KISSsoft Changelog Version 2020 - Service Pack 5

KISSsoft - Bearing calculation

SP 5 - **Friction calculation according FAG 2017: P1 was calculated wrong if the bearing series isn't known**

Friction calculation according FAG 2017: P1 was calculated wrong if the bearing series isn't known. Instead of the correct formula for the bearing type, KISSsoft took a middle value for rolling bearings.

SP 5 - **Fixed iteration issue with bearing stiffness data file for shaft calculations**

Using rather coarse-meshed bearing stiffness files in the shaft calculation could result in convergence issues. This was fixed by improving the interpolation approach for user defined stiffness curves.

KISSsoft - CAD interface

SP 5 - **Interface to Autodesk Inventor 2022**

Interface to Autodesk Inventor 2022 added.

KISSsoft - Gear calculation

SP 5 - **Asymmetric modifications with operation**

Asymmetric modification were not considered correctly in cases when the tooth form operation "Take the modifications into account" was used and operation "Automatic" was deactivated. Additionally, no information were displayed in the modification table. Both issues are now fixed.

SP 5 - **Measurement over 3 pins, axial, according to AGMA 2002**

Measurement over 3 pins, axial, according to AGMA 2002 is not possible for spur gears. The values are now hidden in the reports.

SP 5 - **Measurement grid was wrong if helix angle modification is manufactured with modified helix angle**

Measurement grid was wrong if the helix angle modification (parallel) is manufactured with modified helix angle.

SP 5 - **Measurement grid report for root fillet gives error with very high number of rows**

Sometimes, the measurement grid report for root fillet gives an error with very high number of rows. Now the problem is fixed, but it may increase the calculation time. It is not restricted but recommended using the reasonable number of rows (< 200).

SP 5 - **Tooth form for bevel gear contact analysis**

In some special cases when tip and root alterations were applied, the tooth form for the contact analysis could not be generated. The issue is now fixed.

SP 5 - **2D tooth form of small gears**

In some cases for small gears (mn<0.5 mm), the 2D tooth form was not shown accurately in cases when splines were used for the approximation. The issue is now fixed.

SP 5 - **Rotation of the planetary system**

In some cases, the rotation of the planetary system in 3D graphics was not correct. The issue is now fixed.

SP 5 - **Bevel gear modification sizing**
Modifications applied in the modification sizing calculation for bevel gears were applied 3x, which resulted in different results compared to the normal CA results. The issue is now fixed.

SP 5 - **Asymmetric gears and constructed involute**
In some cases, the root tooth thickness sFn (used for the strength calculation) was not calculated correctly for asymmetric gears using constructed involute. The issue is now fixed.

SP 5 - **Virtual cylindrical calculation for bevel gears**
In cases when tooth thickness modification factor xsmn was not 0, the normal tooth thicknesses svn and svFan were not calculated correctly for the virtual cylindrical gear. The issue is now fixed.

SP 5 - **Wrong center distance check in CA**
In some special cases with read in tooth form, the center distance check for the contact analysis was not correct. The issue is now fixed.

SP 5 - **Zone factor ZM calculation according to DNV**
Zone factor ZM according to DNV was calculated using helix angle at the reference diameter instead of the helix angle at the base diameter. The issue is now fixed.

SP 5 - **Gear pair selection for contact analysis**
When selecting a gear pair for the CA calculation (for 3 and 4 gear train), it was always set back to the 1st pair, when the tab was switched. The results were not affected. The issue is now fixed.

SP 5 - **Handling of gear body in the axis alignment input in the factors tab of the gear calculation**
The gear body influence on the axis alignment was not used correctly in some cases where both shaft and gear body inputs were defined.

KISSsoft - General

SP 5 - **Unscrew torque calculation in linear drive module gives always positive value**
In the unscrew case, when the friction angle is higher than the lead angle, the value for the unscrew torque should be negative.
Before the fix, the unscrew torque was always positive.

KISSsoft - Plastics Manager

SP 5 - **Plastics Manager problem**
In some seldom cases, the Plastics Manager stopped working unexpectedly. The issue is now fixed.

SP 5 - **Plastics Manager closed unexpectedly when writing to database**
In some special cases when yield tensile strength was not defined, Plastics Manager closed unexpectedly when writing new material to database. The issue is now fixed.

KISSsoft - Shaft calculation

SP 5 - **Maximum bending moment UI bug**
The value for the maximum bending moment cound not be entered in a free cross section.

SP 5 - **Wrong description of eignemode in the results window**
Some times there was a possibility that an axial eigenmode would be characterized as bending. The titles on the eigenmode plots shown in the report were also sometimes mixed. This did not affect in any way the modeshape itself.

SP 5 - **Loading shaft file from KISSsoft 04-2006 or earlier chrashed**
KISSsoft could not load shaft files from KISSsoft 04-2006 or earlier anymore. The software crashed.

