



Prepared for
Virtual Engine Users

VIRTUAL ENGINE 25.2

WHAT'S NEW



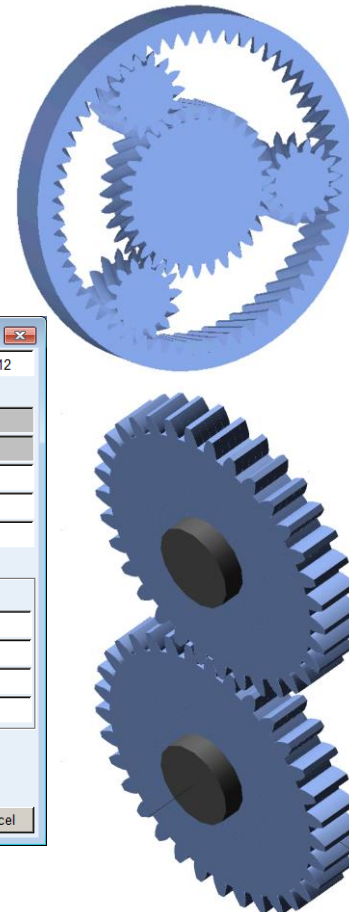
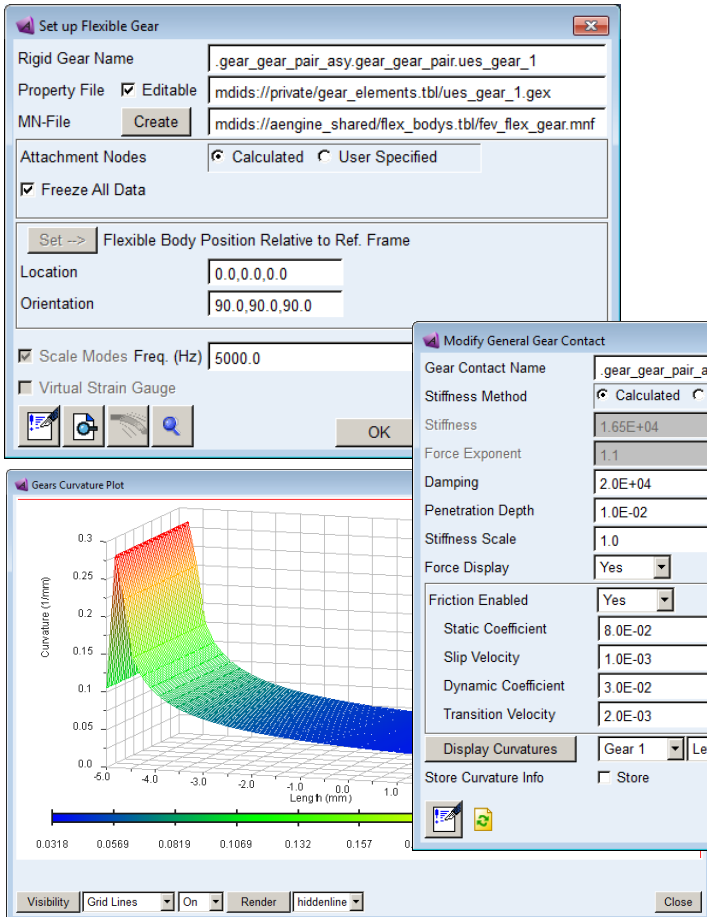
VIRTUALE**ENGINE**

Aachen, 22-Sep-2017
Mustafa Duyar, Product Business Manager



- Released: 25 September 2017
- Virtual Engine **25.2** is based on Adams **2017.2**
- Functional changes:
 - Flexible 3D gear
 - Gear tooth flank modifications
 - Single valvetrain analytical kinematics – pushrod template
 - Shaft UDE

