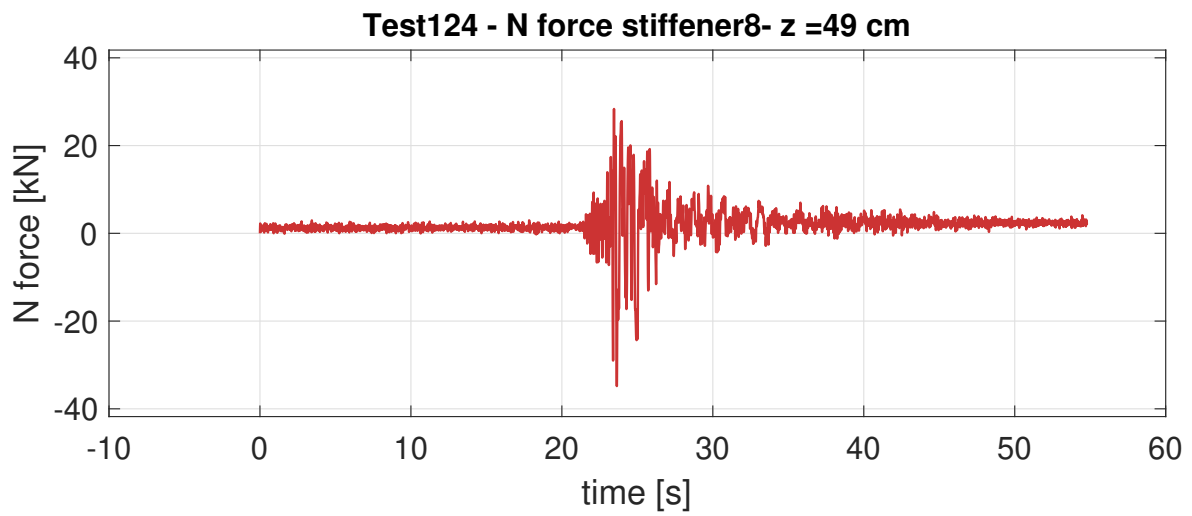


**Quota z = 49 cm**

– Montante numero 7



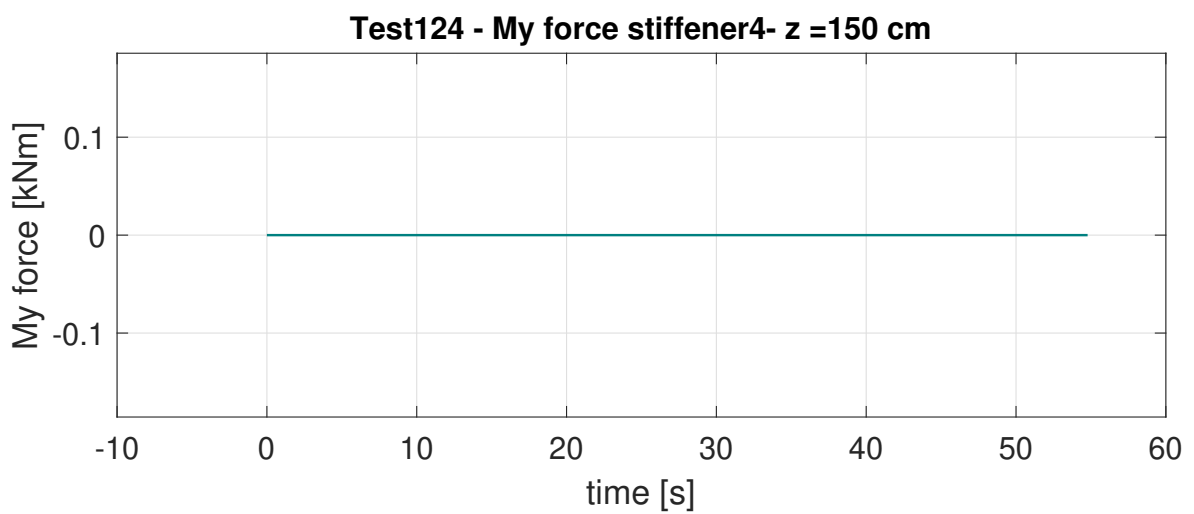
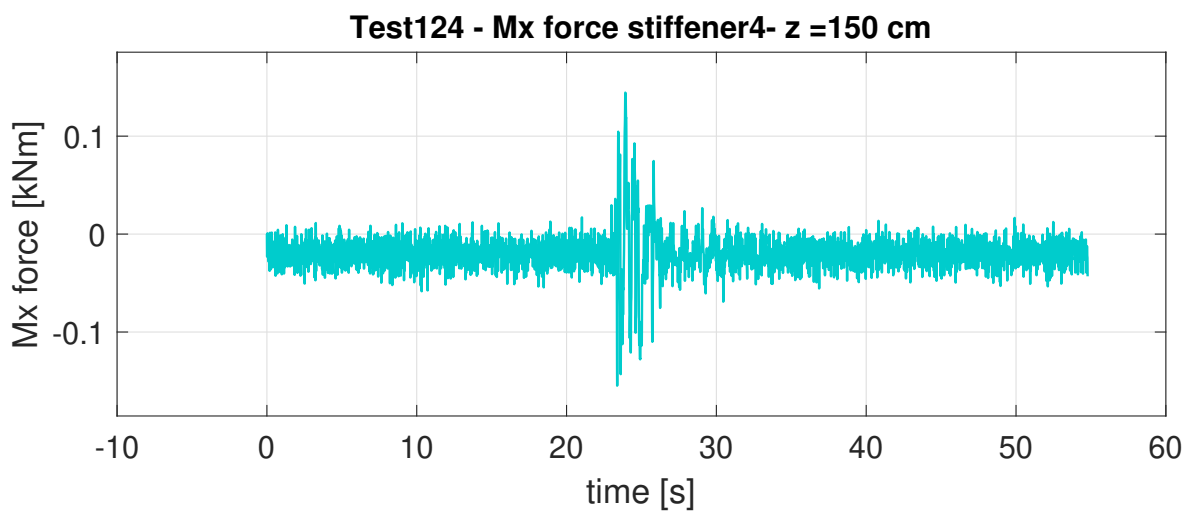
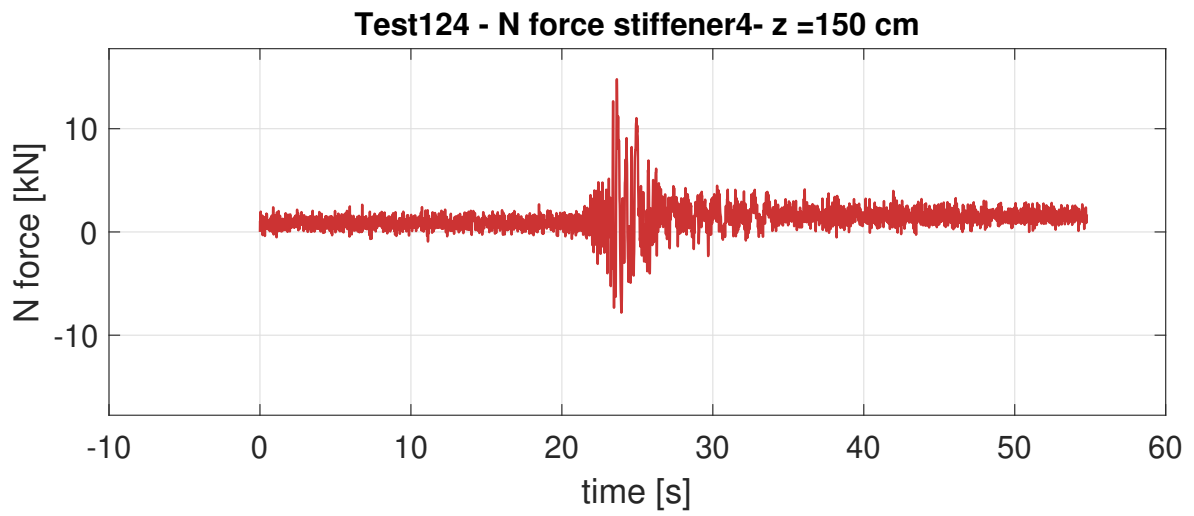
– Montante numero 8



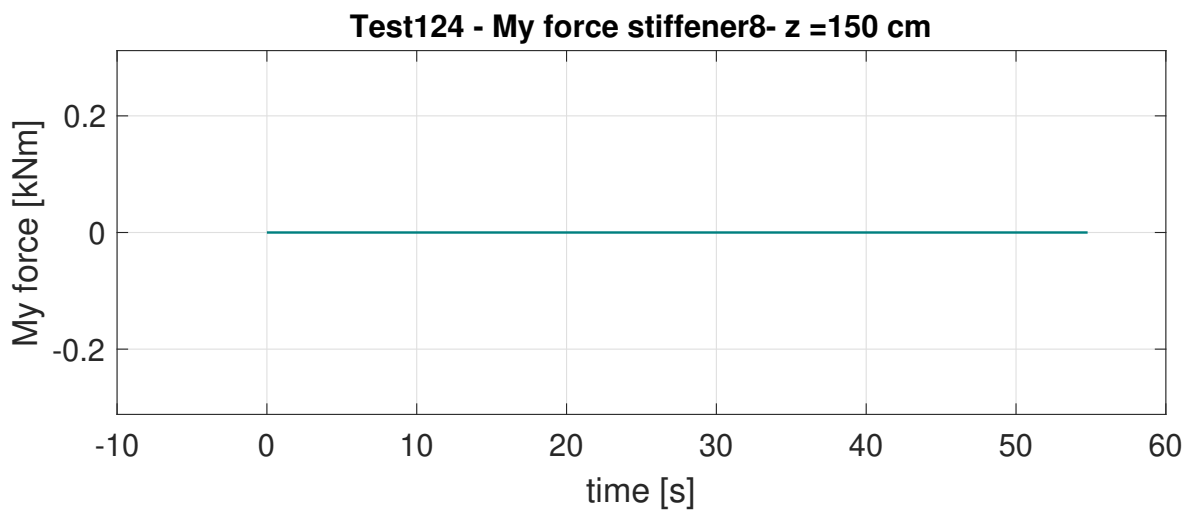
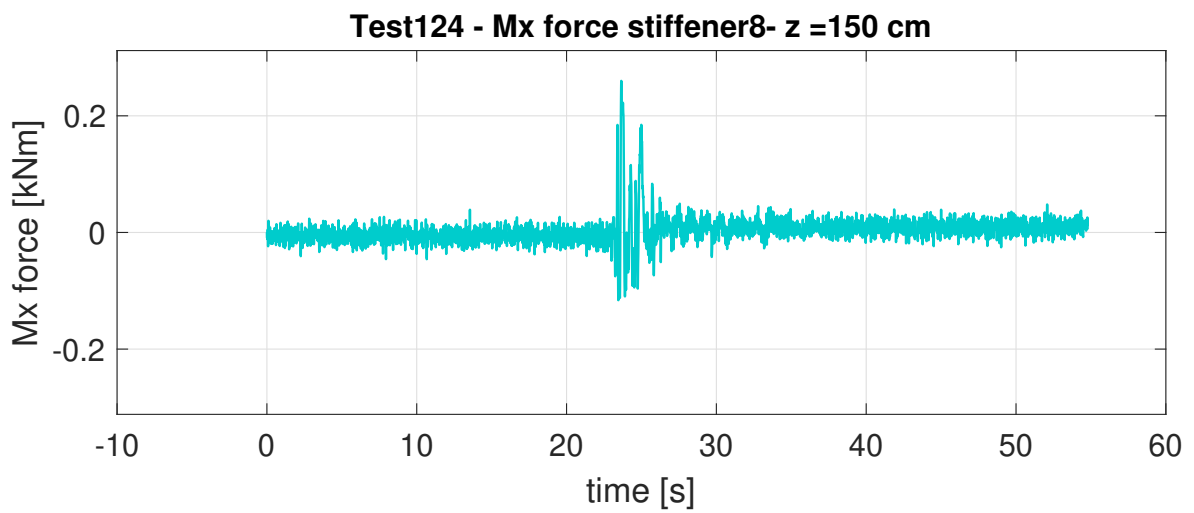
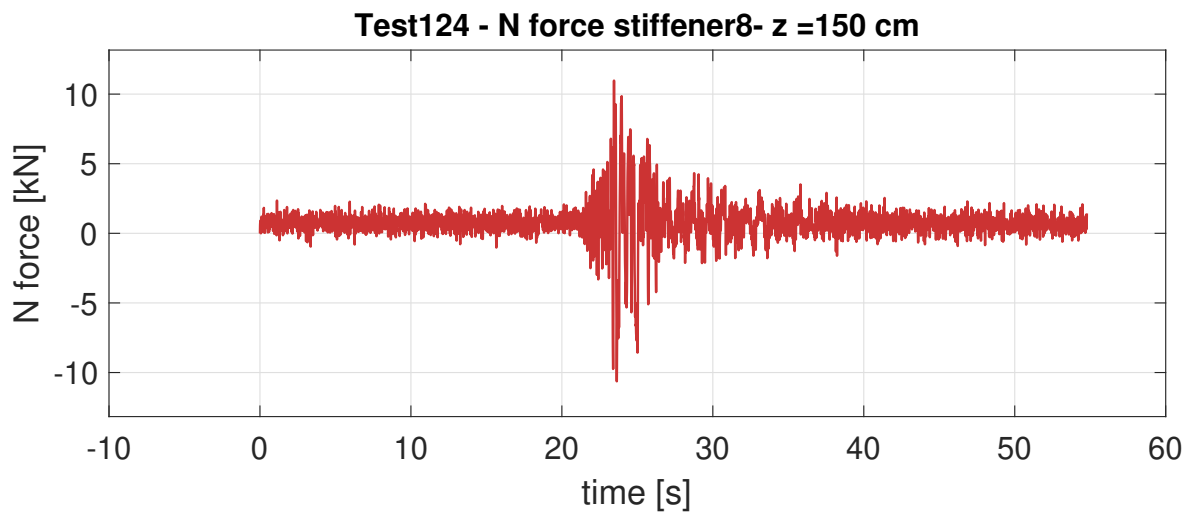


