KISSsoft Changelog Version 03/2018 - Service Pack 6

KISSsoft - 3D geometry (STEP interface)

SP 6 - **3D geometry of bevel gear was not working with flat surface at inside**
3D geometry of bevel gear was not working with flat surface at the inner side caused by wrong checking of the distance to the pitch apex.
This is fixed.

KISSsoft - Bearing calculation

SP 6 - **Correction of the standard DIN 31652-2:2019 added**
New correction for the radial journal bearing calculation according DIN 31652-2:2019. We corrected the changed formula in the calculation.

SP 6 - **Eccentricity and diametral clearance was wrong for DIN 31652**
For the radial journal bearing according DIN 31652 the eccentricity and the diametral pitch had a value which was the double of the real value.

SP 6 - **Calculated limited lifetime changed to 1*10^6**
We changed the maximum value of limited lifetime displayed for bearings from 2*10^6 to 1*10^6. This change has an influence on the reliability calculation results.

KISSsoft - Gear calculation

SP 6 - **Helix angle modification on gears with tooth end chamfer**
The effective helix angle of the helix angle modification for gears with tooth end chamfer was slightly incorrect. Before the fix, the total facewidth of the gear was used (including the chamfer), now only the facewidth without the chamfer is used. The tooth form might be changed slightly.

SP 6 - **Tooth thickness reference line sP0 for hobbing cutters**
Tooth thickness reference line sP0 for hobbing cutters was not considered correctly for planetary systems (Z14), for 3 gears (Z15) and for 4 gears (Z16). Only the first gear (pinion) in each calculation was not affected. This is now fixed.

SP 6 - **For gear materials introduced by own input, the quality class according ISO 6336-5 wasn't saved**
For own gear materials the quality class according ISO 6336-5 (ML, MQ,..) wasn't saved, the value was set to 'Undefined'.

SP 6 - **System inertia calculation**
The system inertia was not calculated correctly for planetary systems with number of planets > 1. It was also not calculated correctly for 3 and 4 gear chains with multiple strands (>1). This is now fixed.

SP 6 - **Topping tool tip radius coefficient not considered for worms**
Topping tool tip radius coefficient was not considered in the tooth form of the worms (KISSsoft module Z80). This is now fixed.

SP 6 - **Root form diameter from tooth form for worms**

In some cases with 1 tooth on the worm, the root form diameter from the tooth form was not calculated and shown correctly in the graphics. This is now fixed.

SP 6 - **Factor ZL according ISO or DIN**
According ISO6336 and DIN3990 for factor ZL the sigHlim-value of the softer material has to be used. Up to now, the lower sigHlim was used. This corresponds in 99.9% of the cases also with the material having the softer surface. This is now changed, the sigHlim-value of the softer material (in terms of HB, HV or HRC) is used.

SP 6 - **Marker A and E were missing in some LTCA graphics**
If the x axis was set to diameter, the marker A and E were missing in the diagrams of the contact analysis.

SP 6 - **Proposal for profile or flank line modifications not working with torsion from shaft (using Annex E)**
Proposal for profile and flank line modifications (Tab Modifications) was not considering correctly the case (if Annex E was used), when shafts were used and torsion was calculated from a shaft file. This is now fixed for Z12, Z15 and Z16 modules.

SP 6 - **Fine sizing of bevel gear gives wrong values in the table in some cases**
Fine sizing of bevel gear has an error in the result table, when the input of module or diameter selection in basic tab is different from the input in fine sizing window.
This is fixed.

SP 6 - **Problem with change of center distance due to bearing offset in shaft calculation**
Operating backlash calculation and contact analysis did not take effect of a center distance change introduced by a bearing offset in the shaft calculation. This is fixed.

SP 6 - **Planet carrier STEP model always shows the flange on side II for single-walled planet carrier**
An imported planet carrier STEP model always shows the flange on side II for single-walled planet carrier even the torque is assigned from side I.
This is fixed.

KISSsoft - Graphics

SP 6 - **Transmission error of planet was wrong in seldom cases**
In cases where the transmission error was calculated as angle of the gear instead of a length on the path of contact, the transmission error of the planet/rim meshing was wrong. This is fixed.

KISSsoft - Root stress FEM calculation

SP 6 - **Loaded flank selection in FEM root stress calculation.**

The loaded flank was not passed correctly in the FEM root stress calculation. This is more important (and becomes obvious) in asymmetric gears. This is fixed.

SP 6 - **The maximum root stress is not documented correctly for inner gears using FEM**
The maximum root stress of inner gears was not documented correctly in some cases, when using FEM (i.e. a higher stress may existe).

KISSsoft - Shaft calculation

SP 6 - **Journal bearing element in shaft calculation did not consider the sense of rotation**
The journal bearing element in the shaft calculation did not consider the sense of rotation of the

shafts attached to it. Thus the load application angle was wrong for cases where the resulting sense of rotation was not clockwise.

SP 6 - **Sense of rotation update in shaft overview**
If the system sense of rotation was changed in tab basis data, the corresponding value in the shaft overview was not updated.

SP 6 - **Pressure angle of serialized bearings was not imported correctly in shaft module**
When opening a shaft project that containes serialized user defined bearing data, the pressure angle was not correctly imported when reading a file that was created with KISSsoft 03-2017 earlier.

SP 6 - **Shaft indices of connecting elements were not updated correctly after deleting a shaft**
The shaft selection for connecting elements did not show the correct shafts after deleting a shaft in the system.

SP 6 - **Small correction in the mode shapes of coupled vibrations.**
In some cases of coupled vibrations (coupled axial, bending and torsion), the resulting mode shapes were not that accurate, resulting in a wrong characterization of the mode shape.

KISSsoft - Splines calculation

SP 6 - **Rotation of tooth form in the graphics for splines**
Rotation of tooth form in the graphics windows is activated for splines.

SP 6 - **Opening old version of a spline file**
Opening an older version of a spline calculation file did not work in cases, when the calculation method was set to DIN and reference profile of the gear was set to own input. This is now fixed.

KISSsys - General

SP 6 - **Added new results Lnh, Lnmh, Lnrh, Lnmrh, P and P0 for each bearing**
Created a new method that returns all results Lnh, Lnmh, Lnrh, Lnmrh, P and P0 in each bearing element, when available through internal geometry calculation. The variables are created after running the shaft calculation for the first time, or just opening it.

SP 6 - **Efficiency template - new direct input for Ventilated housing area**
In Ventilation inputs, the user can now directly set the ventilated housing area (Aair) instead of defining a ventilated normal surface. Thermal rating report updated with new inputs as well.

SP 6 - **Efficiency template - new selection housing area w/ or w/o bottom**
In the settings of ISO 14179-2, the user can now select if the housing area (Aca) should include the bottom surface or not. It is always disabled when foundations are considered. The fins total area (Afin) is now also always added to Aca (fixed issue for Qca calculation). Thermal rating report updated with new inputs as well.