SP 5 - **Global vs. local position in copy/paste for bearings**
Copy/cut and paste did mix up the global and local position for support and connections.

SP 5 - **Wrong shaft and gear mass calculation in combination with external mass**
Adding an external mass in the region of an existing gear could cause an wrong calculation of the corresponding mass.

SP 5 - **Fixed visibility of gear force center point offset in shaft items editor in case of multiple paired gears**
If a gear is configured to have multiple counter gears, the gear force center point offset is configured in the corresponding dialog. The input from the shaft items editor is ignored in this case, however it was not hidden. This was fixed and the value is now hidden in this case.

SP 5 - **Resulting bending moment reported for cross sections in the main report was wrong**
The resulting bending moment of the X-Z plane was reported wrong for cross sections in the main shaft report.

KISSsoft - Splines calculation

SP 5 - **Gear tip alteration**
Input of the tip alteration is again possible for shaft/hub connections.

KISSsoft – Planet carrier FEM calculation

SP 5 - **The imported step file cannot contain special characters**
When the imported step file used for the carrier FEM calculation contains special characters (e.g. öäü), the calculation cannot be completed. This is fixed.

KISSsoft Changelog Version 2020 - Service Pack 4

KISSsoft - Bearing calculation

SP 4 - **Fixed lighting in 3D view of load distribution for rolling bearings**
A wrong lighting setting in the 3D view of the load distribution for rolling bearings resulted in dark balls or single black rolling elements.

KISSsoft - Bolt calculation

SP 4 - **Influence of the torsion torque in the calculation of multi bolts connections was wrong**

In the calculation of multi bolts connections, the formula to define the shear forces was wrong, the influence of the torsion torque had the wrong sign.

KISSsoft - CAD interface

SP 4 - **Fixed COM-interface issue causing problems with Siemens NX integration**
There was a bug in the COM interface (introduced with Patch B) that could cause issues in with the KISSsoft/Siemens NX interface.

KISSsoft - Gear calculation

SP 4 - **Iterative wear calculation**
Wear volume and wear mass was calculated only for the last iteration step in the iterative wear calculation. The issue is now fixed.

SP 4 - **Sizing according to the wear safety factor**
Power and torque sizing did not work properly in case sizing criterion was set to wear safety factor. The issue is now fixed.

SP 4 - **Geometry manager causes KISSsoft to close unexpectedly**
In some special cases, the geometry manager caused KISSsoft to close unexpectedly. The issue is now fixed.

SP 4 - **dFf calculation for constructed involutes with premanufacturing**
In some special cases, the dFf was not calculated correctly for constructed involutes with manufacturing. The issue is now fixed.

SP 4 - **SN curve graphics not shown correctly**
In cases where graphical method was selected, the SN curve in the graphic for the root was not shown correctly. It only affected the graphics, not the calculated results. The issue is now fixed.

SP 4 - **Result graphics in modification sizing was not restored**
When restoring data in dialog modification sizing, only the result table was restored but the result graphics were not.

SP 4 - **da and df of the helical pinion type cutter in special drawing report**
In the special drawing data reports, da and df were not shown correctly for the helical pinion type cutter. The issue is now fixed.

SP 4 - **Application factor calculation from load spectrum**
A mistake introduced in version 2020: Equivalent torque and Application factor according to ISO 6336-6 (Annex A-3) was not calculated correctly. The issue is now fixed.

SP 4 - **Operating backlash calculation**
When option reduce tolerance range was activated in tab operating backlash, potential warning messages were not displayed. The issue is now fixed.

SP 4 - **Power and torque sizing**
If using power or torque sizing button for multiple times in a row, then the solution was changing and

was not correct. The issue is now fixed.

SP 4 - **Rough sizing of planetary gears**
In some cases, the setting in rough sizing to control the number of teeth on the sun, was not working properly. The issue is now fixed.

SP 4 - **Calculation of xE for displaced generation**
The calculation of the manufacturing profile shift xE from base tangent length (in tab tooth form) was not correct in case of helical gears and displaced generation. This also resulted in a slightly different tooth thickness. Both issues are now fixed.

SP 4 - **Lifetime sizing not working for bevel gears in case when flank fracture was calculated**
Lifetime sizing was not working for bevel gears in case flank fracture was calculated and ISO calculation method was used. The issue is now fixed. Additionally, some of the results in the report were showing wrong results, but that had no influence on the calculation results.

SP 4 - **3D modification graphics**
Values for the 3D modification graphics for side II were slightly off compared to the theoretical values. The issue is now fixed.

SP 4 - **Asymmetric modification not applied correctly**
In some very special cases, modifications for left flank were not applied correctly to the tooth form. The issue is now fixed.