**Quota z = 150 cm**

– Montante numero 4

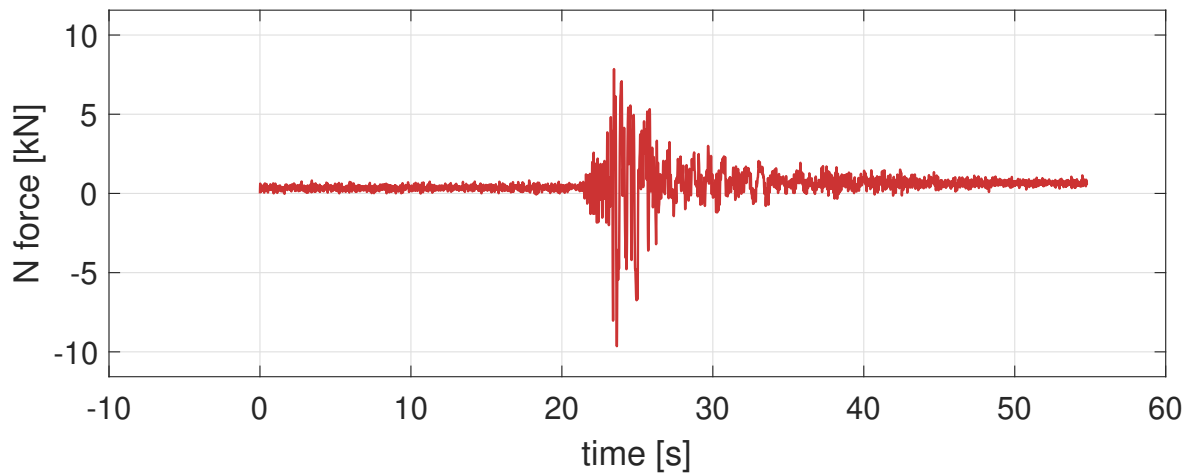
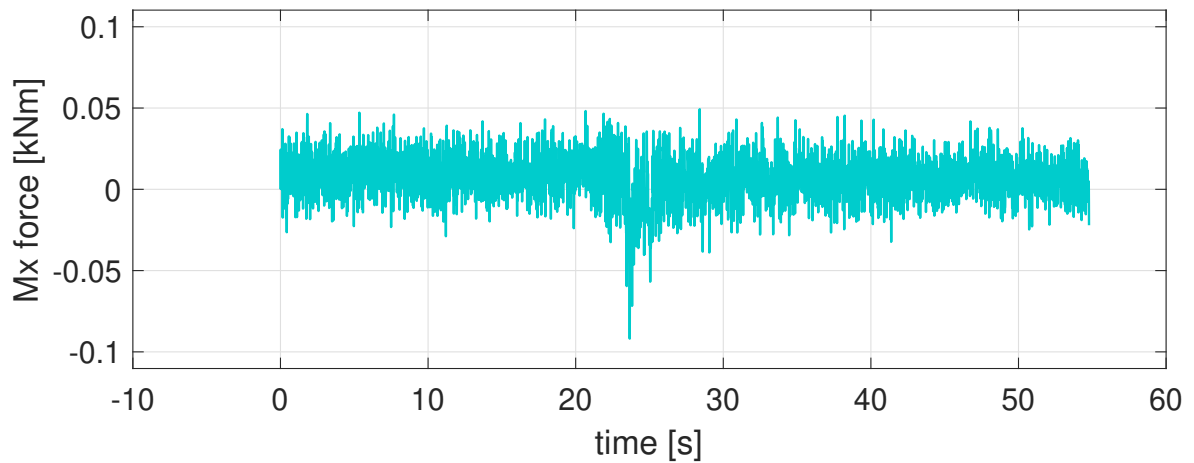
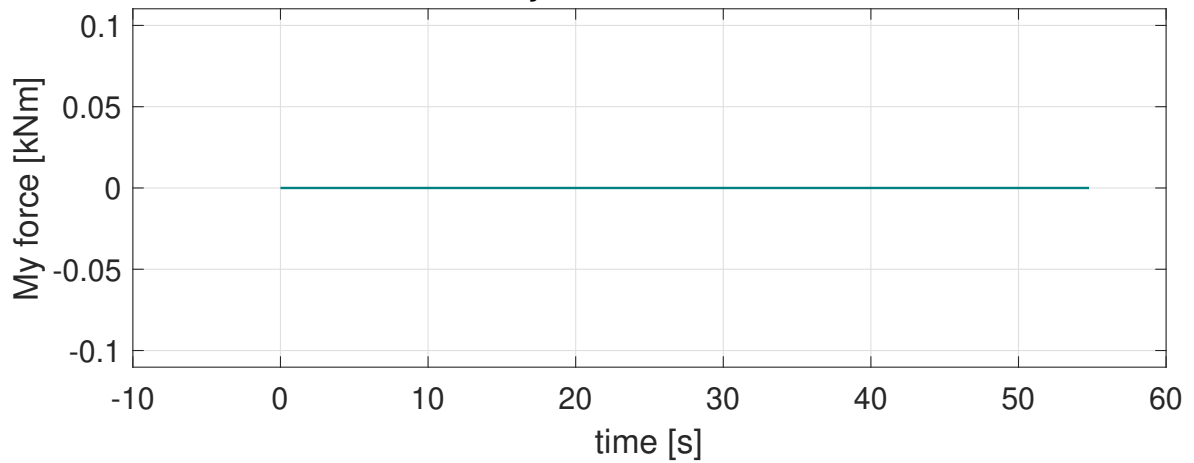


– Montante numero 8



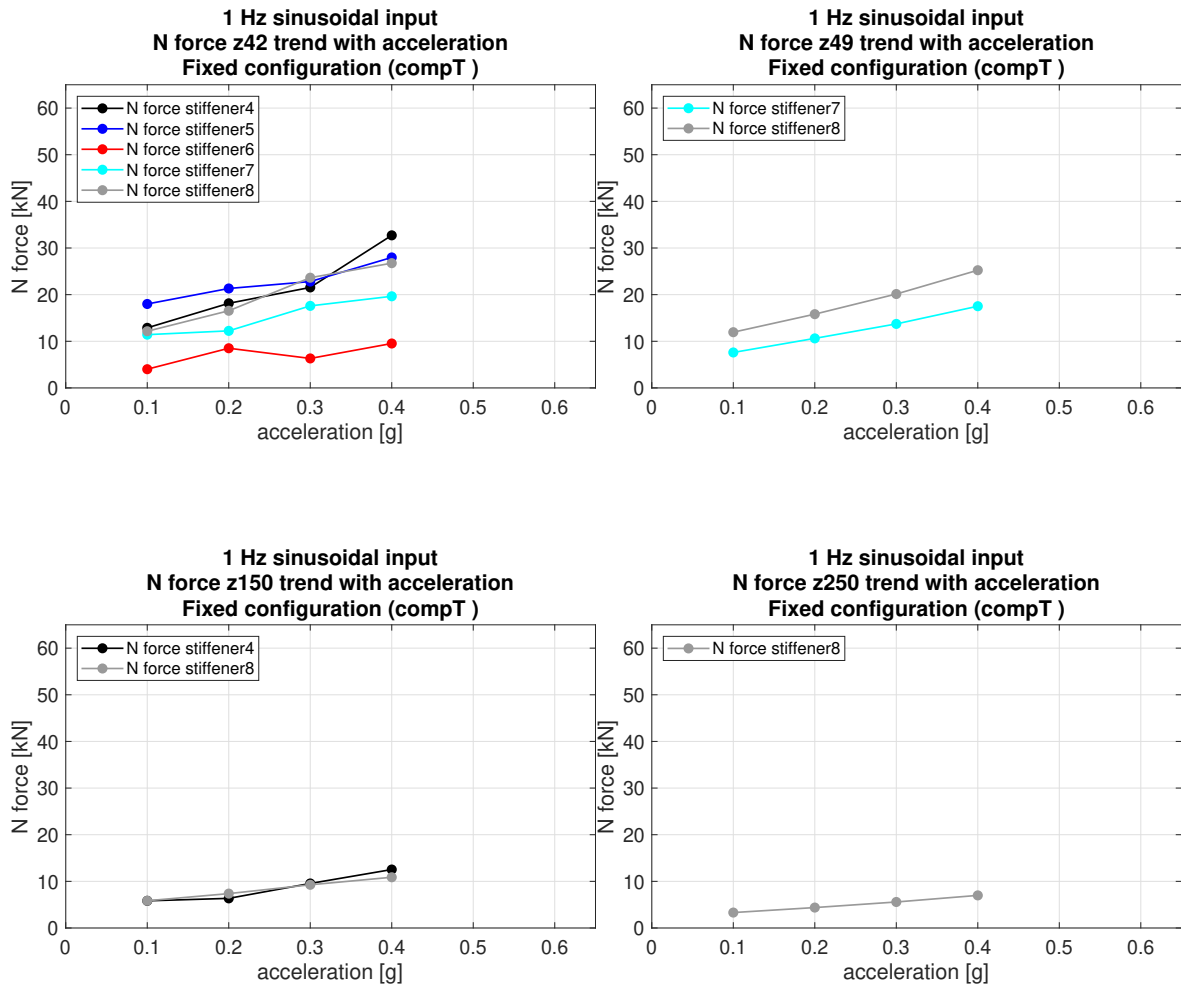
**Quota z = 250 cm**

– Montante numero 8

**Test124 - N force stiffener8- z =250 cm****Test124 - Mx force stiffener8- z =250 cm****Test124 - My force stiffener8- z =250 cm**

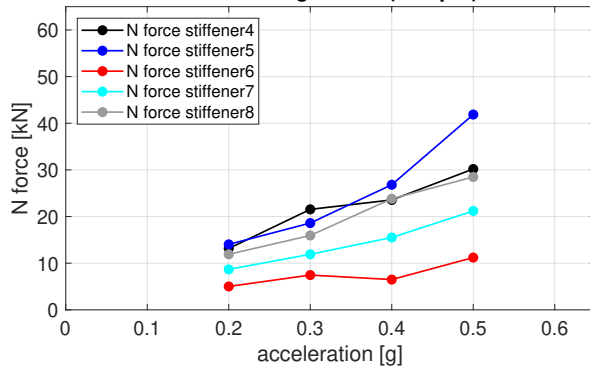
## Andamento dello sforzo normale con l'accelerazione

- Sinusoide

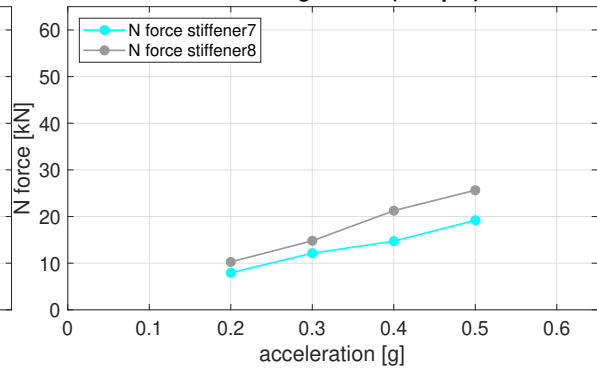


• Sinusoide dopo compattazione

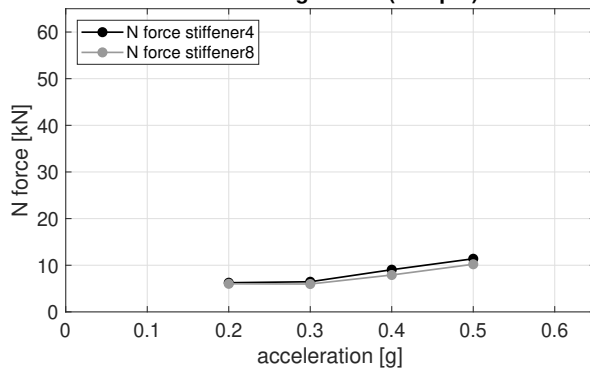
**1 Hz sinusoidal input (after compaction)  
N force z42 trend with acceleration  
Fixed configuration (compT)**



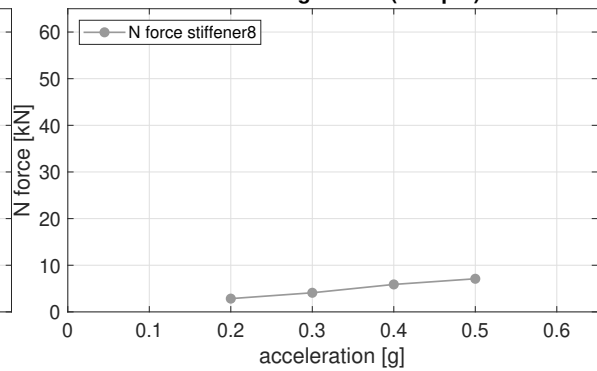
**1 Hz sinusoidal input (after compaction)  
N force z49 trend with acceleration  
Fixed configuration (compT)**