SP 6 - **Efficiency template - shafts temperatures can now be different from oil temperature**
A new input was added in Lubricant to allow the user to connect and set a ratio between shafts and oil temperatures. Thermal rating report updated with new inputs as well.

SP 6 - **Transfer of the belt/chain forces to the shaft calculation**
The belt and chain tension forces were so far not transferred to the shaft calculation. We now transfer the sum of forces calculated in KISSsoft belt/chain module, and the direction of the force

calculated in KISSsys, based on the pulley configuration.

SP 6 - **New method to animate an imported step file**
It is now possible to animate an imported step file (like for example a wheel, propeller, ...). The user can use the method SetRotation from the casing element to define the boundary and the local rotation axis.

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KISSsoft - 3D geometry (STEP interface)

SP 5 - **IMPROVEMENT: STEP export settings can be added in kiss.ini for 3D geometry**
STEP export settings can be added in kiss.ini for 3D geometry using Parasolid

[STEPEXPORT]
STEPUNIT=mm
STEPFORMAT=AP203

Available settings for STEPUNIT
- mm or millimeters (default), m or meters, cm or centimeters, ft or feet, in or inches

Available settings for STEPFORMAT
- AP203 (default), AP214

KISSsoft - Bearing calculation

SP 5 - **KISSsoft crashed when adding a gear mesh to the elastic inner ring definition**
In the bearing inner geometry calculation module, adding a gear mesh to the elastic inner ring definition caused KISSsoft to crash.

SP 5 - **Bearing reaction of tapered roller bearings was not zero for zero displacement in selected cases**
In some cases, the bearing reaction of tapered roller bearings was small but not zero for an input of zero displacement. This was due to an inaccuracy in an iteration loop.

KISSsoft - Bolt calculation

SP 5 - **Influence from the extension sleeves to the resilience calculation corrected**

In the calculation of the resilience of the plates, the length of the extension sleeve was included. This is corrected.

KISSsoft - CAD interface

SP 5 - **Siemens NX: Interface to NX 1847**
Interface to Siemens NX 1847 implemented.

SP 5 - **CAD system addin: if you close KISSsoft the license will be released again**
If KISSsoft was opened from the addin in a CAD-system, a KISSsoft license was used.
If KISSsoft is closed, the license should be released again. This did not work properly.

SP 5 - **IMPROVEMENT: Curves in the flank line diagram can be saved**
The curves in the flank line diagram graphic can be saved now. Either as coordinates in a text file or in the diagram directly.

SP 5 - **Not possible to calculate profile shift for the pinion type cutter**
In the user interface in the tab Reference profile, it was not possible to calculate the profile shift for the pinion type cutter.
The problem was limited to the planetary gear calculation and 3 and 4 gear chains. This is fixed now.

SP 5 - **Problem with face load factor calculation in modification sizing**
The modification sizing tool had a problem with KHb calculation. This happened, if the axis deviation was defined by constant and proportional factors for ISO 6336-1 Annex E calculation. This leads to wrong face load factor results.The results of the LTCA were not affected. This is fixed.

SP 5 - **Problem with importing modifications into tab 'Modifications'**
Only importing modification sets of the first gear, found with the 'Modifications sizing' dialog, into tab 'Modifications' was possible. This is fixed.

SP 5 - **Convert protuberance angle in tab Tooth form**
Converting protuberance angle was not working in the tab tooth form for operations 'Generate cylindrical gears with pinion type cutter' and 'Manufacture cylindrical gear with a gear generation process'. This was not working in cases when the normal module in the tab Tooth form was different to the normal module in tab Basic data.

SP 5 - **KHb according ISO6336, annex E: Equivalent linear misalignment of the shafts**
Calculation of the 'equivalent' linear misalignment of the shafts: In the special KHb-Report, if the left flank is in contact, the sign of $f_{\Sigma\beta}$ was inverted. This is fixed.

SP 5 - **IMPROVEMENT: Additional results in modification sizing**
The overlap, total contact ratio under load and sound pressure level according to masuda was added to the result table of modification sizing with contact analysis.

SP 5 - **Problem with flankline modification (via tab 'Modifications') with shafts**
The flankline modification sizing (via tab 'Modifications') with shafts according to ISO6336-1, Annex E, was giving wrong results in some cases. This is fixed.

SP 5 - **Wrong speeds for bevel gear calculations with carrier speed definition from KISSsys**
When creating a differential model in KISSsys, the speed definition of the bevel gears were correctly set in KISSsoft, but wrongly considered for the strength calculation because of the additional carrier speed definition. This is now fixed.

SP 5 - **Problem with face load factor calculation in planetary systems**
The face load factor calculation, according to ISO 6336-1, Annex E, with shafts was giving wrong results starting from the 2nd planet in planetary systems. This is fixed.

SP 5 - **Safety hardened layer according DNV-rule**
When using duty cycles, the safety SEHT displayed for hardened layer according DNV-rule was the safety of the last bin, not the most critical safety of all bins. This is fixed now.

SP 5 - **End relief I and II information in the user interface**
End relief I and II information (LC, rcrown) in the tab Modifications was not correct in case side chamfer was applied. This is fixed. The tooth form itself was not affected!

SP 5 - **Stress graphics in face gear calculation**
Results shown in stress graphics were not correct in some cases for face gears. This is now fixed.

SP 5 - **Wrong carrier bending line in face load factor calculation and contact analysis**
The face load factor calculation, according to ISO 6336-1 , Annex E, and contact analysis was taking the wrong carrier bending line. This is fixed.

SP 5 - **Linear end relief in GDE report**
Linear end relief I and II did not show up in the GDE report. This is fixed.

SP 5 - **Varying quality for fp in the operating backlash calculation - DIN tolerance**
Varying quality for the fp (single pitch deviation) was not considered correctly in the operating backlash calculation (ΔjF) if DIN quality was selected. This is now fixed.

SP 5 - **IMPROVEMENT: backlash angle added to the worm gear report**
Backlash angle j.tsys added to the worm gear calculation report.

SP 5 - **Measuring ball positioning in the graphics**
In some special cases, the measuring ball was not positioned precisely in the normal section of the graphics. This is now fixed.

SP 5 - **Genestar materials (Kuraray): Water absorption**
For genestar materials (from Kuraray) water absorption values were updated from 0.25 to 1.5%. This will change operating backlash results.

SP 5 - **Generate detailed data about profile diagram and tooth form for rack**
The module specific setting "Generate detailed data about profile diagram, tooth trace diagram and tooth form" gives an internal error for rack and pinion calculation.
Now it's fixed.

KISSsoft - Root stress FEM calculation

SP 5 - **Meshing problems in inner gears with zero external diameter and gears with very big diameters**
Inner gears with zero external diameter and gears with very big diameters could not be meshed. This is now fixed.