SP 4 - **VDI 2737 and constructed involutes**
The tooth root strength of constructed involute using VDI 2737 (internal gear) was not calculated correctly. Additionally, if premanufacturing was used and the root was grinded, then the root rounding used for the root strength calculation was not correct. Both issues are now fixed.

SP 4 - **Wrong formula for the calculation of the friction factor myOT corrected**
Wrong formula for the calculation of the friction factor myOT corrected, it was wrong written in the draft standard for the DIN 3996 (2005).
This formula was corrected for the standard DIN 3996:2012

SP 4 - **Rough Sizing would not show solution if only one solution was found**
If rough sizing only found one solution, it would not appear in the results.

KISSsoft - Graphics

SP 4 - **Root stress graphic had no results**
The root stress over the facewidth graphic of the planetary contact analysis showed no results because the step property was missing. This is fixed.

KISSsoft - Plastics Manager

SP 4 - **Small bug fixes in Plastics Manager**
Some small bug fixes were made in the Plastics Manager module: 1. torque merge deviation was not considered correctly in some special cases. 2. when using results data with flank failure, KISSsoft closed unexpectedly in some special cases.

SP 4 - **Impossible to start calculations in plastics manager**
A bug was introduced in patch B, which prevented the user to run the calculation, indicating that the material label is empty. The issue is now fixed.

KISSsoft - Shaft calculation

SP 4 - **Disable the possibility to define single-sided bearings as double-sided**
Single sided bearings such as single row tapered roller bearings could be set as double-sided in the shaft calculation. This was deactivated.

SP 4 - **Angular and tilting offset for general support was not scaled correctly with FD solver**
For general or connection supports, an offset can be specified using a
negative clearance value either for the left or the right clearance.
This was not considered correctly in case of angular or tilting offsets leading to wrong values.

SP 4 - **Shaft sizing could result in a crash of KISSsoft**
An uncaught exception in the shaft sizing feature could cause KISSsoft to crash.

SP 4 - **Invalid input of bin number in the shaft calculation could cause KISSsoft to crash**
Entering a bin number above the total number of bins in the shaft calculation could cause KISSsoft to crash when running a calculation afterwards.

SP 4 - **Defining identical inner and outer shaft for connection bearings could cause KISSsoft to freeze**
For some cases where an user accidentally defined both inner and outer shaft of a bearing to be the same, the user interface could get unresponsive.

KISSsoft - Splines calculation

SP 4 - **Radial backlash display in the report**
The values for the radial backlash jr were not correct. The values are now reduced by a factor of 2.

KISSsoft – Gear body FEM calculation

SP 4 - **State of gear body calculation inconsistency flag**
Gear body calculation does not change to inconsistent when importing a gear calculation file.

KISSsoft – Planet carrier FEM calculation

SP 4 - **Wrong sign of the dt value, for the case of a single sided planet carrier, loaded from side II**
When a single sided planet carrier is loaded from side II, the sign of the dt value calculated from the FEM was wrong.

KISSsys - General

SP 4 - **Characteristic frequencies in system dynamics report and Campbell diagram resonance curves sign.**
Fixed the following errors:
1) All characteristic frequencies in the dynamics' reports are zero.
2) The Campbell diagram resonance curves may refer to negative speeds, depending on the sense of rotation of the shafts.

KISSsoft Changelog Version 2020 - Service Pack 3

SP 3 - **Fixed occasional error when inputing forces and/or moments in the inner geometry bearing calculation**
The inner geometry bearing calculation according to ISO/TS 16281 allows to input displacements/rotations or forces/moments. In case of forces and/or moments as input, some calculations failed and showed an error. This was fixed.

SP 3 - **Angular contact ball bearings were not calculated correctly in case of flipped housing/shaft arrangement**
In case an angular contact ball bearing was attached to the housing with its inner ring and to the shaft with its outer ring, a calculation error caused such arrangements to have a high, non-physical internal axial clearance.

SP 3 - **Wrong pressure angle distance for some tapered roller bearings from Schaeffler**
Some tapered roller bearings from Schaeffler had wrong values for the pressure angle distance in our database, we corrected these values.

SP 3 - **Solid Edge: Interface to Solid Edge 2021**
Interface to Solid Edge 2021 implemented.

SP 3 - **SolidWorks: Interface to SolidWorks 2021**
Interface to SolidWorks 2021 implemented.

SP 3 - **Siemens NX: Interface to Siemens NX 1953**
Interface to Siemens NX 1953 implemented.

SP 3 - **Contact analysis report had missing graphics when called via COM**
The contact analysis report was did not have all contact analysis results graphics in case of called via COM-Interface. This is fixed.

SP 3 - **Static strength calculation of differential bevel gears**
In some cases, when the calculation method was set to "Differential, static calculation", the power, speed and torque were set to 0. The issue is now fixed. Additionally, it is now possible to convert the torque when changing calculation method to "Differential, static calculation", keeping the same circumferential load Fmt.

