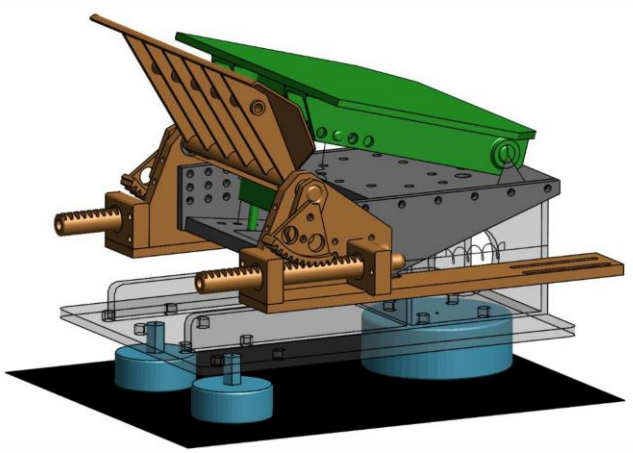
Update semi rigid seat

OSCCAR: Update semi rigid seat



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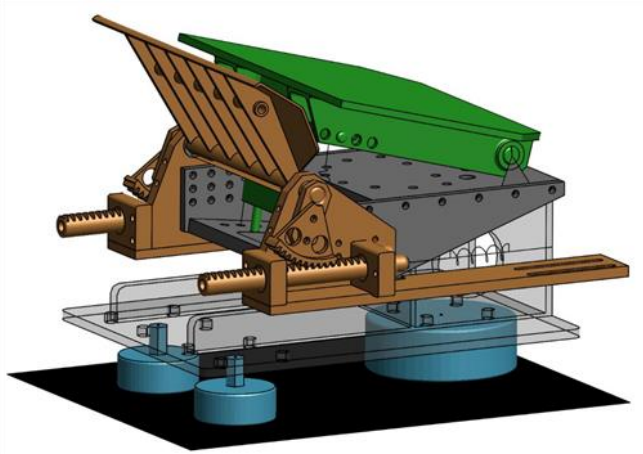
Overview

Modifications with respect to WV model

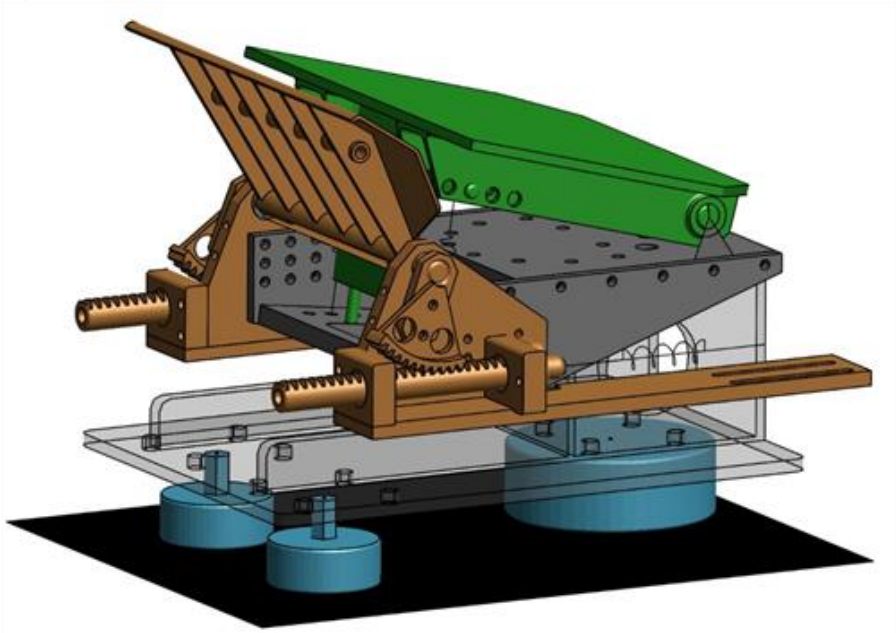


- Topology
  - Added load cell and new floor parts, old base plate removed
  - Seat pan shortened from 300 to 280 mm
  - Positioned as Dyna model
  - Number of TRSFM-Cards reduced from 5 to 3
- Usability
  - Changed initial seat and sub pan angle parameters to be in absolute angles
  - Added sensor cards for the activation/deactivation of the anti-rebound device
- Robustness improvements for VPS working model
  - ACC3D for y-, z-displacement as well as x-, y-, z-rotations replaced by BOUNC_011111 to avoid precision issues