KISSsoft - Shaft calculation

SP 5 - **Sizing for flank line modification did not consider iteration setting**
The sizing functionality for the flank line modification in the shaft module did not consider the iteration setting.

SP 5 - **Iterative calculation of flank line modification did not support gears with multiple meshes**
When calculating the flank line modification iteratively in a shaft calculation, the gear data was not imported correctly when referencing a gear with multiple meshes.

SP 5 - **Axial roller bearing fixation not considered properly if housing is attached to the inner ring**

For the rather rare case where a roller bearing is connected to the housing via the inner instead of the outer ring, the consideration of the fixation and thus pressure angle was not correct.

SP 5 - **Weight of the gear was calculated with dmid**
The weight of the gear for the selection 'mounted by interference fit, with stiffness according to ISO 6336-1' was calculated with the middle diameter instead of the pitch diameter.

SP 5 - **Convergence issues when calculating iterative flank line modification in shaft module**
For some cases, especially with partly loaded face widths, the calculation of the flank line modification in the shaft module did not converge.

KISSsoft - Splines calculation

SP 5 - **Active tip diameter calculation for splines**
In some cases for splines, where reference profile was set to own input, the active tip diameter dNa was not calculated correctly. This is now fixed.

SP 5 - **cFmin calculation for DIN 5480**
In some cases, cFmin was not calculated correctly for DIN 5480 splines, which resulted in small error for the calculated dFf. This is now fixed.

KISSsys - General

SP 5 - **Relaxation of the convergence check in the housing deformation calculation.**
The convergence check in the housing deformation calculation was very strict, leading to a big calculation time, without a significant increase in the final accuracy. The convergence criterion is now relaxed.

SP 5 - **Change of the gear mesh stiffness of idle gears to zero, in the KISSsys modal analysis**
In the modal analysis of KISSsys, idle gears were treated with a constant gear mesh stiffness. Now the gear mesh stiffness of idle gears is set to zero (that is closer to reality).

KISSsoft Changelog Version 03/2018 - Service Pack 4

KISSsoft - Bearing calculation

SP 4 - **NEW! : Calculate bearing performance with SKF bearing module**
In the bearing calculation (W050, classical method) it is now possible to calculate the rating life of SKF bearings with the cloud based 'SKF bearing module'.
In the report you will receive the results according IS0 281 and according to the SKF bearing module.

KISSsoft - Bolt calculation

SP 4 - **The 'addition for plate resilience' will be set to 0 for the calculation with FEM results**
The 'addition for plate resilience' is not calculated for the configuration 'Proof for bolts with FEM results', the value is set to zero.

KISSsoft - Gear calculation

SP 4 - **Tooth form not completely closed**
In cases when applying flank line modifications, the tooth form at the tip was not completely closed. This is fixed.

SP 4 - **IMPROVEMENT: Curves in the profile diagram can be saved**
The curves in the profile diagram graphic can be saved now. Either as coordinates in a text file or in the diagram directly.

SP 4 - **Problem with contact analysis of planetary systems with floating sun**
The contact analysis for planetary systems with floating sun was not working correctly and caused wrong results. This is fixed.

SP 4 - **Errors in column list of the results table in the rough and fine sizing**
1. In the rough and fine sizing, the results tab didn't show the full list of columns and some of the results were missing.
2. When the fine sizing is done with the option "With calculation of the transmission error and sizing of profile modification", the modification values were not shown correctly in the results table.

SP 4 - **3D model problem for ZC worm gears**
In some cases, the 3D model of the ZC worm gear could not be generated due to problems in the tooth form calculation. This is now fixed.

SP 4 - **Tip diameter of tool was not transfered**
For the ZC profile for worm gear, the tip diameter of the tool was not transferred correctly to the details dialog.

SP 4 - **The protuberance tool for bevel gear was not working**
The protuberance tool for bevel gear was not applied in the 3D model when the option "Constant protuberance along the facewidth" is chosen in the module specific settings.

SP 4 - **Problem in contact analysis with shafts and load spectrum**
The contact analysis had errors in cases with shafts, if the load spectrum in tab 'Rating' was set to "Consider load spectrum" and the speed factor of first bin was not 1. This is fixed.

SP 4 - **Problem with contact analysis and face load factor considering load spectrum**
In case the last load spectrum bin was causing a change of the flank in contact, right to left flank, the nominal calculation, which is always executed after the load spectrum calculation, was considering the wrong flank. This is fixed.

SP 4 - **Transverse load factor KHa for bevel gears**
Transverse load factor KHa for bevel gears was not saved to the file in case it was an user input. This is fixed.

SP 4 - **Normal backlash calculation for cylindrical gears**
Normal backlash jn was not calculated correctly for cylindrical gears in case $d \neq dw$. This is fixed.

SP 4 - **Problem with contact analysis considering load spectrum**
Results of contact analysis with shafts and load spectrum was not matching exactly the results of contact analysis with single bin under same conditions. This issue was caused by a wrong scaling of the mean line load used for calculation of the deflection line. This is fixed.

SP 4 - **Tooth thickness at root (sFn) for racks**
The tooth thickness at root (sFn) was not calculated correctly for racks when considering the tooth thickness allowances (like in the VDI 2736). This is now fixed.

SP 4 - **Stability problems of face load factor calculation according to ISO 6336-1, Annex E**
The ISO 6336-1, Annex E, face load factor calculation had problems to converge in some cases with shafts, because the bending of the shafts started to oscillate. With this fix, the iteration algorithm is more stable but might lead to slightly different, but more accurate results, and might increase calculation time.

SP 4 - **IMPROVEMENT: Root stresses are added to the contact analysis report for planetary gears**
Root stresses are added to the contact analysis report for planetary gears.

SP 4 - **Root form height for racks with protuberance**
In some cases, the root form height of a rack was not calculated correctly if reference profile was defined with protuberance. This is fixed.

SP 4 - **Calculation of KA according to ISO6336-6, Annex A.3**
For gear 3 and 4 of gear chains or planetary stages, the calculation of the application factor KA according to ISO6336-6, Annex A.3, was using a wrong value for the slope of the SN curve. This affected only the KA values displayed in the report.

SP 4 - **AGMA factors Y and J**
AGMA tooth form factor Y and geometry factor J were wrongly calculated when the protuberance tool with final machining stock and/or the pinion type cutter was defined. The deviation was small for spur gears but was relatively big for low overlap helical gears.

SP 4 - **Check, if theoretical tip clearance c >= 0, added**
If the theoretical tip clearance c (calculation without any tolerances) is smaller than zero, than we have a serious input error. An error message is now displayed, but the calculation continues.