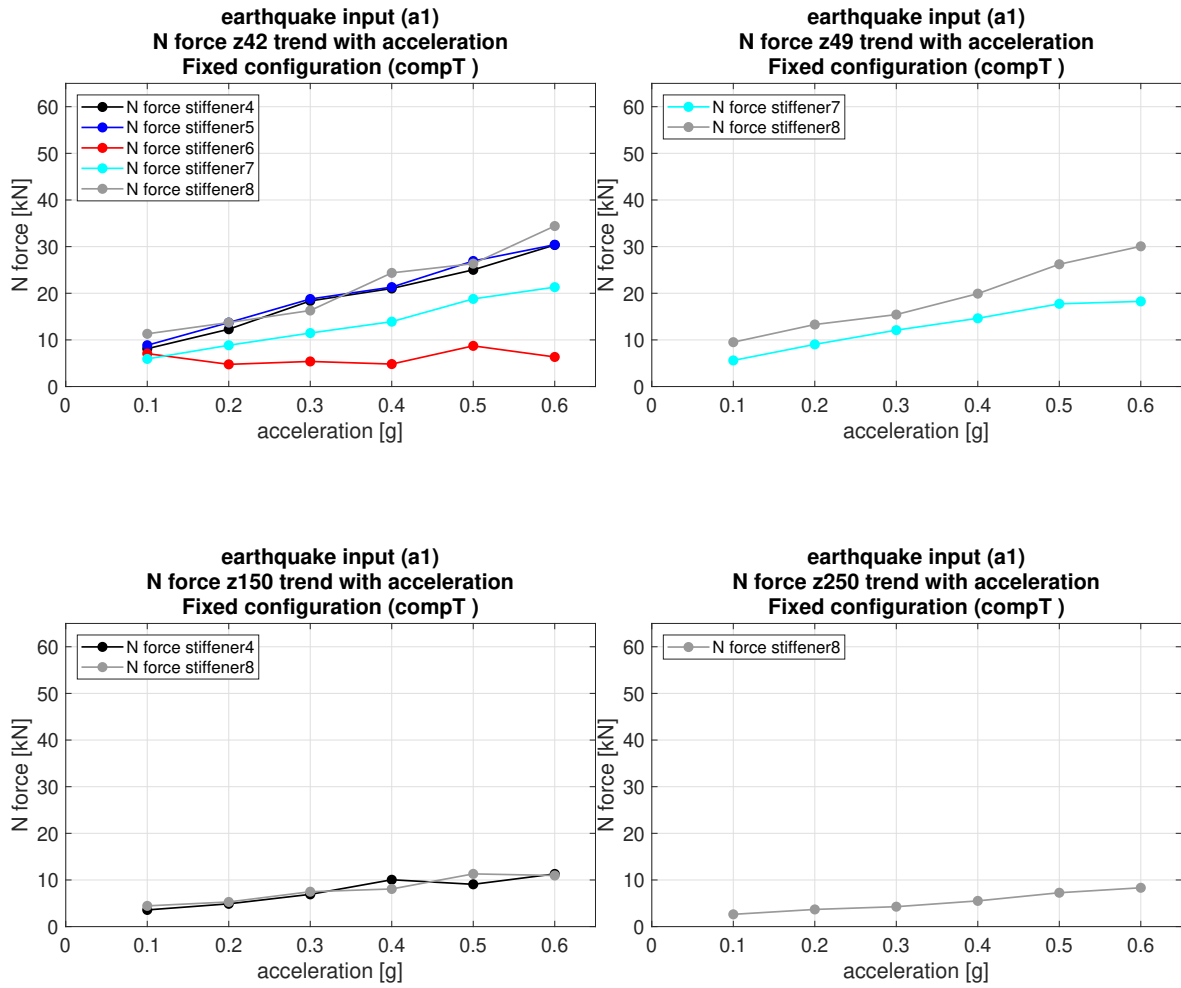
**1 Hz sinusoidal input (after compaction)  
N force z150 trend with acceleration  
Fixed configuration (compT)**



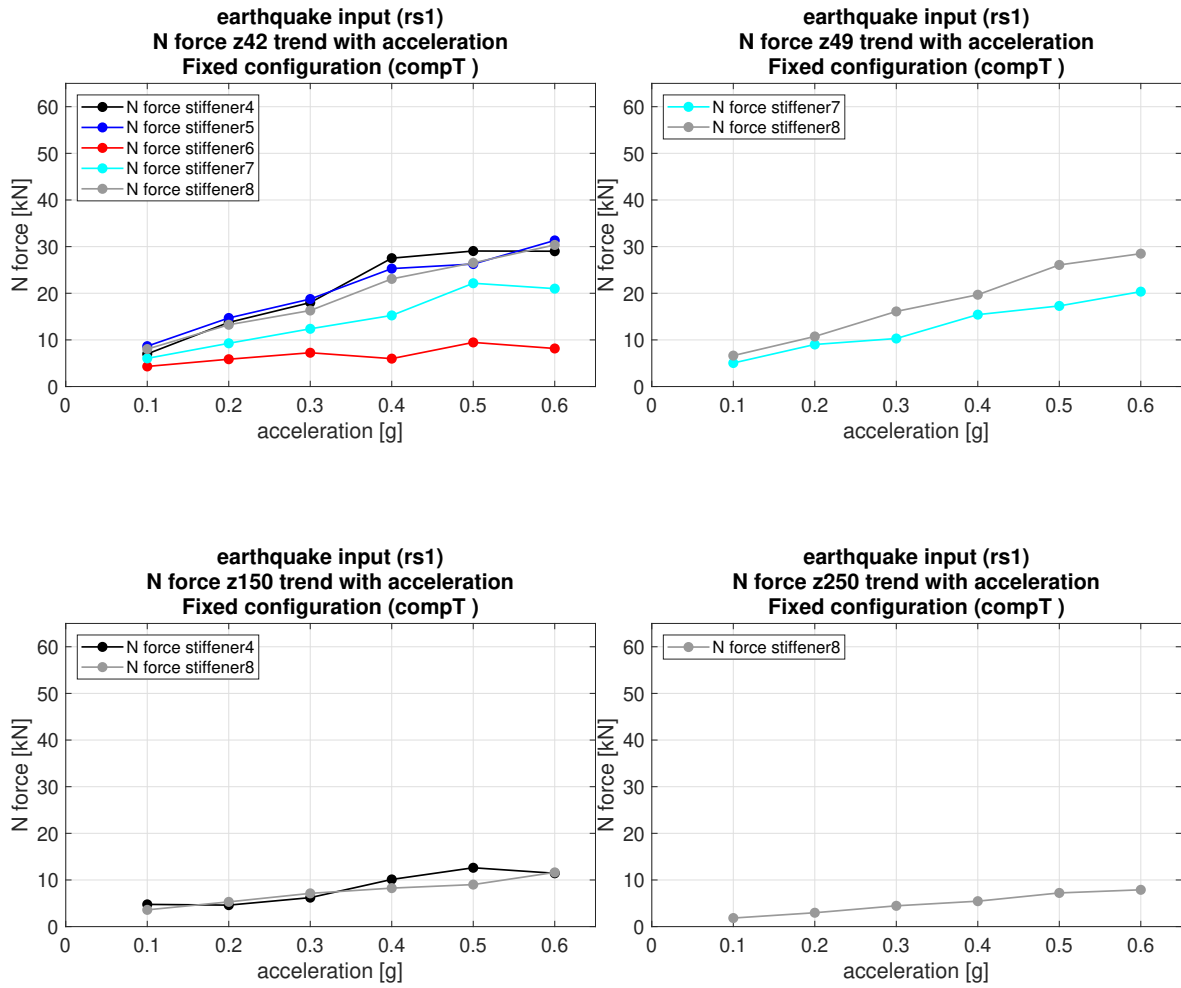
**1 Hz sinusoidal input (after compaction)  
N force z250 trend with acceleration  
Fixed configuration (compT)**



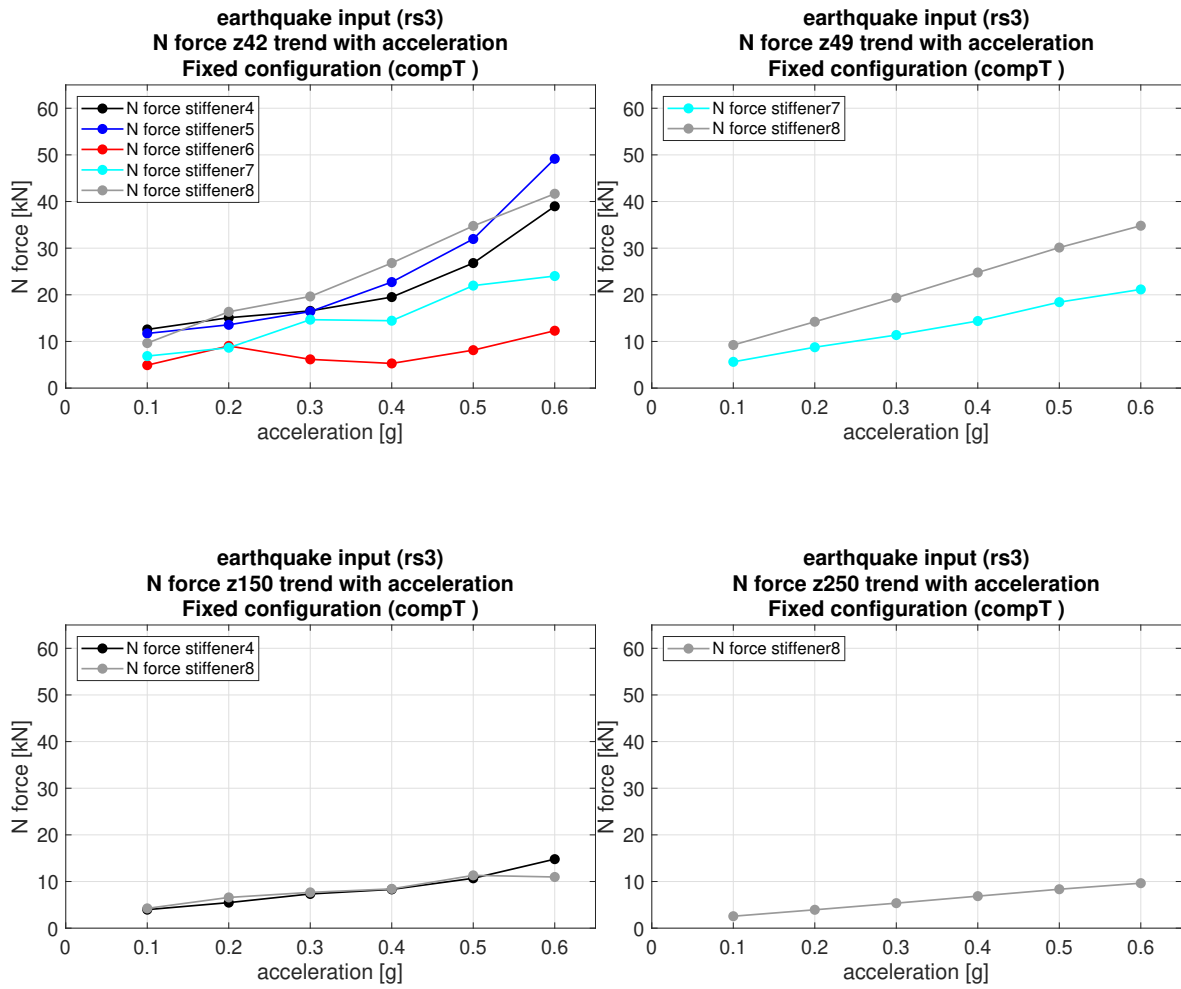
• Terremoto A1



• Terremoto RS1



• Terremoto RS3

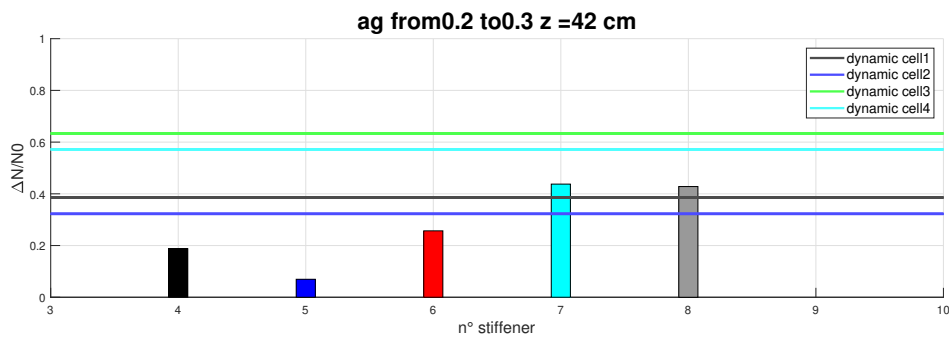
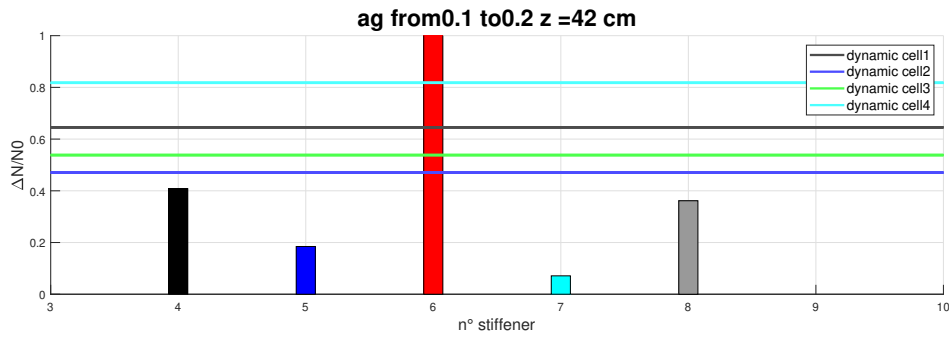