Modification

Activation/Deactivation of anti-rebound device

```
$ Flag to activate/deactivate anti-rebound
$ -------1---------2---------3---------4---------5---------6---------7---------8
PYVAR /        4
NAME Anti-rebound_device_on_off
$ Anti-rebound device (on/off)
$ 0 = off, 1 = on
AntiReb = 1
ar_sen  = 10000.0 * AntiReb
END_PYVAR
$ -------1---------2---------3---------4
$#         ISENS    ITYP IREVFLG  ISOFST
SENSOR/        4       1
NAME Anti-rebound
$#         TSENS
        <ar_sen>
$
$ -------1---------2---------3---------4
$#       IDDELEM   ISENS  ICRIad
DELEM /        4       4
NAME Anti-rebound
        PART    50162    50164
        END
$ -------1---------2---------3---------4---------5---------6---------7---------8
```

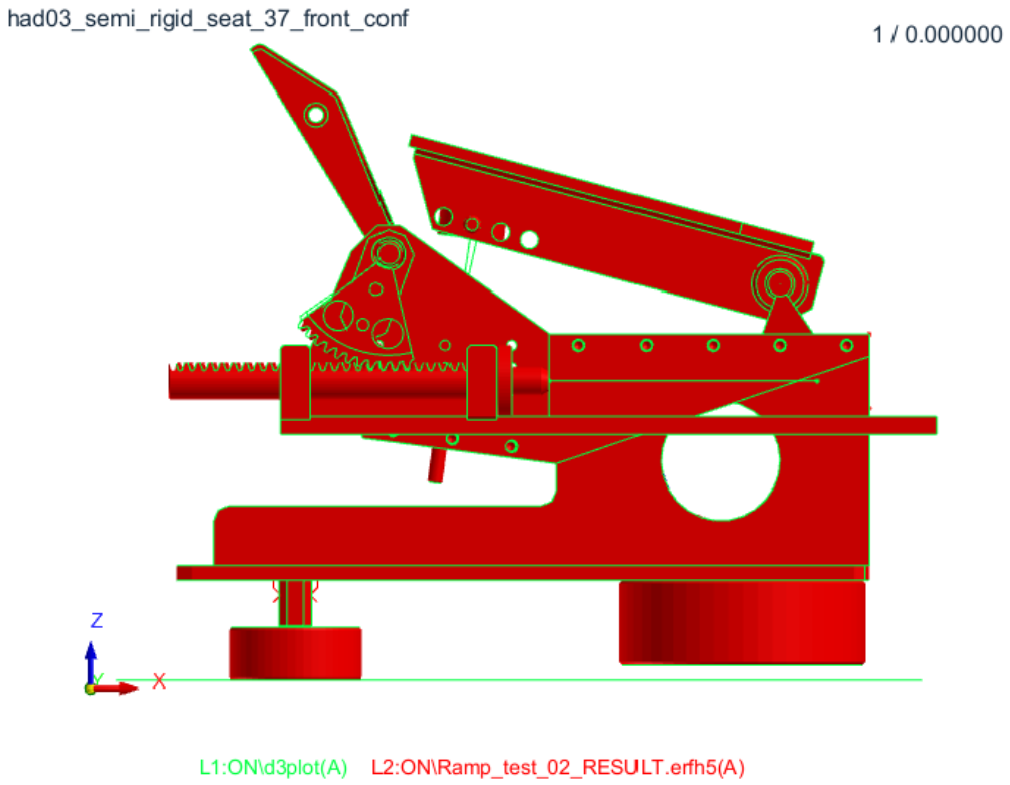


Semi rigid seat: front position

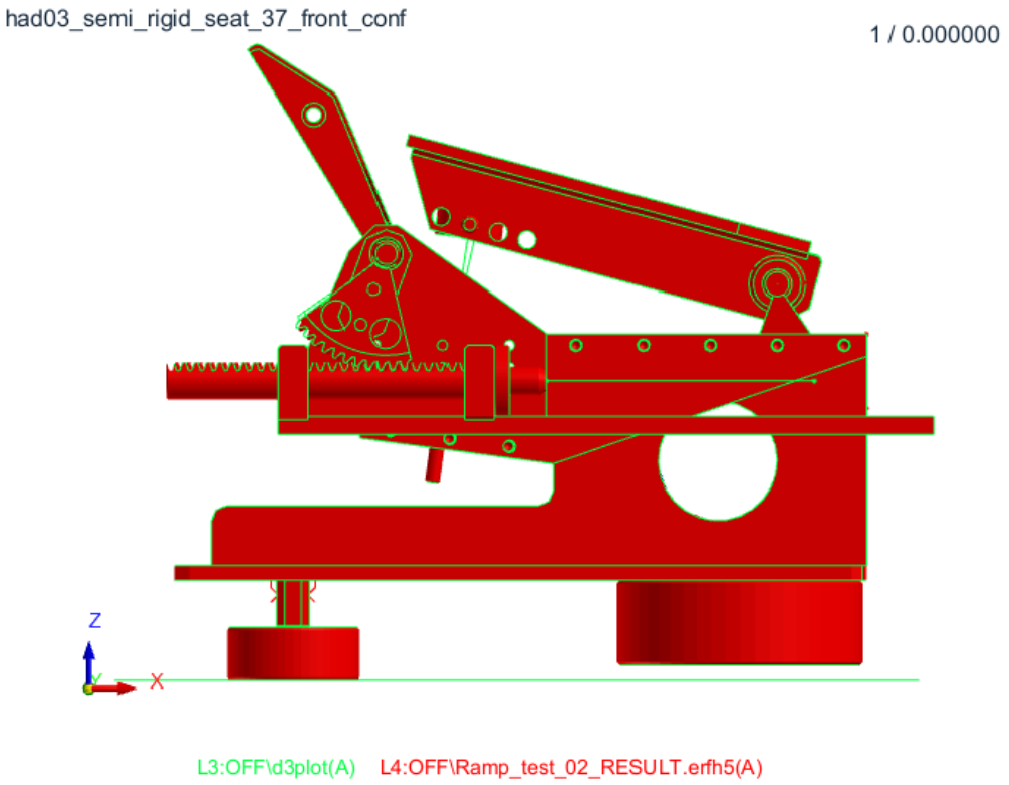
Results comparison animation state Dyna vs VPS at 0ms