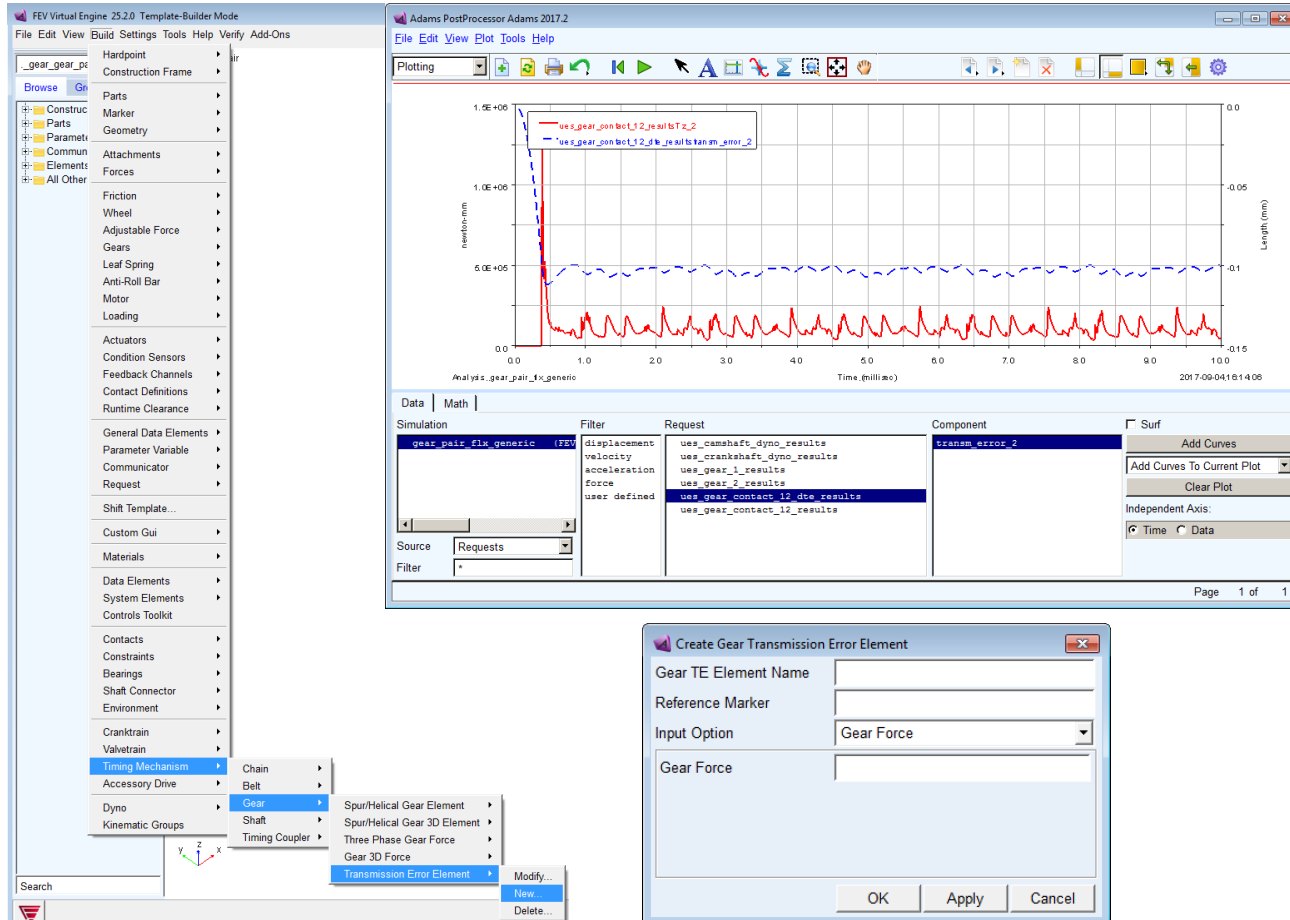
FLEXIBLE 3D GEAR



Highlights

- A new flexible gear type named 'ac_gear_flx' was introduced
- This gear type allows the simulation of gear dynamics where the tooth and base flexibility of a gear is of importance
- The new flexible gear type is based on an MNF
- The flexible gear in its nature supports a full 3D tooth geometry and also considers possible tilting of the gears and deflection of the teeth