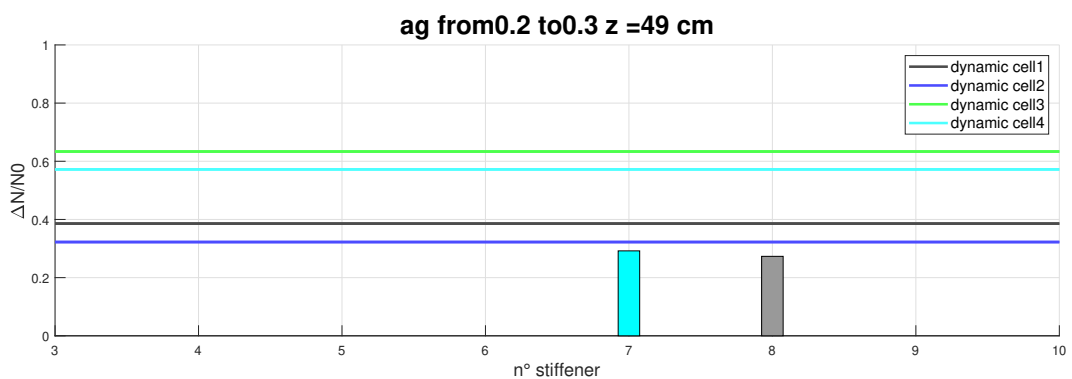
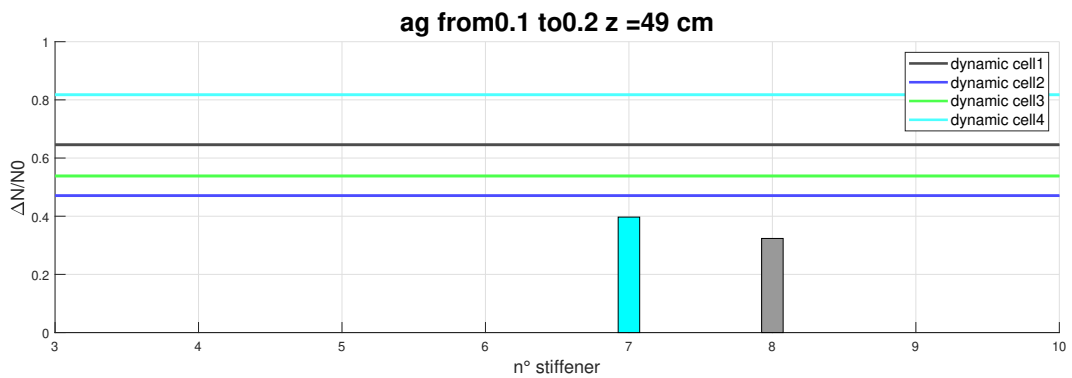
**Diagrammi di contemporaneità di sovrappressione dinamica e sforzo normale nei montanti.**

- Sinusoide

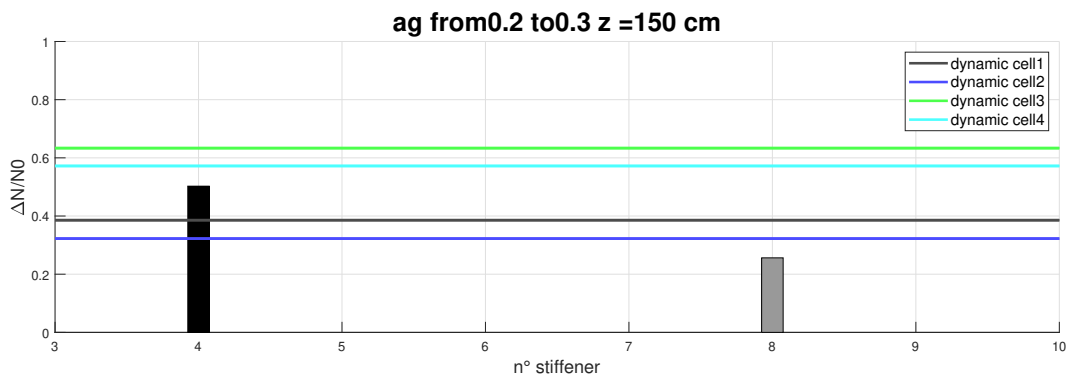
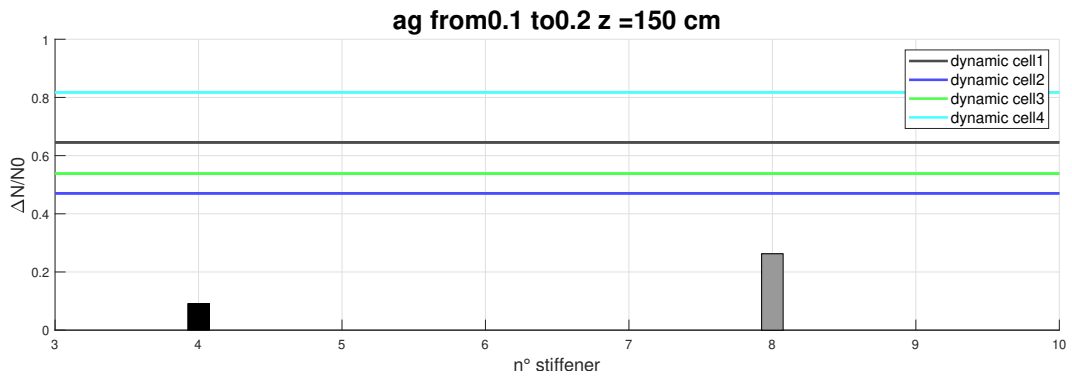
Quota z = 42 cm