SP 4 - **Not possible to set the number of teeth for the pinion type cutter**
In the user interface in the tab Reference profile, it was not possible to set number of teeth and the profile shift for the pinion type cutter. The problem was limited to the planetary gear calculation and 3 and 4 gear chains. This is fixed now.

SP 4 - **Geometry manager for internal gear using ISO 21771**
Geometry manager was not working properly for internal gear if option Geometry according ISO 21771 (for internal gears: center distances and diameter bigger 0) was selected. This is now fixed.

KISSsoft - General

SP 4 - **Number of load cycles in database tool**
The number of load cycles of user defined load cycles from the database (in a dat file) was not shown correctly in the user interface. This is fixed now.
Note: The calculation was not affected by this problem.

SP 4 - **Path of contact in the planetary meshing graphics**
Path of contact was not drawn correctly in the meshing graphics for planet/ring. This is fixed. (The contact analysis results were not affected.)

SP 4 - **Tolerances according to ISO 1328:2013 not shown in the report**
In some cases, the tolerances according to ISO 1328:2013 were not shown in the report. This is now fixed.

KISSsoft - Interference Fit calculation

SP 4 - **The safety against yield point for the calculation according Kollmann was wrong**
The safety against yield point for the calculation according Kollmann was wrong.

KISSsoft - Root stress FEM calculation

SP 4 - **Improvement in the stability and accuracy of the 3D FEM root stress calculation of asymmetric gears.**
In some cases of asymmetric gears, 3D root stress FEM analysis could not run for higher mesh densities. Very high root stresses were also reported, when the load zone was extended close to the root.

KISSsoft - Shaft calculation

SP 4 - **Correction in the eigenfrequencies calculation for shafts with very small density.**
Numerical accuracy problems were present in the modal analysis of shafts with almost zero density.

SP 4 - **AGMA 6101/ 6001: Von mises mean stress was wrong in some cases**
In the strength calculation method according AGMA 6101/ 6001 the von mises mean stress value was wrong in some cases.

SP 4 - **KISSsoft crashed in rare cases when opening duty cycle dialog**
With some older files, it could happen that KISSsoft would crash when the duty cycle dialog in the shaft module was clicked.

SP 4 - **KISSsoft crashed when calculating flank line modification iteratively with multiple gears**
When calculating the flank line modification, with iteration activated, of two gears, it occasionally happened, that KISSsoft would crash afterwards.

SP 4 - **Shaft model showed invalid warnings when importing data from planetary gear files**
When importing the gear data from planetary gear files into shaft models, often a warning related to speeds that did not match was shown even though not valid.

SP 4 - **Journal bearing export did not work in shaft module**
When trying to export the journal bearings in the shaft module, no files were saved. This is fixed.

SP 4 - **Selecting objects did not work in case shaft element filter was applied**
The element editor did not show the data for a selected object in case shaft element filter was applied and the object was hidden in the tree.

SP 4 - **Background drawing actions improved**
Moving the backgound drawing was possible while moving or zooming for shaft elements was active. This did cause strange behaviour. Moving and clearing buttons were active without a loaded drawing.

SP 4 - **Zooming problems in shaft editor fixed**
The zoom area in the shaft editor changed after sizing sections, bearings, etc.

SP 4 - **Item context menu was not shown when background drawing is active**
The shaft editor did not show the context menu for a specific items, when a background drawing was loaded. It was always showing the general context menu.

SP 4 - **Flank line modification did not support gears with multiple meshes**
When calculating the flank line modification in a shaft calculation, the gear data was not imported correctly when referencing a gear with multiple meshes.

KISSsoft - Shaft-hub-connections

SP 4 - **Spacewidth for hubs**
In some cases, for the hub (with small number of teeth), the spacewidth was incorrectly set to 0. This is fixed.

KISSsoft - Splines calculation

SP 4 - **Calculate root form circles according to DIN 5480 for flank centered spline shafts if only one reference profile is set to flank centered**
The formula for the root form diameter for flank centered splines according to DIN 5480 is used, if one of the reference profile is flank centered and the other reference profile is own input. So far, the root form diameters for flank centered splines according to DIN 5480 were calculated only if both reference profiles were defined as flank centered.

KISSsys - General

SP 4 - **Increase of cpu load while KISSsoft interface is opened from KISSsys**
When the user opened the KISSsoft interface from KISSsys, the cpu load increased but it never decreased even if no calculation was performed.

SP 4 - **Coaxial shafts indexes set wrongly after a new shaft is inserted in KISSsys**
The indexes of the coaxial shafts were set wrongly in KISSsoft after a new shaft was inserted in KISSsys. This caused that some settings (eg. shaft color) were assigned to the wrong shaft.

SP 4 - **Gear model in the 3D GL Viewer in KISSsys**
The cylindrical gear model in the 3D GL viewer in KISSsys was not shown correctly in some cases for internal gears and double helical gears.
The tooth form approximation is also improved in general.

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KISSsoft - Bearing calculation

SP 3 - **Error message about missing KUI element in Fine-Sizing Graphics removed**
The fine sizing for the bearings did show a KUI related error message.

KISSsoft - CAD interface

SP 3 - **Solid Edge: Interface to Solid Edge 2019**

Interface to Solid Edge 2019 implemented

SP 3 - **SolidWorks: Interface to SolidWorks 2019**
Interface to SolidWorks 2019 implemented

KISSsoft - Gear calculation

SP 3 - **Tooth root diameter tolerances for worm gears**
When using option 'Calculation with normal module instead of axial module', the tooth root diameter tolerances were slightly off. This is fixed.

SP 3 - **Helix angle modification, parallel (arc minute) not applied correctly**
Helix angle modification, parallel (arc minute) was not applied correctly to the tooth form. The 3D model was affected as well as the contact analysis results.

SP 3 - **Exporting 3D graphics in a DAT file**
Exporting 3D graphics (Herzian pressure, ...) in a DAT file was mirrored compared to the 3D graphics in KISSsoft (side I<-> side II). This is now fixed.

SP 3 - **Improvement: Face gear shows also effective transverse contact ratio**
The effective transverse contact ratio (max, min) (at the middle of the face width) is calculated and documented.

SP 3 - **Kγ according to AGMA 6123-C16**
The Kγ value by AGMA 6123 for the application level 2 with 6 planets is fixed to 1.44 according to the ERRATA of ANSI/AGMA 6123-C16.
The manual will be fixed in next release accordingly.

SP 3 - **Wrong root form diameter, when Helix angle modification with 'Manufacture with βeff' is activated**
In gear calculations with 'Parallel helix angle modification', if the option 'Manufacture with βeff' is activated, for gears with undercut the root form diameter is wrong (not considering the undercut). This is fixed.

SP 3 - **Operating backlash calculation: Proposition for center distance tolerance improved**
In tab Operating backlash calculation: The proposition for center distance tolerance to get zero backlash, shown in the result window, was slightly off. This is improved now.