Dyna

VPS



Antirebound: ON



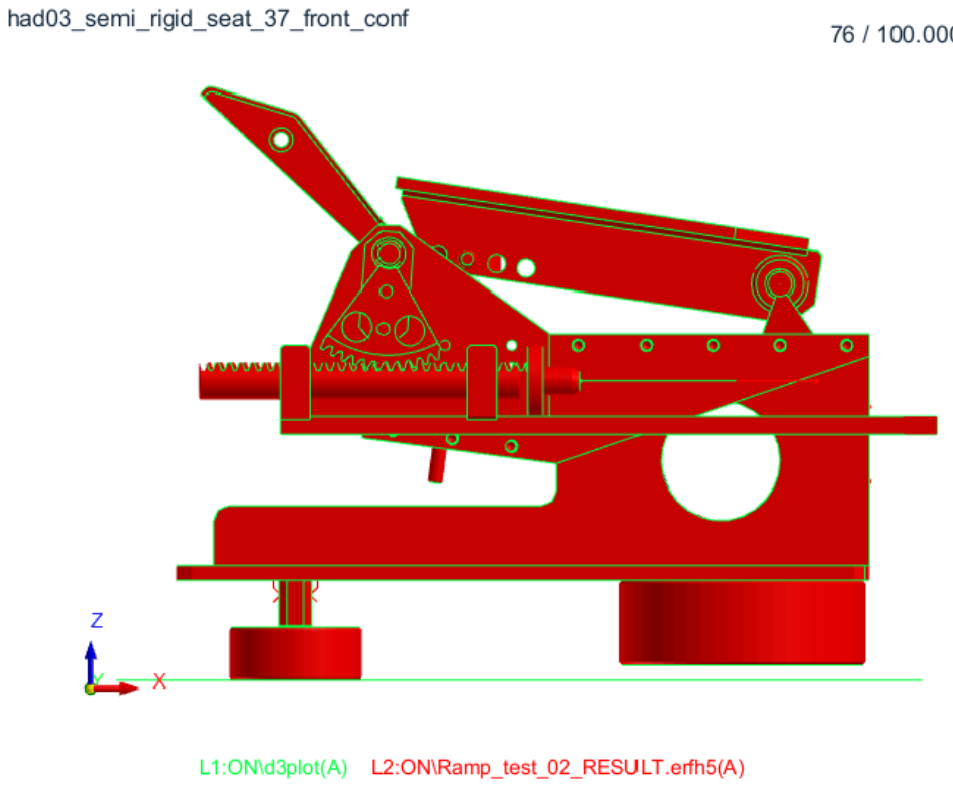
Antirebound: OFF

Semi rigid seat: front position

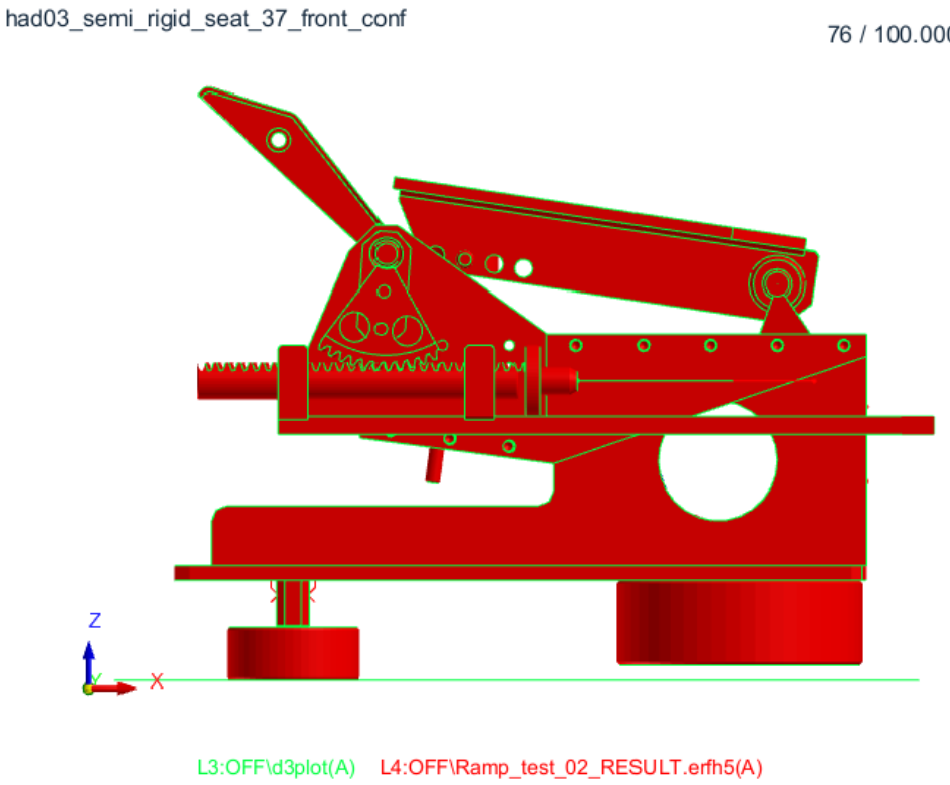
Results comparison animation state Dyna vs VPS at 100ms