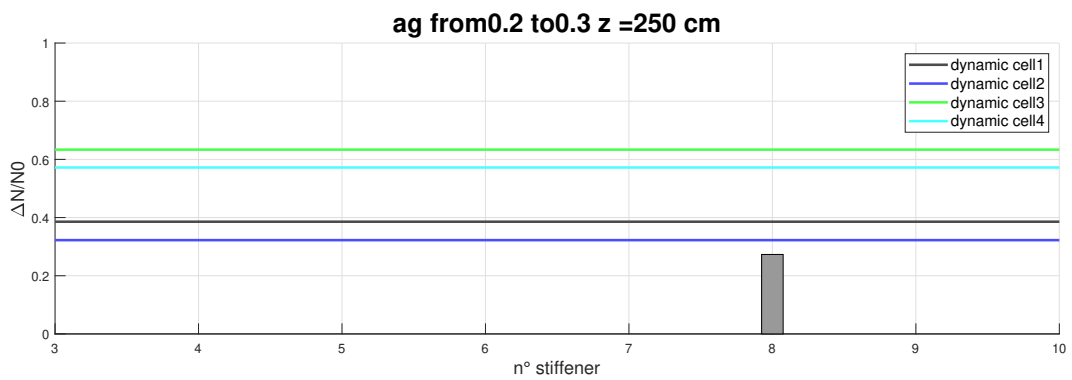
Quota z = 49 cm



**Quota z = 150 cm**

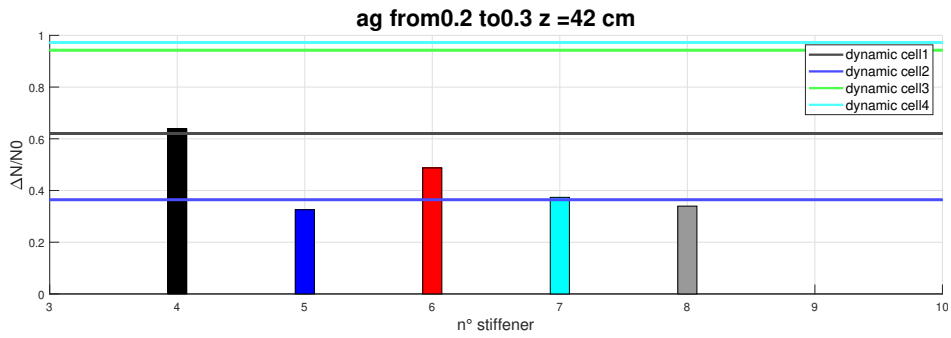


**Quota z = 250 cm**

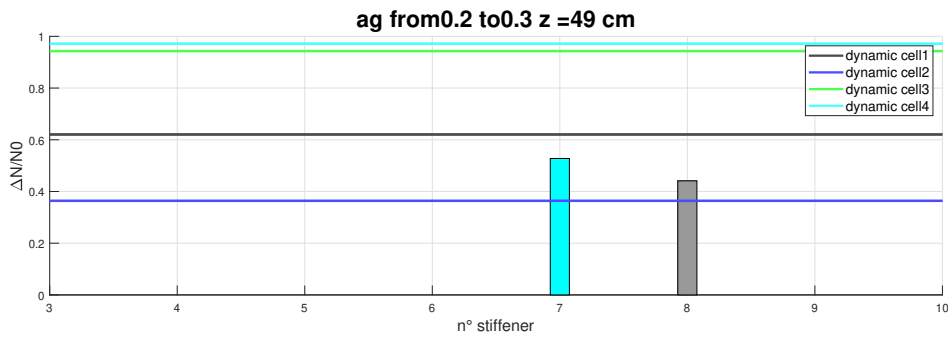


- Sinusoide dopo compattazione

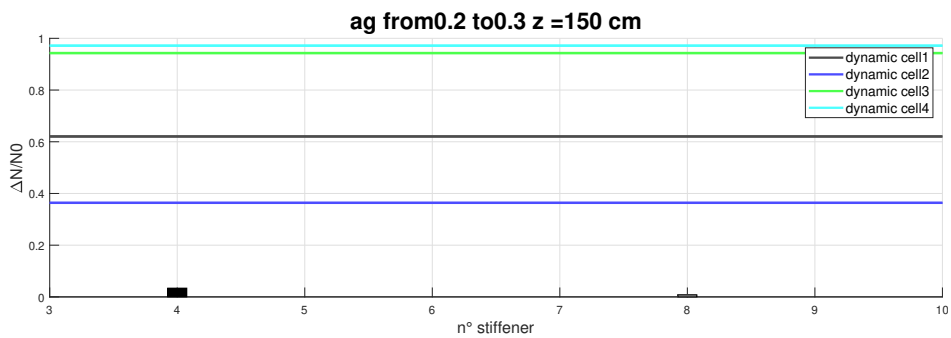
Quota z = 42 cm



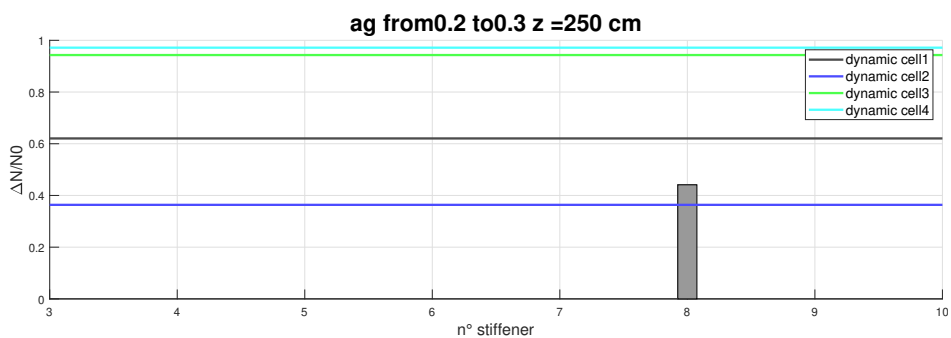
Quota z = 49 cm



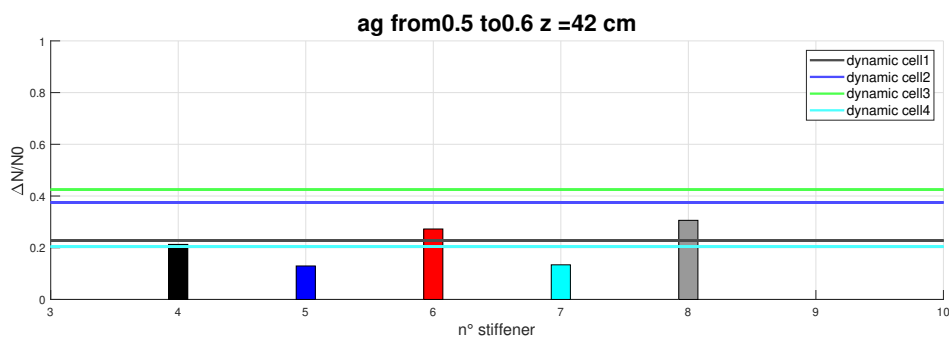
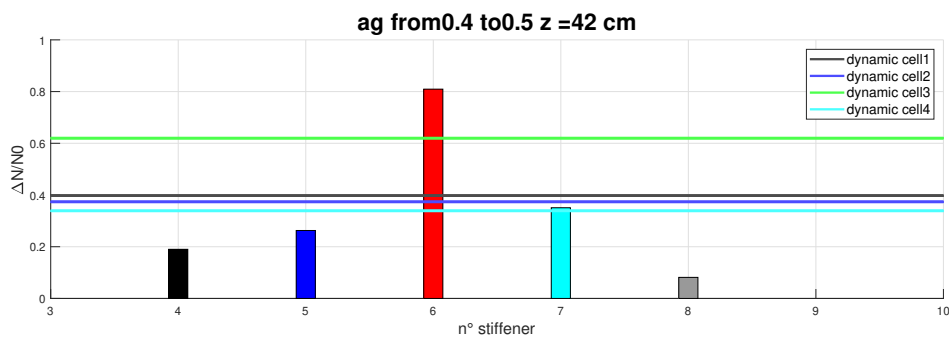
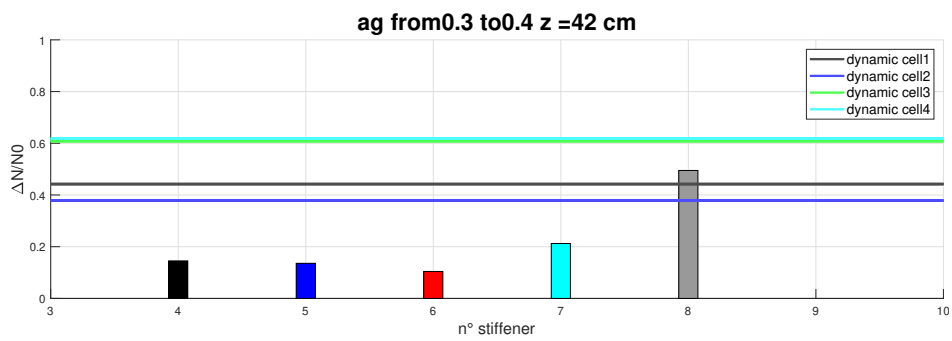
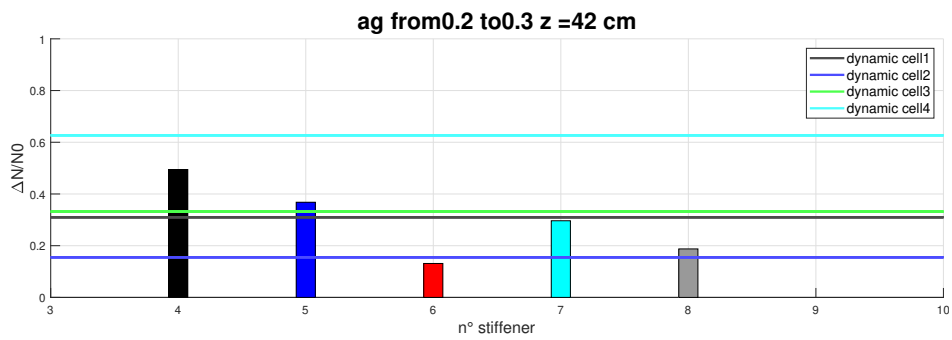
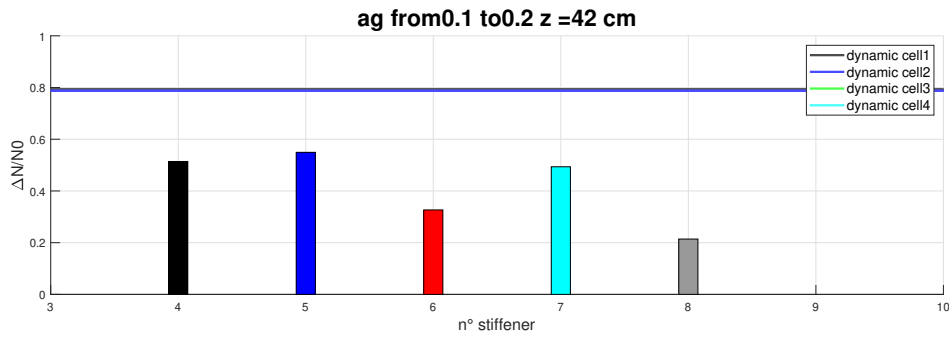
Quota z = 150 cm



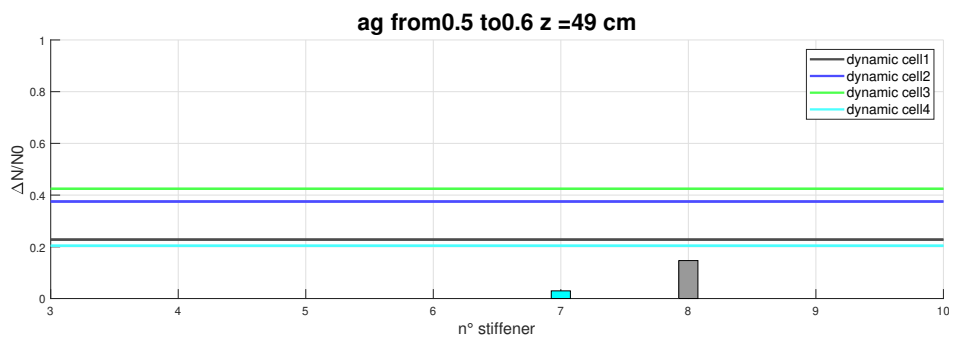
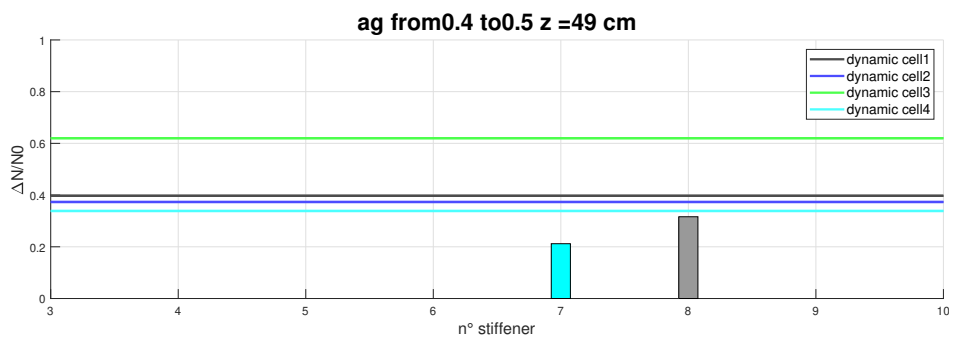
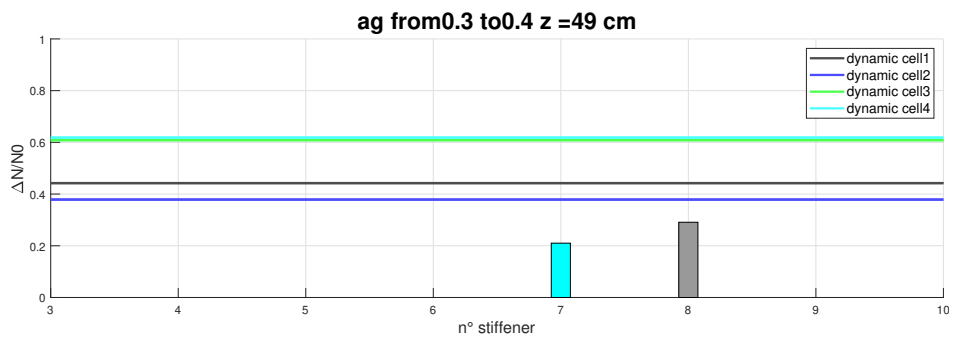
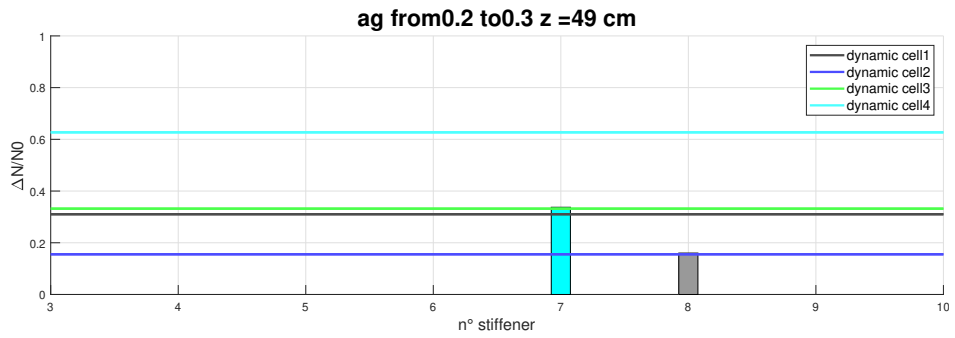
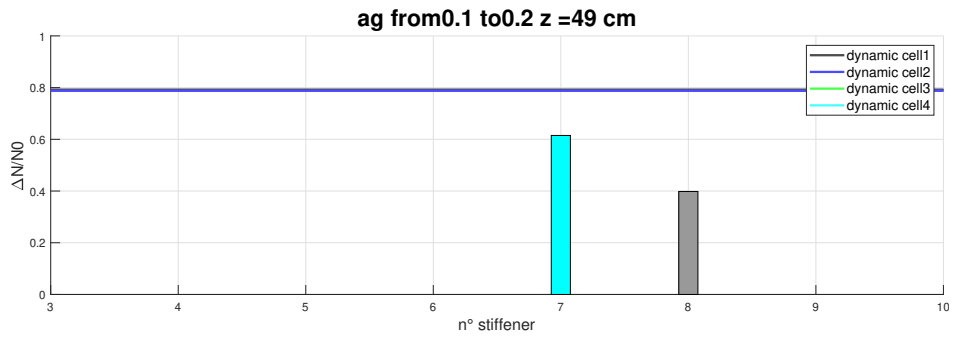
Quota z = 250 cm