SP 3 - **AGMA2001-D04: Calculation of Knu**
AGMA2001-D04: Knu (dynamic factor) is now calculated with vt at operating pitch diameter (before at pitch diameter). Difference is very small. Additionally the formula for vtmax was corrected. Also accuracy of conversion between N and lb was improved in the rpt files.

SP 3 - **KISSsoft bevel gear contact analysis was crashing with shafts**
KISSsoft was crashing in some cases when bevel gear contact analysis was used with shafts and the shaft contained a mix of cylindrical and bevel gears.

SP 3 - **Asymmetric modifications on bevel gears**
When using option "Displaying 2D geometry for inside and outside", tooth form was not correctly

calculated if asymmetric modifications were applied. This is now fixed.

SP 3 - **Problem with high H misalignment in bevel gear contact analysis**
The bevel gear contact analysis had problems with high H misalignment, which lead to wrong results and graphics in some cases. This is fixed.

SP 3 - **IMPROVEMENT: General improvement of the planetary contact analysis convergence algorithm**
In some cases the planetary contact analysis was not able to find a solution for the system. This problem is now handled by a more robust algorithm.

SP 3 - **Tolerances not calculated correctly for DIN3962/3963**
In some cases (module < 1 mm, ...) tolerances were not calculated correctly for the quality 7 grade of DIN 3962/DIN3963. This is now fixed.

SP 3 - **Helix angle modification (parallel) according to ISO 1328**
The helix angle modification (parallel) was not applied correctly when
1) the option "Use the definition of the helix angle modification (parallel) as a helix slope deviation according to ISO 1328" in the module specific setting is activated and
2) the gear is left-hand helical gear.
In this case, the modification was applied to opposite direction, that the effective helix angle decreased when the modification is positive. The negative modification had opposite effect. There was no problem for spur gear and right-hand helix helical gear.
When you have the above condition, the tooth form was wrong, and thus the 3D model and the contact analysis was wrong.
For detailed explanation of the definition of the helix angle modification, please contact to our support (support@KISSsoft.AG) for an instruction (KISSsoft Instruction 117).

SP 3 - **Slightly different results when calculating bevel gear contact analysis twice**
The bevel gear contact analysis with shafts was giving slightly different results when calculating twice. This is fixed.

SP 3 - **Simplified static calculation for plastic gears**
If the flag 'Allow simplified calculation according to DIN/ISO' was set for plastic gears, the values for Rp and Rm were taken from the material DAT files and not from the database.
This is now fixed.

SP 3 - **Problem in contact analysis with shafts and internal gears**
In some cases where contact analysis considers the shaft bending line with internal gears, the deflection was causing wrong misalignment in contact analysis. This is fixed.

SP 3 - **Convergence problem with modification sizing of bevel gears**
In cases where modification sizing on bevel gears with shafts and option 'Calculate shaft deformation just once for each partial load' was used, the calculation was not converging. This is fixed.

SP 3 - **Formula for hamc in Bevel Gear Geometry corrected**
An error in ISO23509:2017 was found in equation E:215, the term cos(δ) must be deleted. This will be documented in the next edition of the standard.

SP 3 - **Proposition for flank line crowning Cbeta according ISO6336-1**
In the layout function for Cbeta according ISO6336-1 annex B, we used the rule as written in ISO, that Cbeta must be in the range 10 <= Cbeta <= 50 microns. For small gears of good quality the result was always 10 microns, which was often too much.
We changed this now, showing as proposition the real value according of Cbeta, but adding a

message that the value is outside the recommended value of 10 <= Cbeta <= 50.

SP 3 - **Multiple definition of topological modification**
The topological modification should be defined only once for each flank and all the redundant topological modifications should be inactivated.
However, the program inactivates only the next modification, not all the invalid ones. This is now fixed.

SP 3 - **Face gear bending strength calculation improved**
Face gear bending strength calculation, when ISO6336 method is used, will use now the geometry for YF, YS according VDI2737, annex B.
This method is more accurate, specially root rounding roF, bending safety will be slightly different.

KISSsoft - General

SP 3 - **Shortcuts for file new and file open did not work**
The short cuts for the actions 'New' (Ctrl + N) and 'Open' (Ctrl + O) in menu 'File' did not work.

SP 3 - **Compression springs: Calculation of the diameter expansion was updated to the current standard.**
Calculation of the diameter expansion was updated to the current standard DIN EN 13906-1:2013. Before the equation according to the older standard was used.

SP 3 - **Add to graphics list did not work in some cases**
The function 'Add to graphics list' in the graphic window did add the graphic to the report, but did not show an entry in the list view.

SP 3 - **Some of the comments in the material table were cut off**
If a text in the column 'comment' of a gear material table contained the '<' sign, everything from that sign on was cut off.

KISSsoft - Graphics

SP 3 - **Scaling of 3D-Graphics legend was wrong in some cases**
In some seldom cases the scaling of the 3D-Graphics legend was wrong, e.g. showed mm instead of mym. This is fixed.

SP 3 - **Error in constact analysis graphic 'Load distribution in the operating pitch circle'**
The contact analysis graphic "Load distribution in the operating pitch circle" was mirrored between side I and II. This is fixed.

SP 3 - **Saving curves in LTCA diagrams did save section 0**
For some contact analysis diagrams, saving curves did always save the curve of the first section and not for the current section.

KISSsoft - Shaft calculation

SP 3 - **For shoulders the default smaller diameter was not set correctly (free cross section)**
The element editor of the free cross section did show the value of the larger diameter of the shaft as a default for the smaller diameter.

SP 3 - **The shaft editor did not show a context menu in the area of the background drawing**
If a background drawing was loaded, the shaft editor did not show the default context menu in the area that was filled by this drawing.

SP 3 - **IMPROVEMENT: default diameter of new geometry elements are taken from the previous element**
New outer and inner geomertry elements now start with the same diameter on the left side as the previous element on the right side.

SP 3 - **IMPROVEMENT: automatic zoom for new elements**
The automatic zoom for new elements has been improved and can also be switched off via a flag in the settings.

SP 3 - **Display issue connecting sliding bearing in shaft editor**
The symbol of the connecting sliding bearing was not always symetric and has been generally improved.

SP 3 - **Editability and text in the connecting elements table was not correct**
The type of bearing was editable but should not be, whereas the shaft inside was not editable but should be. The type of bearing was not displayed for sliding bearings.

SP 3 - **Correction in the unbalance response calculation of shafts with fixed supports.**
When calculating the unbalance response of shafts with fixed supports, there were some mishandling of fixed support information. This is now corrected.

SP 3 - **Correction in the rigid body modes in the eigenfrequencies calculation.**
When calculating eigenfrequencies, there were cases where some rigid body modes were either missed, or reported without that they existed.