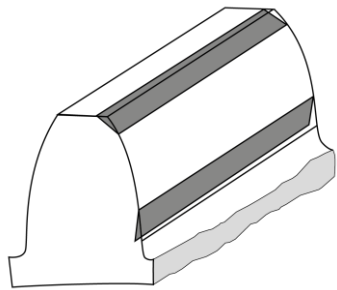
FLEXIBLE 3D GEAR



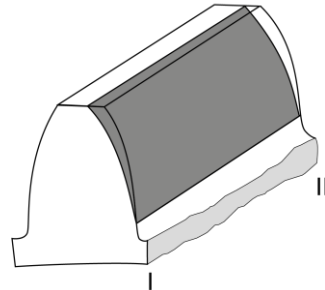
Highlights

- A new UDE named "ac_gear_transm_error" was introduced, which adds a request to a gear force element for the calculation of the dynamic transmission error of the gear pair
- This is of a particular use when working with flexible gears to predict gear whine

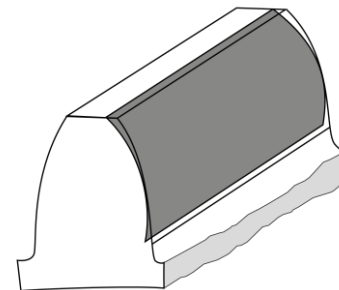
GEAR TOOTH FLANK MODIFICATIONS



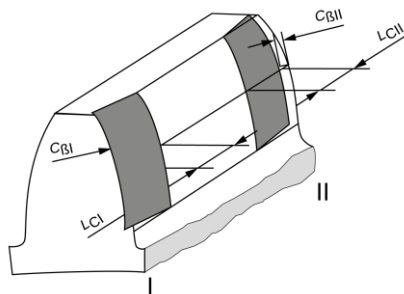
Tip and root relief



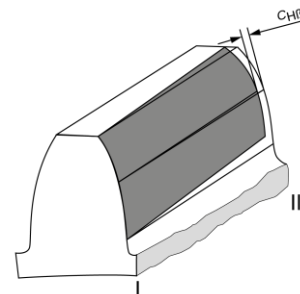
Transverse profile slope modification



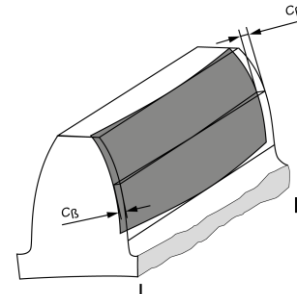
Profile crowning (barreling)