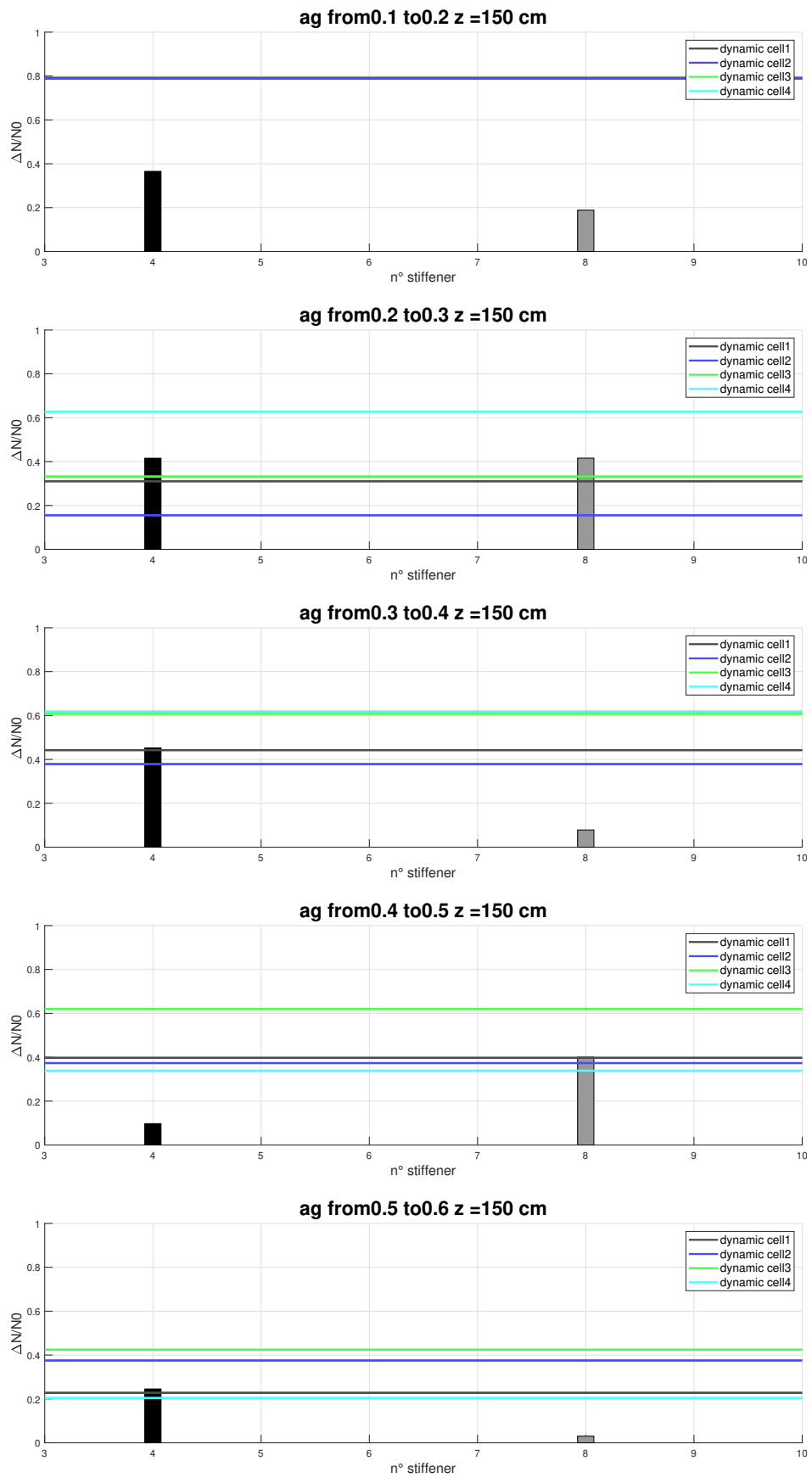
• Terremoto A1  
Quota z = 42 cm



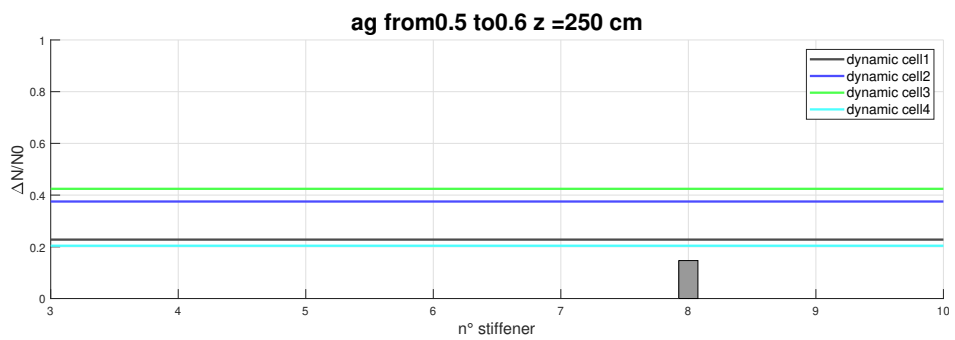
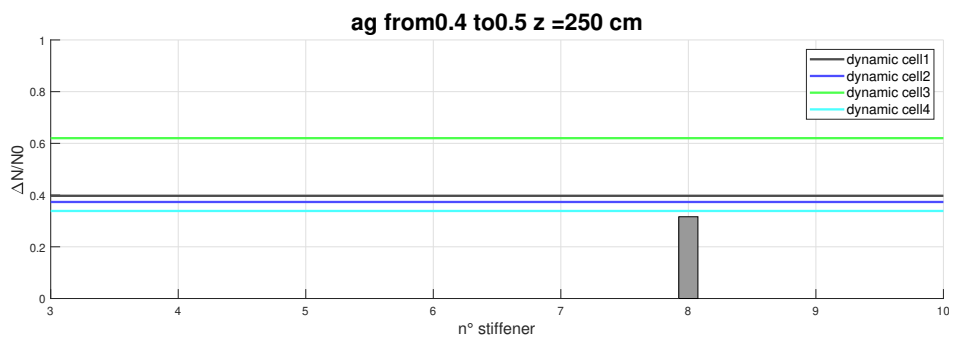
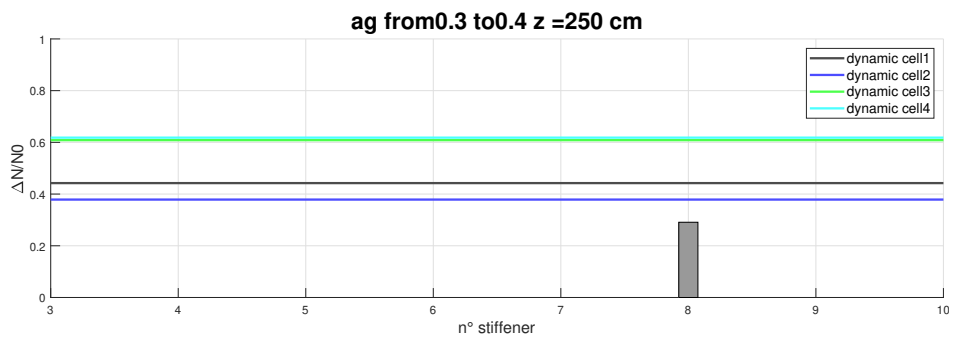
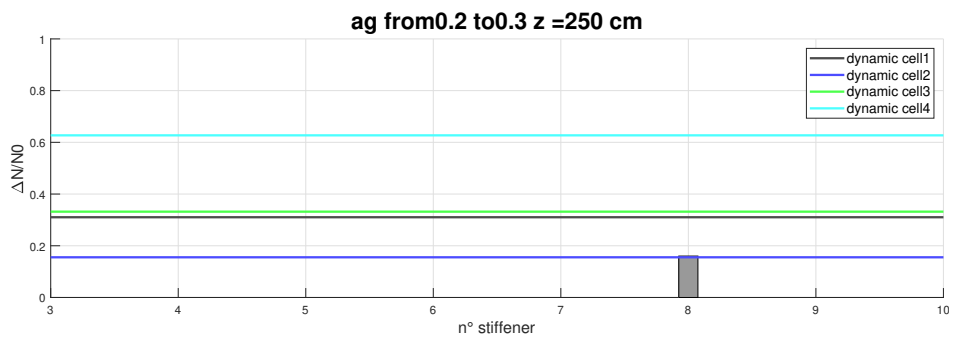
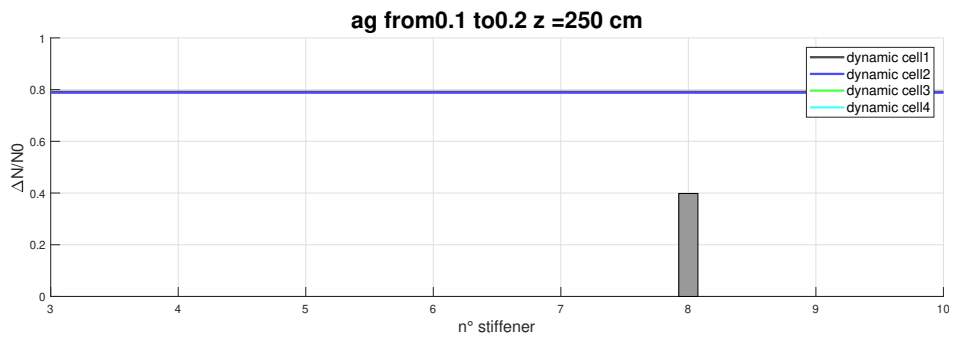
**Quota z = 49 cm**



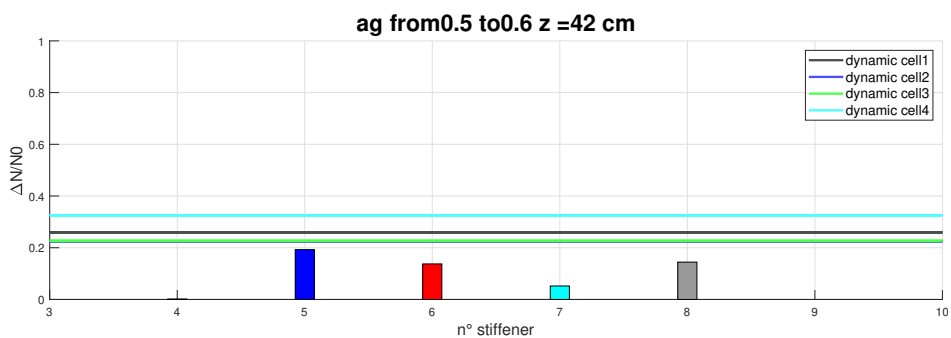
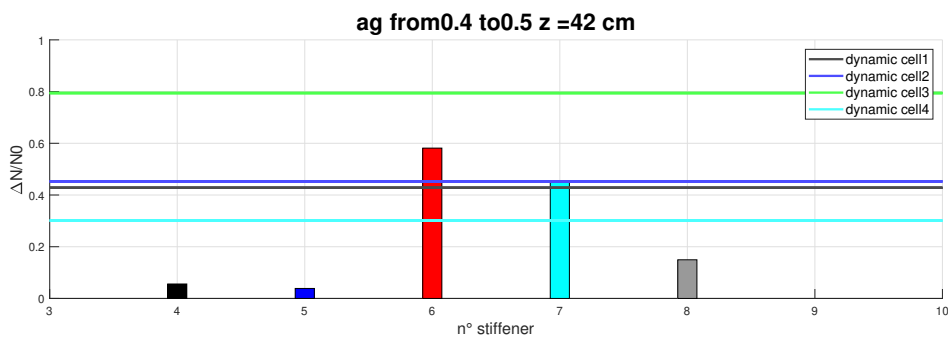
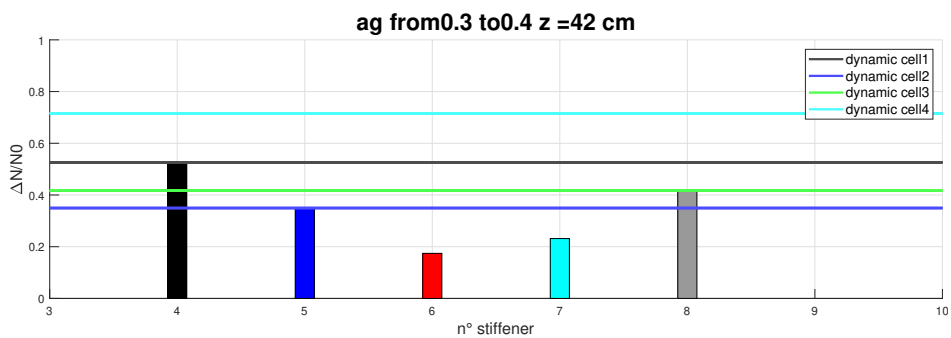
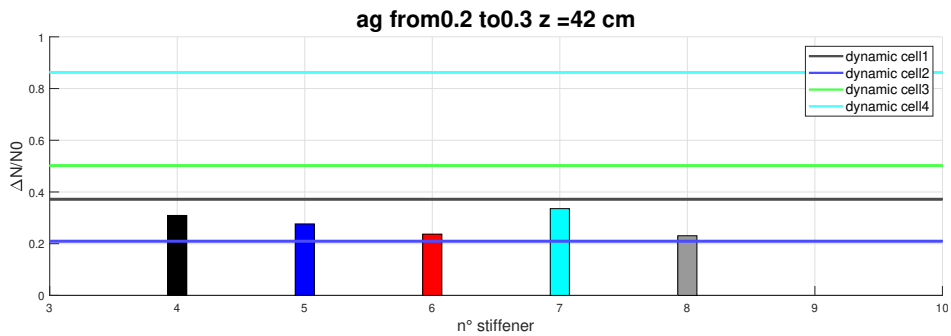
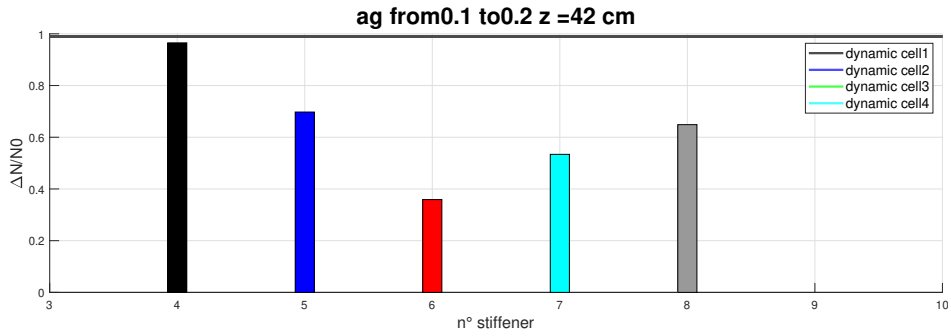
**Quota z = 150 cm**