Dyna

VPS



Antirebound: ON



Antirebound: OFF

Semi rigid seat: front position

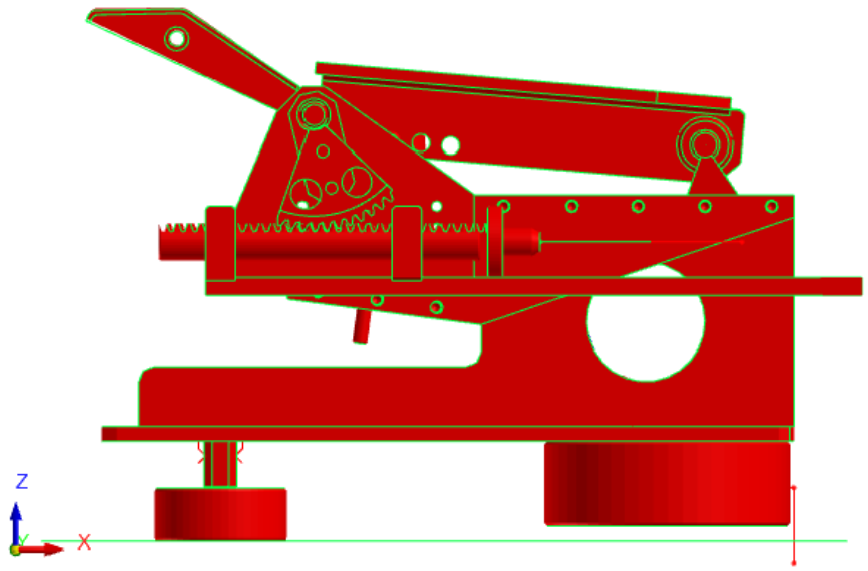
Results comparison animation state Dyna vs VPS at 200ms