Flank line end relief



Flank line (helix) slope modification

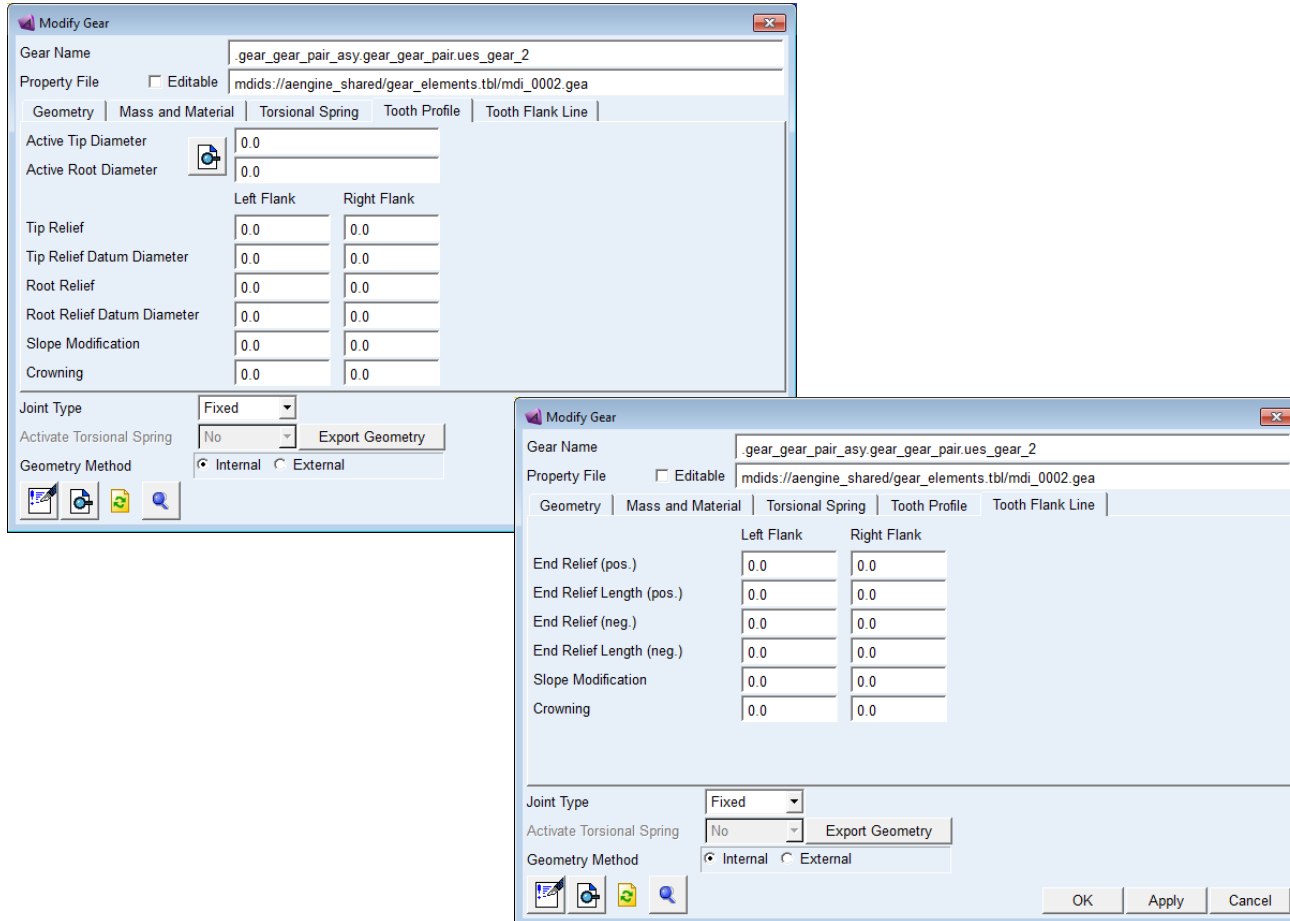


Flank line (helix) crowning

Highlights

- The available gear type named 'ac_gear' is enhanced to include details of the tooth flank micro geometry according to ISO-Standard
- New solid to solid contact was implemented
- Solid to solid contact coops with the full 3D tooth geometry and also incorporates possible tilting of the gears