**Quota z = 250 cm**

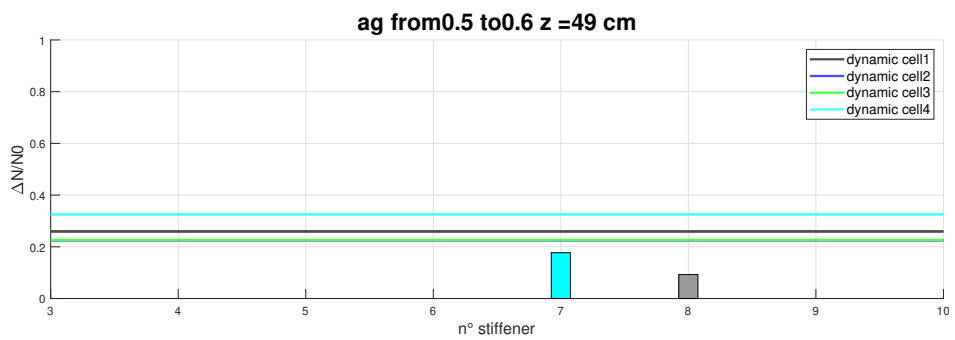
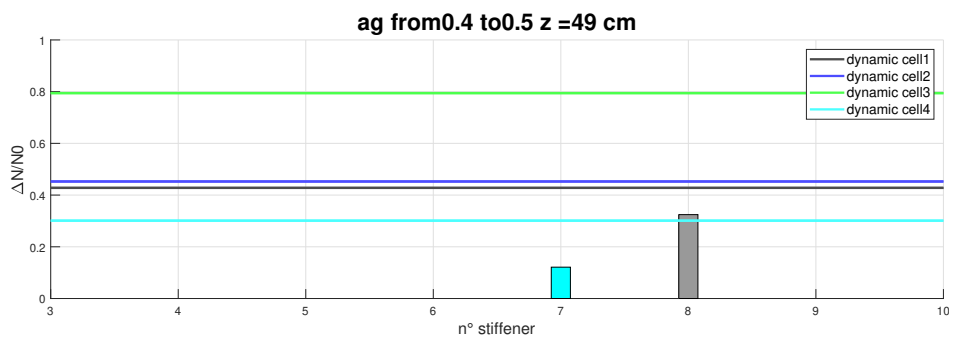
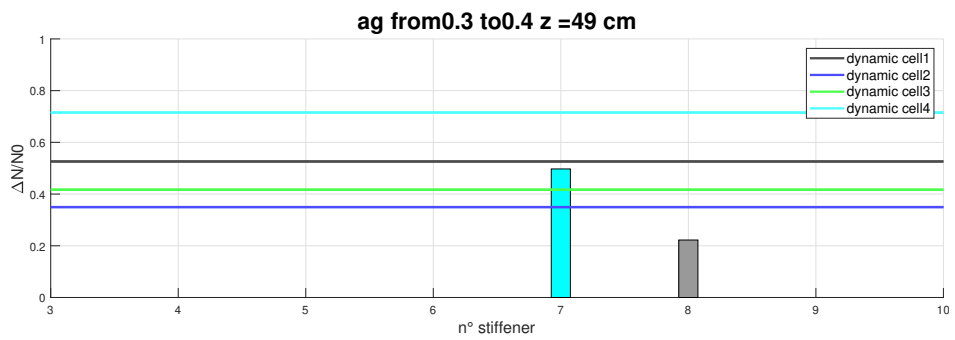
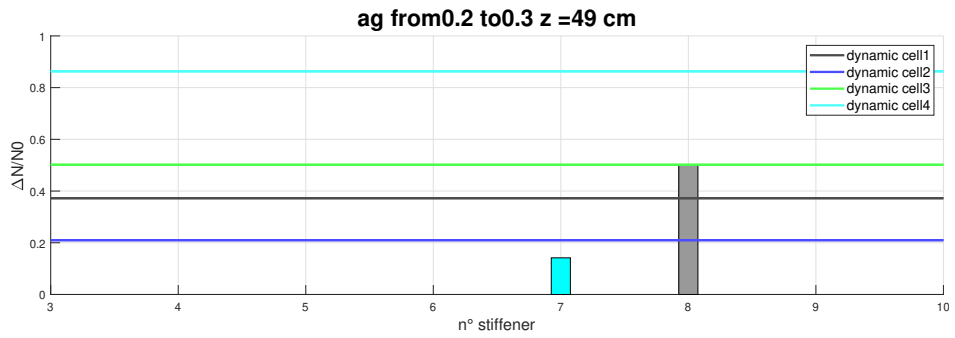
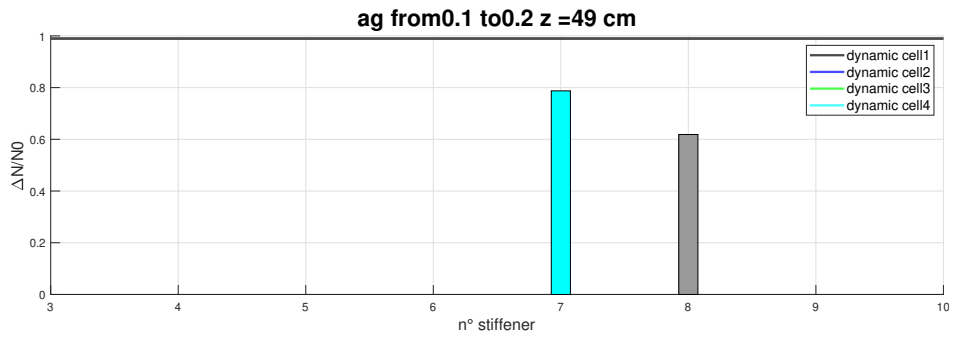


• Terremoto RS1  
Quota z = 42 cm

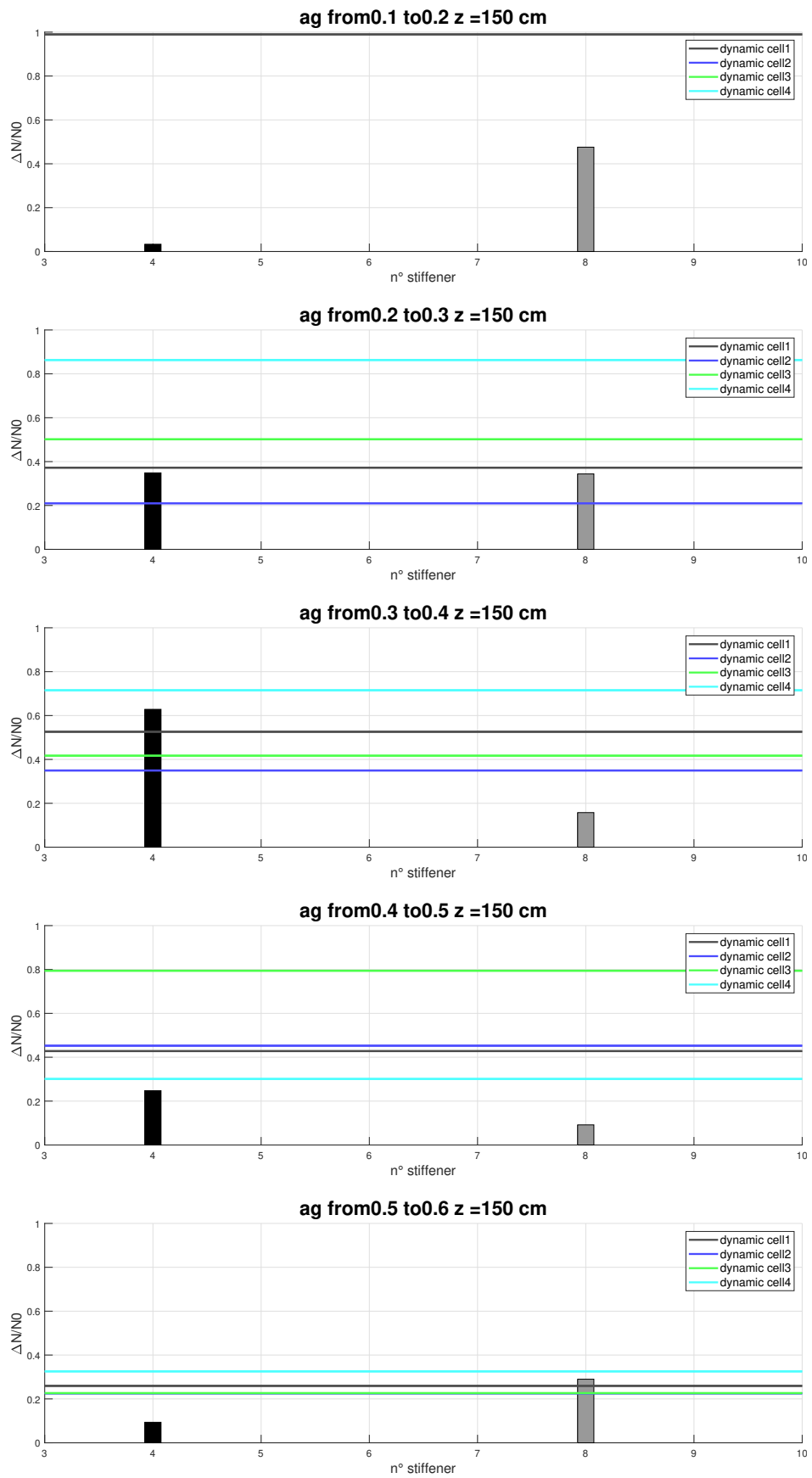




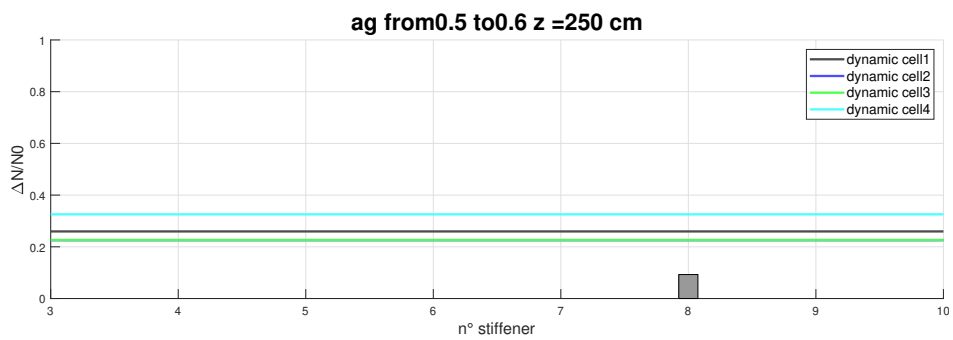
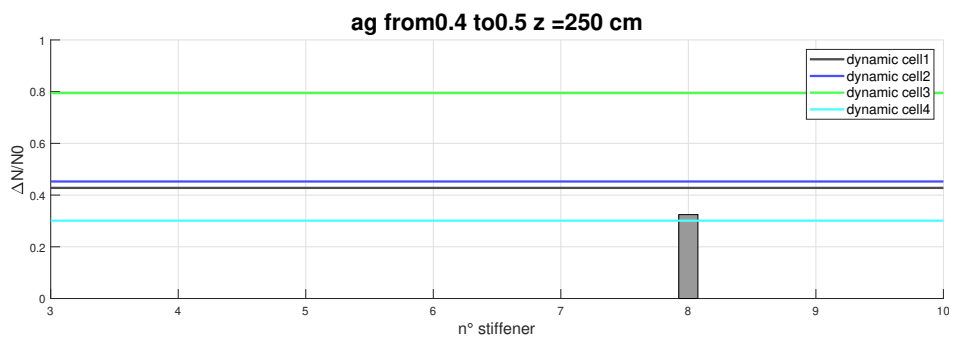
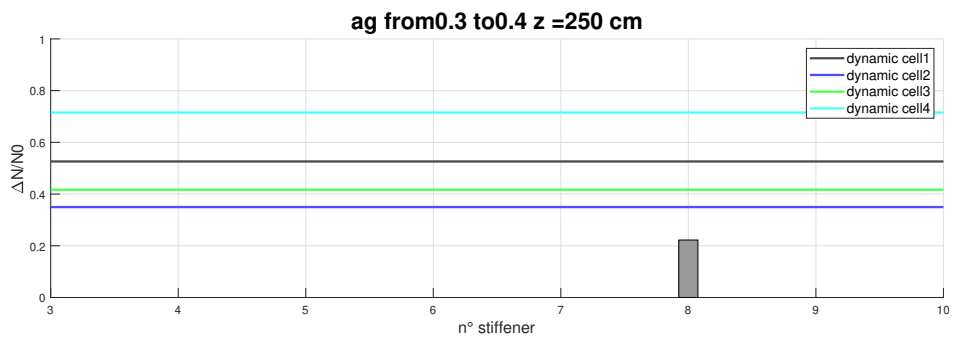
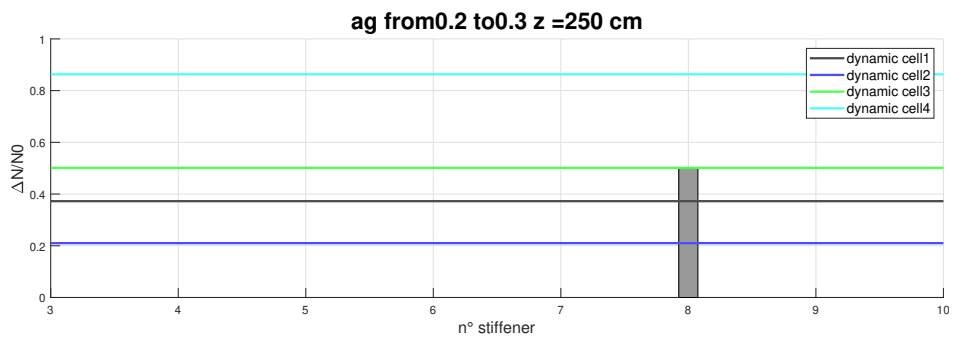
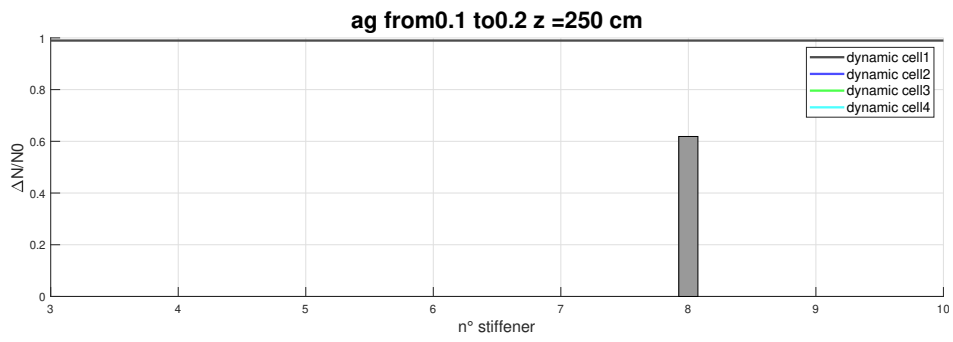
**Quota z = 49 cm**