Dyna

VPS

had03_semi_rigid_seat_37_front_conf

151 / 200.000488

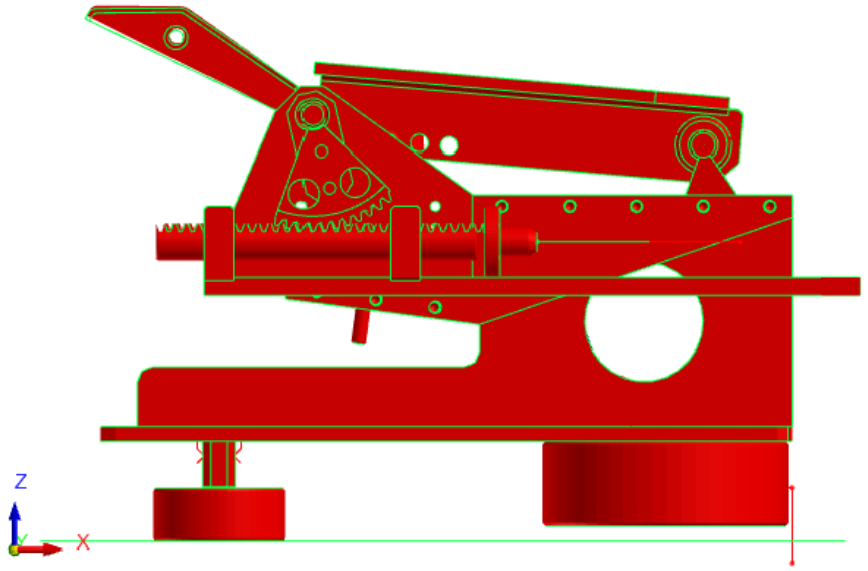


L1:ON\d3plot(A) L2:ON\Ramp_test_02_RESULT.erfh5(A)

Antirebound: ON

had03_semi_rigid_seat_37_front_conf

151 / 200.000488



L3:OFF\d3plot(A) L4:OFF\Ramp_test_02_RESULT.erfh5(A)