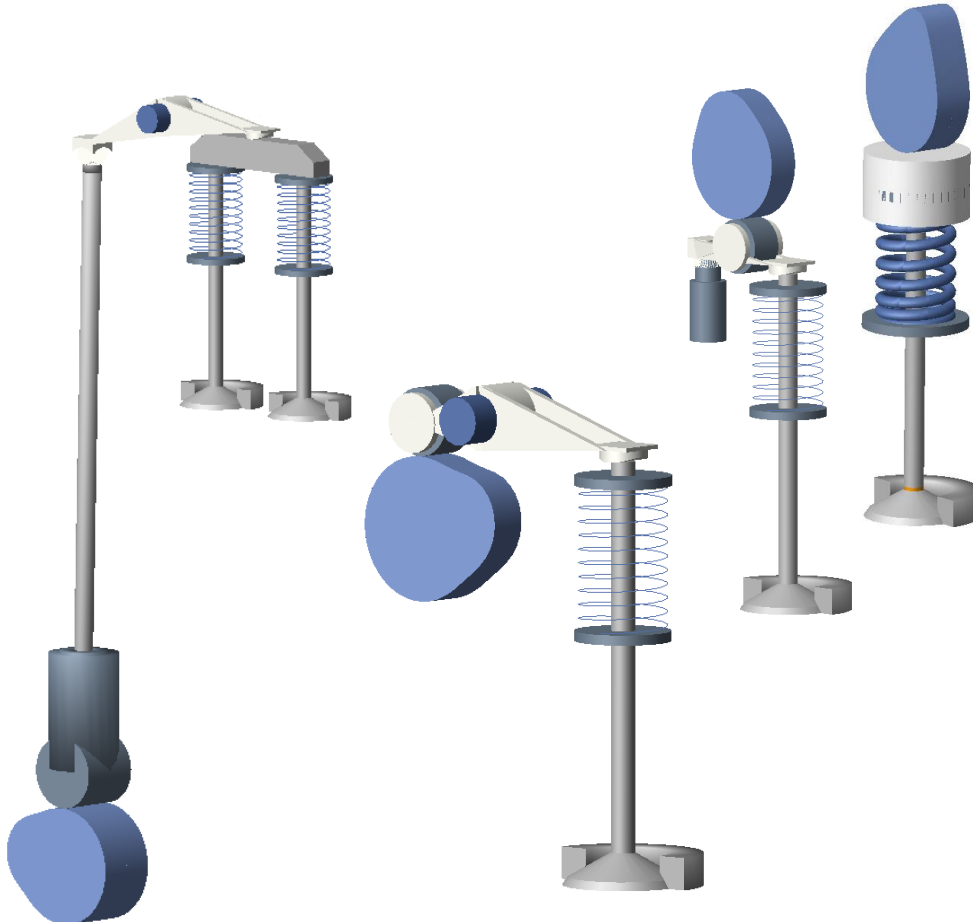
GEAR TOOTH FLANK MODIFICATIONS



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SINGLE VALVETRAIN ANALYTICAL KINEMATICS – PUSHROD TEMPLATE



Highlights

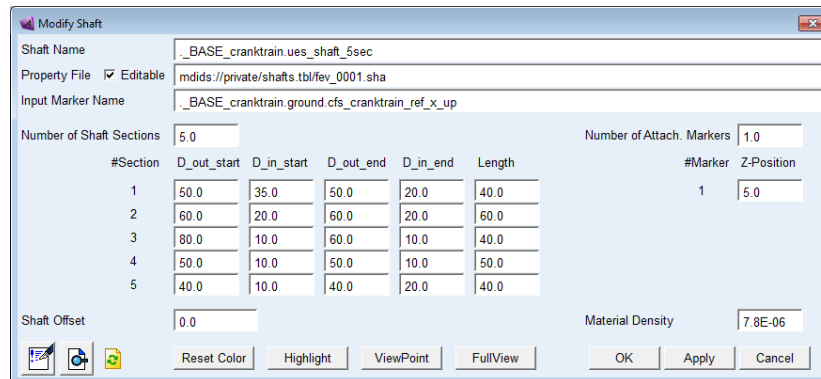
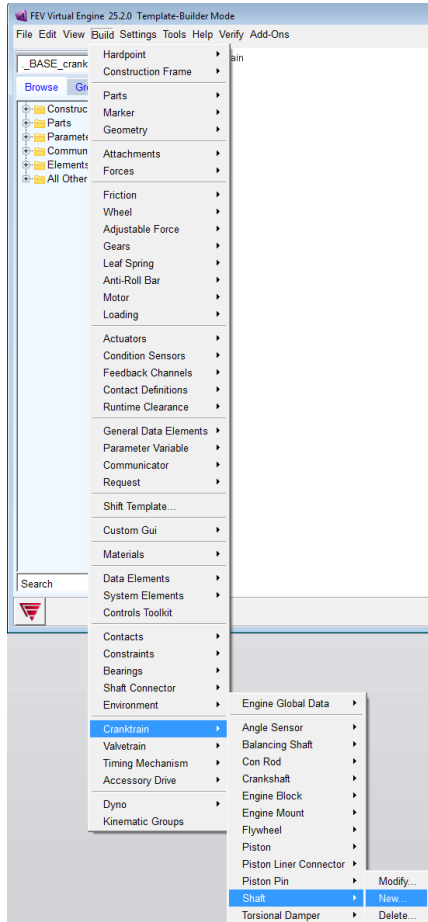
The Single Valvetrain Kinematics analysis has been extended to pushrod valvetrains. This means that the analytical kinematics approach now supports the following valvetrain types:

- Tappet
- Finger Follower
- Rocker Arm
- Pushrod

The tight integration with the Valve Lift Designer allows to create cam contours directly reflecting any change on the valve lift, including an assessment of critical parameters such as contact stress.