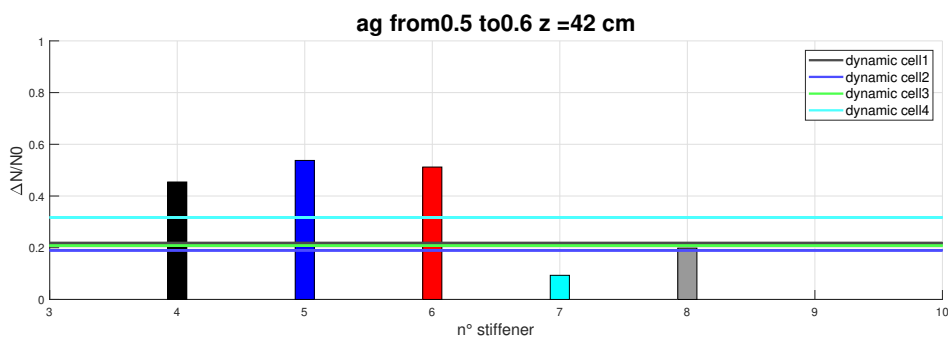
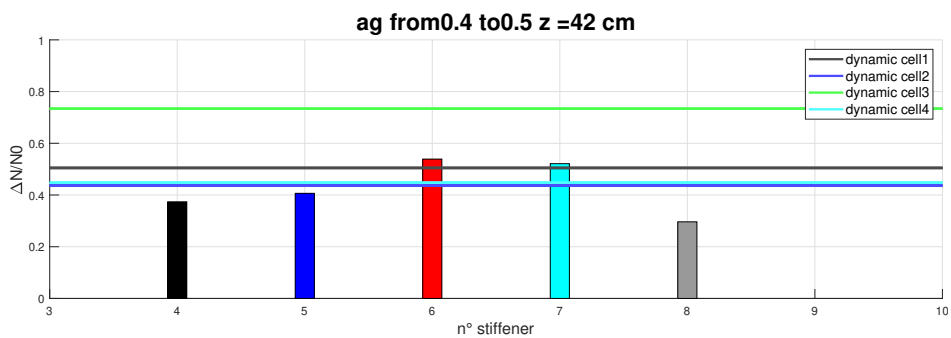
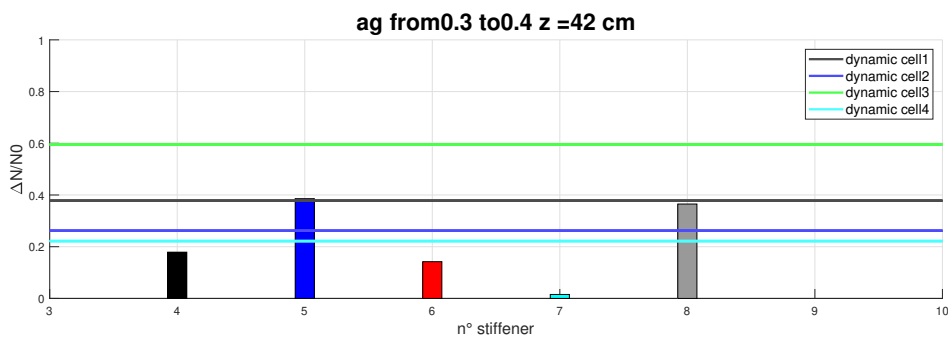
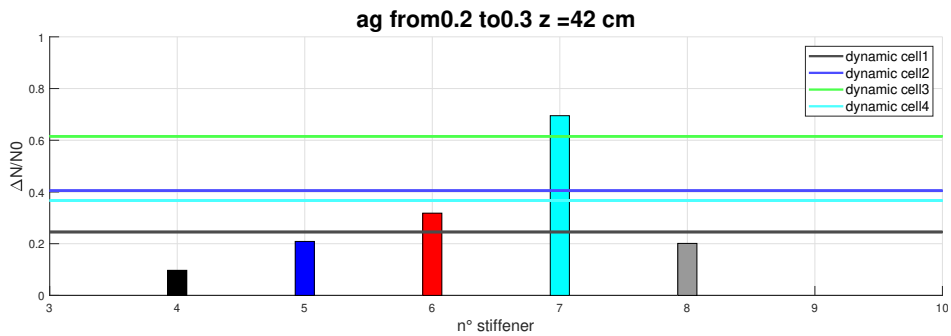
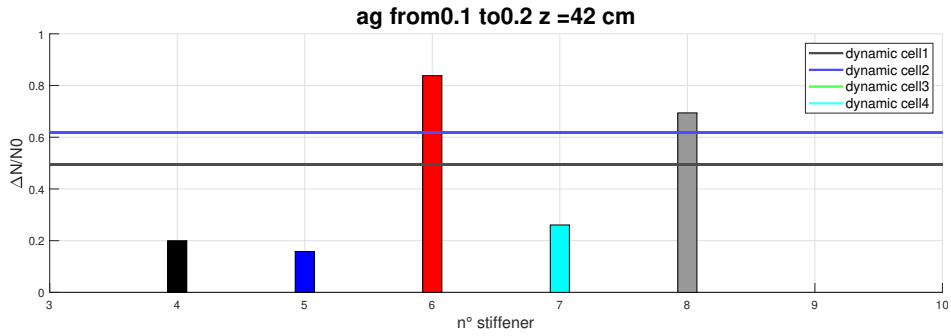
Quota z = 150 cm



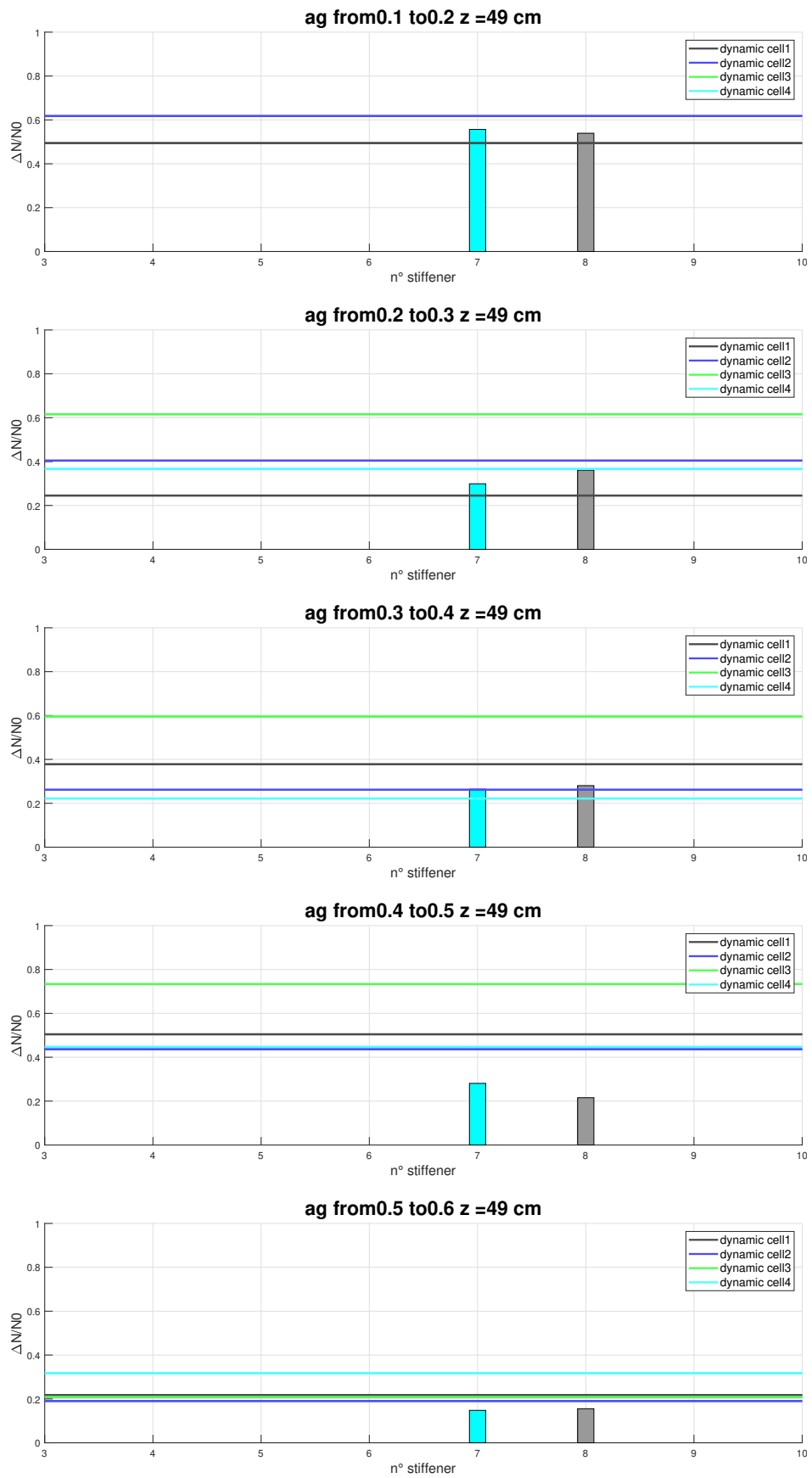
**Quota z = 250 cm**



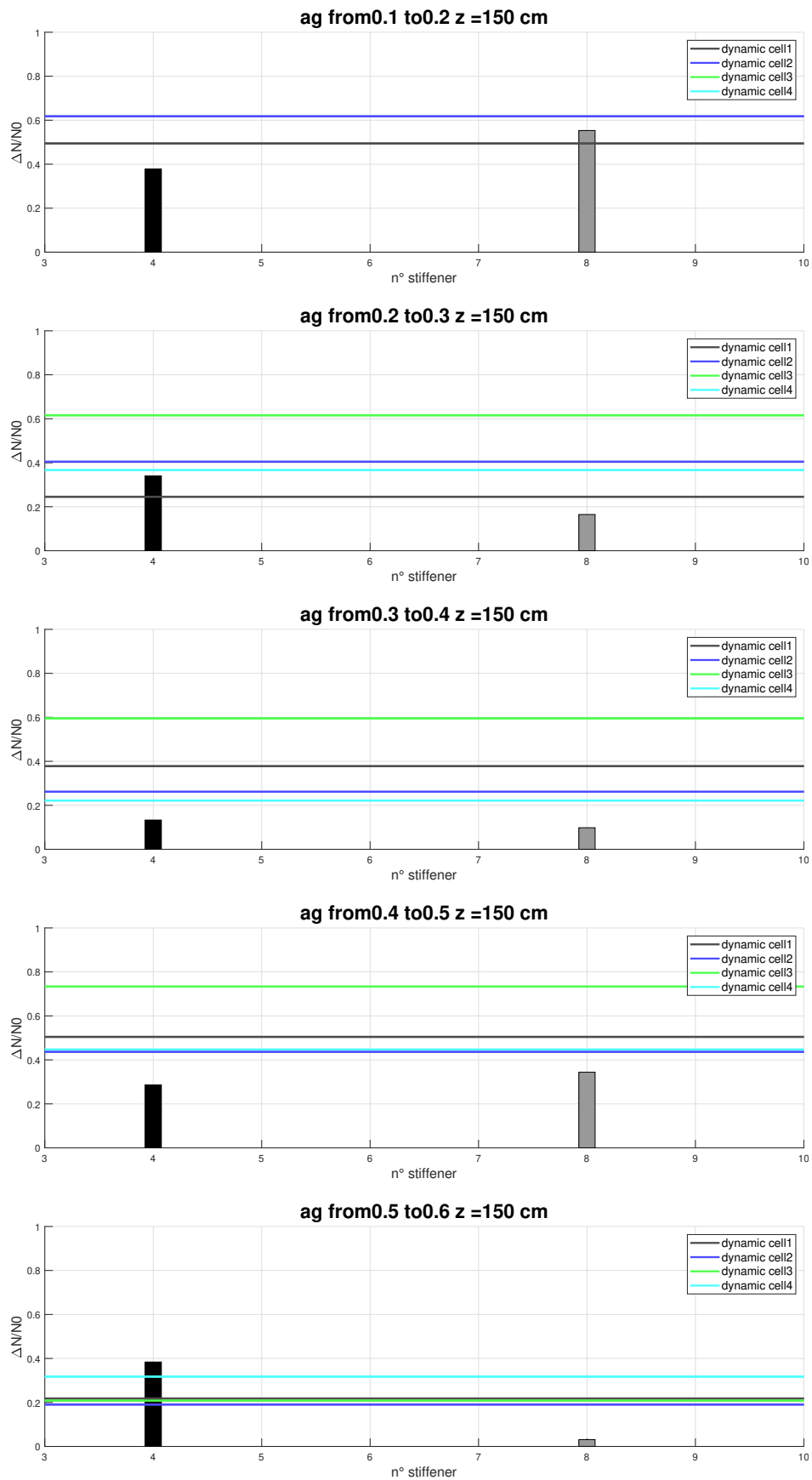
• Terremoto RS<sub>3</sub>  
Quota z = 42 cm



**Quota z = 49 cm**



**Quota z = 150 cm**



**Quota z = 250 cm**