SP 3 - **Shaft strength was not shown, when no cross sections were defined**
In the shaft strength graphics, the utilization of the shaft was only shown in case that a cross sections were defined.

SP 3 - **Connection bearing color in Shaft Editor**
When the "Display critical bearing" setting is selected, the supports and general connections are now displayed with the color "yellow" (default) instead of "green" (above required lifetime). The control for critical bearings is performed only for rolling bearings and connecting rolling bearings.

SP 3 - **Shaft models with duty cycles crashed occasionally during calculation**
For shaft models that contained duty cycles it occasionally happened, that the calculation would crash without further notice.

SP 3 - **Older shaft models with cross sections defined occasionally crashed**
For some older shaft models, it could happen that the calculation crashed for some particular definitions of cross sections.

SP 3 - **Shaft calculation showed 'converged' with Not-a-Number (NaN) results**
In some rare cases, a shaft calculation might not converge due to numerical instabilities and can return Not-a-Number results. This situation was not properly detected and KISSsoft show an error that the model did not converge.

SP 3 - **KISSsoft crashed in rare cases when selecting 3D view of shaft**
For some specific models created with KISSsys, it could happen that selecting the 3D view of a shaft in the shaft editor caused KISSsoft to crash.

SP 3 - **Shaft calculation raised internal error when used with duty cycles and classic bearings**
Shaft models with duty cycles and bearing types, where inner geometry calculation is not available, showed an internal error.

SP 3 - **Shaft model showed invalid warnings**
For some shaft calculations, misleading warning messages from intermediate calculation iteration steps were shown.

SP 3 - **Internal error when using 2013 shaft solver with journal bearings**
The 2013 shaft solver does not support the journal bearing. This was not detected properly and the calculation produced an internal error.

SP 3 - **Shaft calculation raised internal error after deleting shaft referenced by a connecting element**
When deleting a shaft that was referenced in a connecting element, the calculation raised an internal error afterwards.

SP 3 - **Bearing diameter change according DIN 7190-1:2017**
Until now the bearing diameter change because of the roughness was calculated with the formula 0.8*(RzA+RzI). According to DIN 7190-1:2017 the factor is 0.4 instead of 0.8.
This change has influence on the tolerances of the bearing.

SP 3 - **The depth of 'own input' feather keys was not read correctly**
If you used an 'own input' for a feather key as sub element in the shaft editor, the depth wasn't read out correctly from the surface.

KISSsoft - Shaft-hub-connections

SP 3 - **Convert effective tooth thickness dialogue**
Convert effective tooth thickness allowance for Hubs was not working correctly using the setting 'Geometry according to ISO 21771' (for internal gears: center distance and diameter > 0). This is now fixed.

KISSsoft - Splines calculation

SP 3 - **Tooth thickness documentation in the splines report**
In some special cases when reference diameter was near to root form diameter, the tooth thickness was wrongly set to 0. This is now fixed.

SP 3 - **DIN 5480: minimum root diameter for the shaft was not calculated correctly**
The root diameter tolerance for the shaft according DIN 5480-1 table 5 was not calculated correctly, the result for the minimum root diameter was slightly wrong.

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KISSsoft - Bearing calculation

SP 2 - **License check for non-linear stiffness in report**
When having module WA1 activated, the non-linear stiffness was not printed in the report. This is fixed.

SP 2 - **Wrong pressure angle in inner geometry bearing report**
In the report of the inner geometry bearing calculation module, the pressure angle was shown in radians instead of degree.

KISSsoft - Bolt calculation

SP 2 - **Pretension force graphic fixed**
The pretension force graphic doesn't shown the correct lines for different friction coefficients.

KISSsoft - CAD interface

SP 2 - **Siemens NX: cutout a toothing on a existing shaft is not always working**
The cutout of a toothing on a existing shaft does not always work, if the normal vector of the area, which is selected, is not exactly 0 (main axis, absolute positioning).
We fixed, the normal vector can now be in a range of +/- 0.000001.

KISSsoft - Gear calculation

SP 2 - **Contact analysis results shown on the tooth**
In some cases (overlap ratio eps_b>1.9 or helix angle > 15° and accuracy of calculation not set to own input), the contact analysis results were not displayed correctly on the tooth (the calculation results were OK though). This is now fixed.

SP 2 - **IMPROVEMENT: root fatigue data added Sabic Verton RVL29 and Delrin 311DP**
Root fatigue data at 150°C was added for Sabic Verton RVL29 material.
Root fatigue data at 20°C and 50°C added for DuPont Delrin 311DP.

SP 2 - **Root form diameter calculation for pinion of the face gear calculation**
In some cases with protuberance, the root form diameter of the pinion in a face gear pair was slightly wrong. This is now fixed.

SP 2 - **Tooth thickness calculation at the reference diameter**
In cases, when the reference diameter was not between tip form and root form diameter (for instance high profile shift), the calculated tooth thicknesses in the report were not correct. In such cases, a special warning is displayed in the report and values are now set to 0.

SP 2 - **Contact and flash temperature graphics**
In cases when z1>z2, the graphics for contact and flash temperature were not correctly displayed on the x-axis (the calculated temperatures were correct). This is now fixed.

SP 2 - **Small speed handling in duty cycles of planetary stages**
Very small speeds (below 0.0001 rpm) defined in duty cycles were creating an error message, which was repeated too often. Such speed bin's are now handled correctly.

SP 2 - **IMPROVEMENT: eccentric and shortened profile crowning calculation**
Until now, eccentric and shortened profile crowning were calculated using diameters. To make it consistent with other modifications, eccentric and shortened profile crowning are now calculated using roll length. Some minor changes in the tooth form are expected. The definition of Factor 1 and Factor 2 did not change.

SP 2 - **Display of the worn-out tooth form**
In some cases (unequal facewidth) the worn-out tooth form was not shown properly in the graphics. This is now fixed.

SP 2 - **Specific sliding graphics**
In some cases (dNa <> dFa), curves for specific sliding were shown also outside of the path of contact. This is now fixed.

SP 2 - **Problem with gear body stiffness matrix in LTCA-/KHb-Calculation**
The contact analysis and face load factor calculation did not consider axial forces and transformed the deflection results into path of contact layer correctly when stiffness matrix is used from gear body calculation. This is fixed.

SP 2 - **Checking condition for fine sizing of crossed helical gear**
In the fine sizing of crossed helical gear, the iteration doesn't proceed when the maximum limit is smaller than the minimum limit and the step is not activated for center distance range.
This is fixed.

SP 2 - **Shearing safety factor according to the VDI 2736-3 (worm gears)**
Shearing safety factor was not calculated anymore for crossed helical worms according VDI 2736-3. This is fixed.