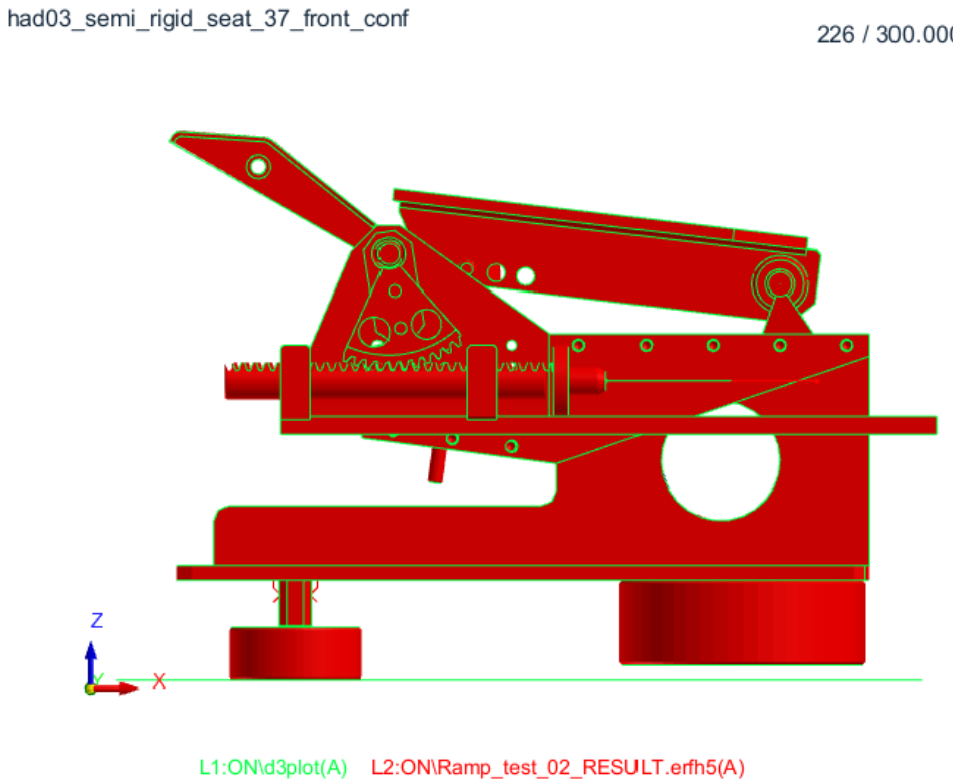
Antirebound: OFF

Semi rigid seat: front position

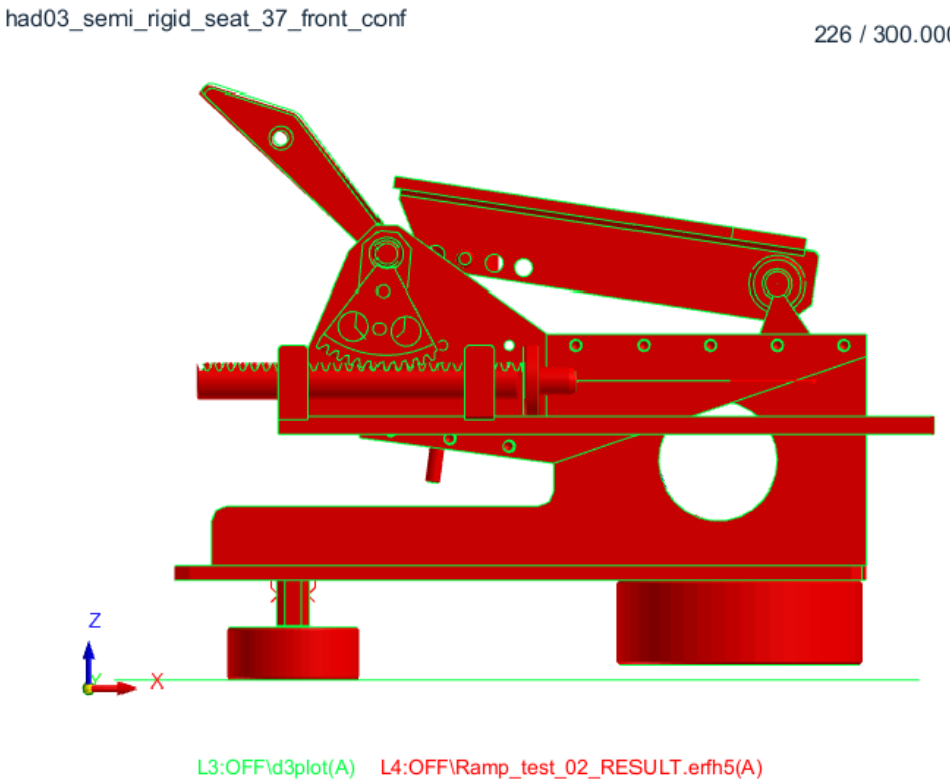
Results comparison animation state Dyna vs VPS at 300ms