The kinematic models with 0 DOF can be turned into dynamic models compliant for analysis in time domain through a simple toggle switch.

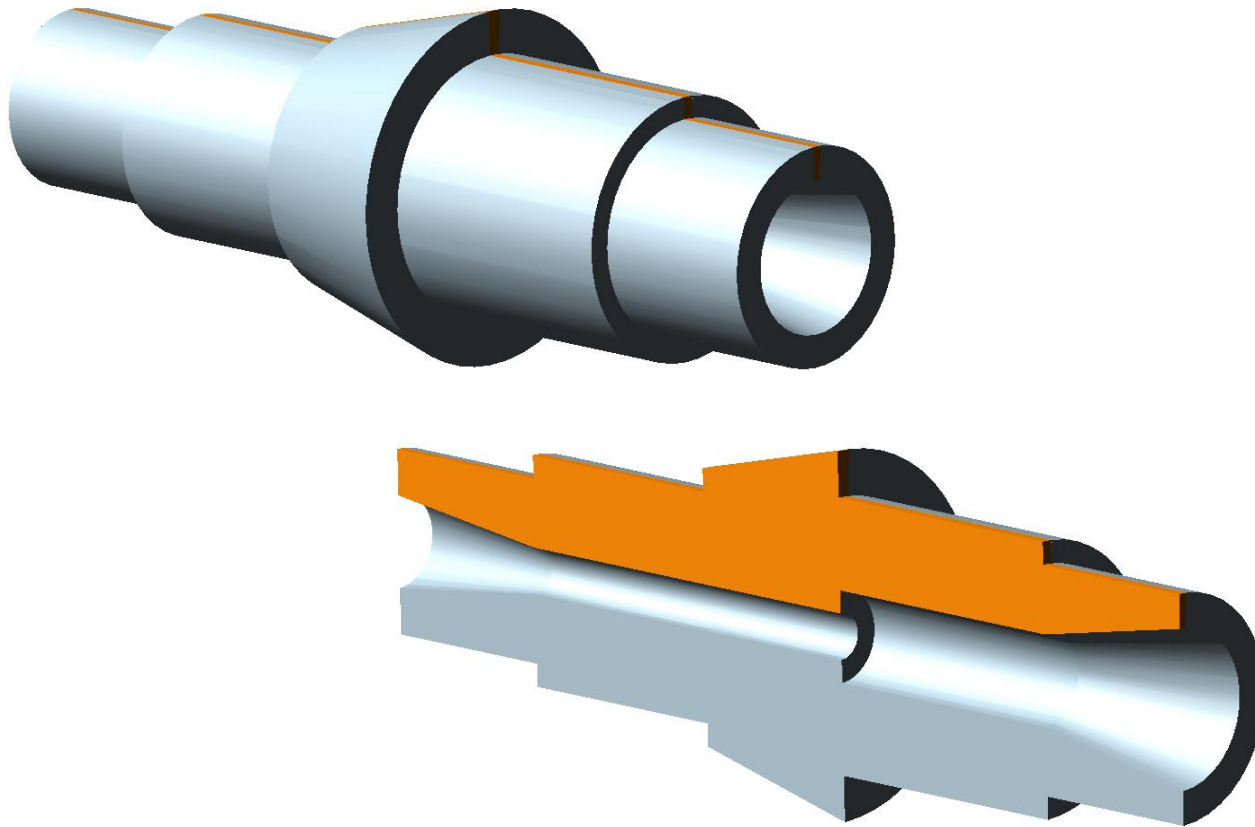
SHAFT UDE



Highlights

- A new UDE is available that allows the detailed modeling of shafts
- Shafts are circular symmetrical parts that can be buildup of several shaft sections
- Shaft sections can have linear varying radii over their shaft length
- Useful step for transmission shaft modeling

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A wireframe globe is positioned on the left side of the slide, partially cut off by the edge. It is composed of a grid of white lines on a light gray background.

Contact details

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