SP 2 - **Torsion direction setting in 'Axis alignment' dialog was empty after modification sizing**
The torque direction, set in 'Axis alignment' dialog tab 'Torsion', was overwritten with a wrong value after using modification sizing dialog in tab 'Modifications'. This is fixed.

SP 2 - **The 'remove modification' button was not working**
The remove modification button was not working correctly in the tab Modifications. This is fixed.

SP 2 - **Curvature radius was not calculated through COM-Interface**
Curvature radius was not calculated while running contact analysis step wise through COM-Interface. Therefore Hertzian pressure was not calculated. This is fixed.

SP 2 - **Calculation of relevant root relief Cf for Scoring and Micropitting**
Calculation of relevant root relief Cf was not working correctly (the value was set to 0). Therefore, the relevant tip relief Ceq according ISO6336-20, annex B, considered only the tip relief Ca. For gears having only root relief, but no tip relief, the safeties for scoring and micropitting were calculated as for gears without any modification.

SP 2 - **KISSsoft was crashing while exporting gear pairs from planetary systems**
KISSsoft was crashing while trying to export sun/planet or planet/rim gear pair calculations from

planetary system calculations. This is fixed.

SP 2 - **Fine sizing with Flag 'Operating profile shift' set, is using wrong tip diameter**
In Fine sizing, when the Flag 'Operating profile shift' is set, in some cases the a different tip diameter is used. Therefore profile overlap ratio etc was different, when a variant is loaded into the main window.

SP 2 - **IMPROVEMENT: Gear/Shaft suppress plausibility check**
IMPROVEMENT: The "Gear/Shaft suppress plausibility check" flag is now suppressing all gear/shaft related checks, such as sense of rotation, weight direction, coupling torque (carrier), etc.

SP 2 - **Circumferential backlash for crossed helical gears**
The circumferential backlash was not calculated and displayed correctly in the Tab tolerances for crossed helical gears. This is now fixed.

SP 2 - **Tolerances AGMA2015-2-B15 error**
When 'Variying qualities' is activated, then the tolerances fidT and FidTaccording AGMA2015-2-B15 were printed according the next lower tolerance level. This is fixed.

SP 2 - **Contact analysis was crashing with too high pitch error**
The contact analysis was crashing in cases of too low torque compared to pitch error which is causing empty results. This is fixed.

SP 2 - **Torque layout**
The calculation of the transmittable torque was not working at all. This is fixed.

KISSsoft - General

SP 2 - **IMPROVEMENT: modality of help and info dialogs**
The sub dialogs for help texts and info pictures where modal and therefore they had to be closed before data could be entered in the original dialog. As it is useful to have the help text or info picture open while entering data, these dialogs are now nonmodal.

SP 2 - **IMPROVEMENT: Minor layout issues fixed when french language is used**
In some cases in french language, comboboxes did not show full text width even if there was enough space.

SP 2 - **Copy-Paste in 2D graphics did not work**
Copying a 2D graphic with Ctrl+C did not work at all.

SP 2 - **Material data: Emodul and alpha for ASTM cast iron were wrong**
For the materials ASTM A536 (cast iron) and ASTM A48 (cast iron) the values for the young's modulus E and the coefficient of thermal expansion alpha were wrong.

SP 2 - **Calculation of tooth thickness at root (sFn)**
Tooth thickness at root (sFn) for the root strength calculation was not correct in some special cases (pre-manufacturing with machining stock bigger than the protuberance of the tool). This is now fixed.

SP 2 - **Exporting tooth trace and profile diagram**
When exporting tooth trace and profile diagram as points, flanks were switched. This is fixed.

KISSsoft - Graphics

SP 2 - **Inverted contact pattern graphic in bevel gear contact analysis**
The results in contact pattern graphic of bevel gear contact analysis was inverted, the data of the outside was shown at the inside. This is fixed.

SP 2 - **Wrong x axis values of excitation force graphic**
The x axis values of the excitation force graphic was wrong, this is fixed.

SP 2 - **Improvement: Bending stress in root area is now showing the situation global occurring maximum root stress position**
The "Bending stress in root area" 3D graphic is now showing the data related to the meshing position when the absolute maximum root stress on the gear occurs. Before the graphic was showing everywhere the maximum along the face width which neglects the information that these results are not appearing at the same meshing position.

KISSsoft - Root stress FEM calculation

SP 2 - **dsFn value of asymmetric gears**
In the FEM root stress calculation of asymmetric gears, the dsFn value of the right flank was always used. This is now corrected and the dsFn value of the left flank is used when needed.

SP 2 - **Correction in the diameters reported from 2D FEM root stress calculation of helical gears**
In the 2D FEM root stress calculation of helical gears, the diameters reported referred to the equivalent spur gear. This is now corrected and they refer to the initial helical gear.

KISSsoft - Shaft calculation

SP 2 - **Fit-in-view did not always work in shaft editor**
Fit in view did not work correctly for files without oil level in those cases where the priviously loaded file contained an oil level.

SP 2 - **Added bearing frequencies to the bearing inner geometry report**
As an improvement, the bearing frequencies were added to the bearing inner geometry report.

SP 2 - **FKM: The manufacturing process of the keyway had no influence**
The manufacturing process of the keyway had no influence in the strength calculation according FKM, for the other calculation methods is this input doesn't used.
In the strength calculation always the manufacturing process 'end milling cutter' was taken.

SP 2 - **Limited life calculation wasn't possible with AGMA 6001/6101**
For the limited life strength we calculate now a life factor ke. For the infinite life strength the factor ke is =1.
Until now it wasn't possible to calculate limited life strength according AGMA.

SP 2 - **Service life factor protocol not found in case project contains no roller bearings**
For shaft projects that contained no roller bearings, creating the service life factor report caused only a message that protocol "W050-H1.tmp" was not found. With the fix, a warning '*Cannot display "ClassicLifetimeFactors" report: The project does not contain any roller bearings*' is shown.

SP 2 - **3D Viewer - Increased torque arc arrow size**
The size of the torque arc arrow to show the torque in the 3D viewer was very small in some graphics.

SP 2 - **Shaft sizing did not work for shafts with general supports**
The shaft sizing function silently failed in case no rolling bearings but general supports were present.

KISSsoft - Splines calculation

SP 2 - **Splines according DIN 5482 were not fully documented in the report**
Splines according DIN 5482 were not fully documented in the general and in the manufacturing data report.

KISSsys - General

SP 2 - **Modal Analysis calculation error**
Some models including gears with multiple contacts were producing errors while running the Modal Analysis calculation.

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KISSsoft - Bearing calculation

SP 1 - **Values in bearing DB were rounded to integer**
For some db columns, the values were rounded to integer instead of keeping them as floating point. This could cause some deviations for very small bearings where the rounding error was relevant.

SP 1 - **Inner geometry approximation for needle cages**
In many cases the inner geometry approximation for needle cages did not work and resulted in very unrealistic values for the the number of rolling bodies and roller length. With this fix, the estimation based on C and C0 is now very accurate and robust.