Dyna

VPS



Antirebound: ON



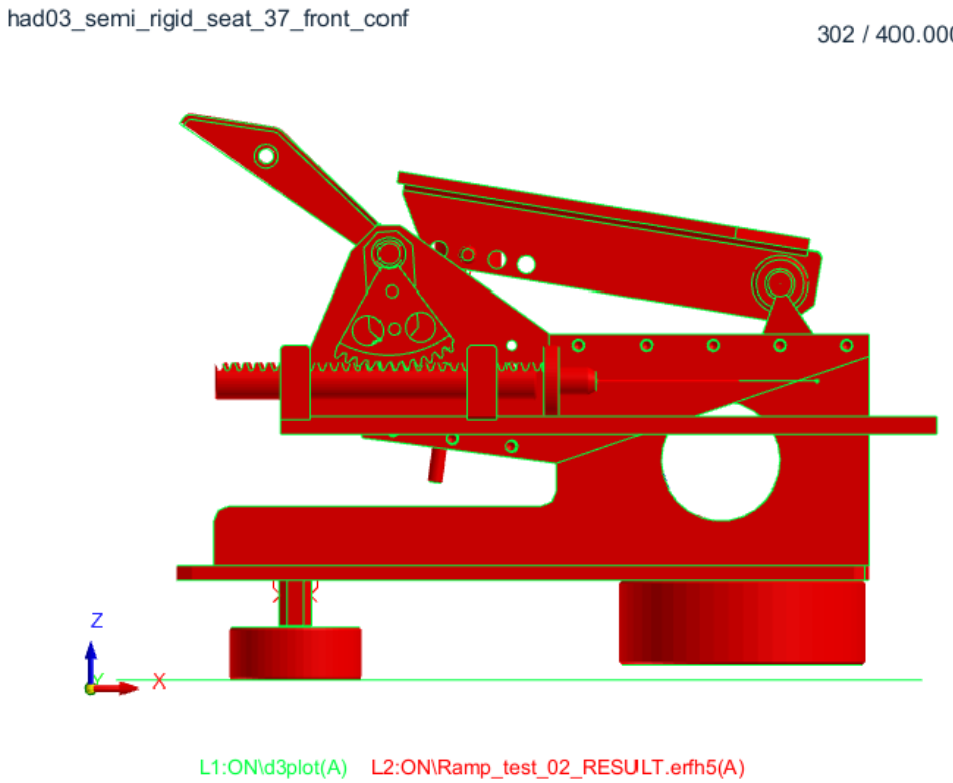
Antirebound: OFF

Semi rigid seat: front position

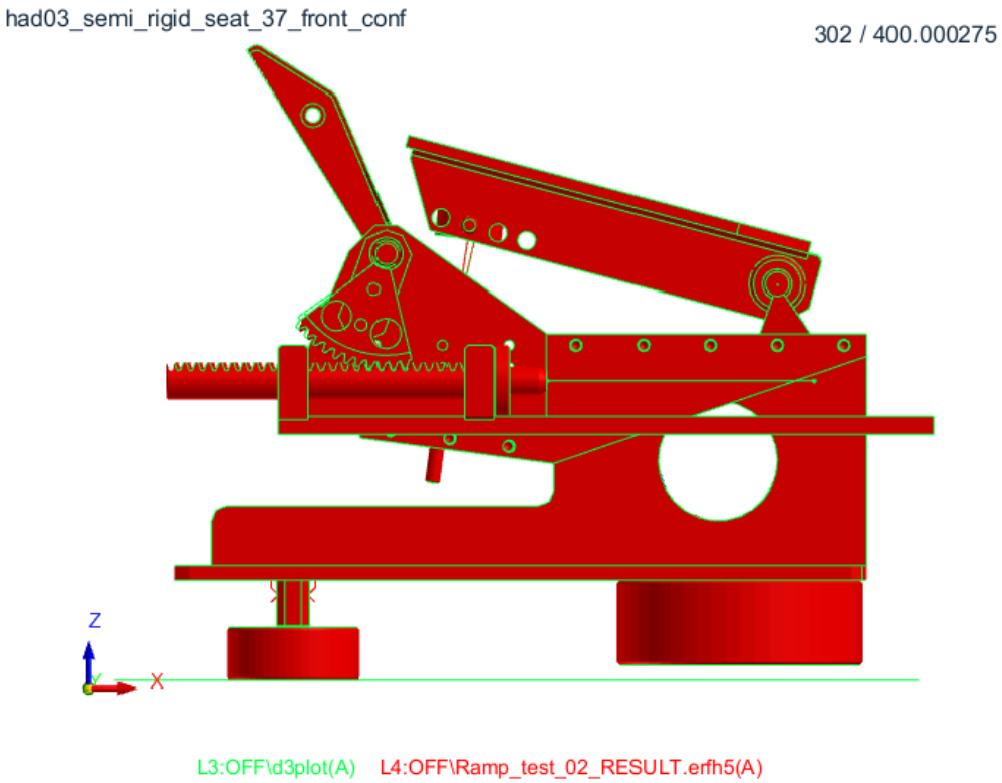
Results comparison animation state Dyna vs VPS at 400ms

Dyna

VPS



Antirebound: ON



Antirebound: OFF

Conclusions

The semi rigid seat has been successfully updated according to the new setup.

Comparison between VPS and Dyna show a good agreement for the following scenarios

1- Semi rigid seat in front configuration with anti-rebound

2- Semi rigid seat in front configuration without anti-rebound