KISSsoft - CAD interface

SP 1 - **Autodesk Inventor: Interface to Autodesk Inventor 2019**
Interface to Autodesk Inventor 2019 implemented.

KISSsoft - COM

SP 1 - **Improvement: Retrieve number of members in dynamic arrays via COM**
It is now possible to get the number of members in a dynamic array via a COM call to the size() function of the variable.
Example: GetVar("shafts[0].result.bending.size()")

KISSsoft - Gear calculation

SP 1 - **Non-circular gears**
In some cases for non-circular gears, error message appeared stating that the file for the operating pitch line of gear 2 doesn't exist. This is now fixed.

SP 1 - **Excitation force calculation deactivated for stepwise contact analysis over COM-Interface**
The excitation foce calculation was wrongly activated for stepwise contact analysis calculation over COM-Interface. This was setting results to 0 and is now fixed.

SP 1 - **Planetary system contact analysis was overwriting face load factor results**
The planetary system contact analysis was overwriting face load factor results according to ISO 6336-1, Annex E. This is fixed.

SP 1 - **Load spectrum selection switched to own input**
The load spectrum switched to own input after changing the reference gear for planetrary gears.

SP 1 - **Modification for mold making**
The points in the root area of the gears in the operation of modification for mold making were not calculated correctly. This is now fixed.
The calculated tooth form is now slightly different in the root area.

SP 1 - **Ball diameter for worm gears**
In some cases for worm gears (high tooth thickness tolerances, tooth thickness modification factor xs<>0), the theoretical measuring ball diameter was not calculated correctly. This is now fixed.

SP 1 - **Contact analysis had changing results**
Contact analysis with nominal load and shafts had sometimes changing results. This is fixed.

SP 1 - **Proportional axis misalignment of planetary system problem**
Proportional axis misalignment of planetary system was calculated with the wrong carrier torque in case of ISO 6336-1 Annex E calculation with load spectrum. This is now fixed.

SP 1 - **Calculation example CylGearPair5 changed**
The calculation method for example CylGearPair5 was changed from VDI 2545 (YF method B) to VDI 2545 modified (YF method B).

SP 1 - **Sizing power and torque for asymmetric gears**
Sizing functionality for power and torque did not work properly for asymmetric gears. This is fixed.

SP 1 - **Modification sizing was crashing for planetary systems**
Modification sizing of planetary systems with contact analysis was crashing, this is fixed.

SP 1 - **Improvement: Proposition for optimum profile shift x for scuffing according AGMA925**
When any AGMA rating method is selected, the scuffing is calculated according AGMA 925 and is also used in the profile shift proposition tool.
AGMA925 shows as result the scuffing probability. According the standard, if the probability is smaller 5%, then <= 5% must be shown.
Therefore in the layout function for best profile shift x often the result was 5%, therefor not really showing the best value.
We changed this and use now the lowest contact temperature thBMax to find the optimum profile shift.

KISSsoft - General

SP 1 - **Occasional crashes during startup of KISSsoft**
On some machines, KISSsoft crashed occasionally during startup. This is fixed.

SP 1 - **Modification sizing had problems showing results**
Modification sizing with ISO 6336-1, Annex E, was not showing results correctly and not able to transfer solution into tab modifications. This is fixed.

SP 1 - **Icon for KISSsoft User Interface help added to the toolbar**
The icon was only available for internal users.

SP 1 - **Database tool base material search**
The search function did not work for the column base material in the material tables in the database tool.

SP 1 - **KUI help did not work in dialogs**
Question mark for KUI help added to the title bar of all dynamic dialogs.

KISSsoft - Graphics

SP 1 - **Contact analysis had problem with unequal facewidth**
Several contact analysis graphics had problems while calculating gears with unequal facewidth. This is fixed now.

KISSsoft - Root stress FEM calculation

SP 1 - **Too high maximum stress in some cases of root stress calculation using 3D FEM.**
The area on the tooth surface used for the calculation of the maximum stress of 3D root stress FEM was for some cases falling inside the load zone, giving very high stresses. This is now fixed.

SP 1 - **Optimization of the mesh generation for 3D root stress FEM, reduce run-time.**
The size of the generated 3D FEM mesh is reduced without affecting the accuracy of the results. The calculation time is reduced.

KISSsoft - Shaft calculation

SP 1 - **Layout of element editor for sections**
The layout of the element editor for sections and documentation points is improved.

SP 1 - **Fixed drawing artefacts for gear body in shaft editor**
When using a stiffness matrix for the gear body, the drawing in the shaft editor showed line artefacts for some configurations.

SP 1 - **Context menu in shaft editor**
In some cases, the general context menu was shown for a shaft element instead of the element specific context menu.

SP 1 - **Oil level in shaft editor**
The indicator for the oil level was changing its width when the diameter of an element was changed.

SP 1 - **Element editor update issue**
A change in the element position was not considered in the calculation if the calculation button was pressed right after entering the value in the element editor.

SP 1 - **IMPROVEMENT: Zoom position in shaft editor changed**
When zooming with the mouse wheel in the shaft editor, the center point of the zoom is the current mouse position not anymore the center of the editor.

SP 1 - **IMPROVEMENT: Zoom level in shaft editor**
The zoom level in the shaft editor remains the same when switching between tabs.

SP 1 - **Connecting support (joint) positioned at edge position of a shaft**
When a connecting support (joint) was positioned at the left edge position of a shaft, the torque balance was not calculated properly.

SP 1 - **Campbell diagram lines were mixed in some problems.**
The lines of the Campbell diagram were mixed in some models, due to wrong characterization of the respective eigenmodes. This is now fixed.

SP 1 - **Custom bearing diameters**
When a shaft calculation was saved with a custom bearing and opened again
on an instance where this bearing is not in the DB, the
selected diameter was not shown properly.

SP 1 - **Wrong material properties used for calculation of operating bearing clearance**
The calculation for the operating bearing clearance did use wrong material properties (inner ring properties for inner shaft and vice versa).

KISSsoft - Shaft-hub-connections

SP 1 - **M02b-M02e: values for support factor fs according DIN 6892:2012**
The values for the support factor fs were in KISSsoft according Niemann, we actualized this, now the values are according DIN 6892:2012.

KISSsoft - Splines calculation

SP 1 - **Spline calculation stopped working**
In some cases for splines with low number of teeth (<11) and profile
shift exactly 0.05, the calculation stopped working. This is now fixed.

SP 1 - **Wrong text in ANSI table fixed**
Even if the ANSI table was showing Normal Diametral Pitch correctly, the text was set to normal module.

KISSsys - General

SP 1 - **KISSsys desktop linkage was not working**
The KISSsys desktop linkage was not working because of missing working directory. This is fixed.