SP 3 - **Manufacturing twist facewidth**
Effective facewidth of the gear is now used to calculate manufacturing twist.

SP 3 - **Rainflow calculation with Planetary stages**

Rainflow calculation was not working properly, if torque/speed is given on the planet carrier. This is fixed now.

SP 3 - **Gearbox type in the AGMA calculation**
Setting for the gearbox type in the AGMA calculation was not working properly. The input could change after the calculation. The issue is now fixed.

SP 3 - **Collision check in the meshing graphics**
For internal gears, the collision check was not working properly for the right flank in the meshing graphics. The issue is now fixed.

SP 3 - **Power, torque and speed were not converted correctly when changing the reference gear for bevel gears**
Power, torque and speed were not converted correctly when changing the reference gear for bevel gears. The issue is now fixed.

SP 3 - **Triangular end relief not considered correctly in the contact analysis**
Triangular end relief was not considered correctly in the contact analysis. This is limited to cases where no other flank line modifications were applied at the same time. The issue is now fixed.

SP 3 - **Problem with combined shaft/gear calculation**
In some seldom cases, where all gears on a shaft have the same properties, the gear calculation is using the wrong gear definition on the shaft for the face load factor calculation according to ISO 6336-1 annex E and contact analysis. This is fixed.

SP 3 - **Rotation angle due to backlash for 3 and 4 gears**
Rotation angle j.tSys for 3 and 4 gears due to backlash (with one of the gears fixed) was slightly wrong. The issue is now fixed. Additional angles are now also shown in the operating backlash report.

SP 3 - **Tip rounding for asymmetric gears**
The value of the tip rounding/chamfer for the left flank in case of asymmetric gears was not saved correctly. The value was reset after the calculation. The issue is fixed now.

SP 3 - **Saving 3D graphics in matrix format**
In some seldom cases, saving of the 3D graphics in a matrix format caused KISSsoft to close unexpectedly or all data was exported as 0. The issue is now fixed.

SP 3 - **Contact ratio calculation for 3 and 4 gears**
In some special cases with undercut on the intermediate gear, the contact ratio of the gear pair 2/3 was slightly wrong. The issue is now fixed.

SP 3 - **Root form diameter with premanufacturing and form grinding**
In some cases, the root form diameter dFf was not calculated correctly when premanufacturing and form grinding was selected. The issue is now fixed.

SP 3 - **Sound pressure level in contact analysis was wrong for the 2nd pair of 3 gear chain**
Sound pressure level according to Masuda in contact analysis was wrong in the 2nd pair of 3 gear

chain for helical gear.

SP 3 - **Importing tooth form in a special watch format**
In some cases, the import of the tooth form in a special watch format did not work. The issue is now fixed.

SP 3 - **WML factors for ISO14521:2010 corrected**
Lubricant WML-factors in the database were updated from ISO 14532:2005 Draft to the actual ISO 14532:2010.

SP 3 - **Safety against micropitting on tooth**
In the graphics "Safety against micropitting on tooth", the colors in the legend were inversed. The issue is now fixed.

SP 3 - **dNf calculation with protuberance and pre-machining**
In some special cases with protuberance and pre-machining, the dNf was not calculated correctly. The issue is now fixed.

SP 3 - **Required safety against wear**
Size dependent safety factor for wear was not considered correctly in the sizing functionality and in the report. The issue is now fixed.

SP 3 - **Modification sizing was crashing in certain cases**
In case of an error in the tooth form generation (e.g. due to excessive range of value C and/or the factors 1/2), the modification sizing with contact analysis was crashing. This is fixed.

SP 3 - **Problem with partial load setting in contact analysis**
The load free contact analaysis was considering the partial load setting for shafts incorrect in case that the partial load setting was set to "From Shaft calculation". This is fixed.

SP 3 - **Problem with gear body calculation results in contact analysis**
Gear body calculation was not considered correctly in the center distance of the contact analysis and deflection of gear A has been reversed. This is fixed.

SP 3 - **SH and SF results in the fine sizing**
SF smallest and SH smallest values were not calculated displayed in fine sizing results window in case multiple gears were calculated. The issue is now fixed.

SP 3 - **Measurement grid error in face gear**
The measurement grid report for face gear does not give correct results in some cases, especially when the face gear has a high helix angle or high shaft angle.
Now the problem is fixed.

SP 3 - **Bevel gears: Error in calculation of Ca2eq fixed**
Small error in the formula used to calculate the equivalent tip relief of the gear (Ca2eq) fixed.

KISSsoft - General

SP 3 - **File filters in open- and save file dialog did not work for Chinese language**
Predefined file filters in dialogs to open or save a file such as (".txt) did not work correctly when running KISSsoft with Chinese language

SP 3 - **SKF: For some needle bearings the flag without inner/ outer ring is wrong set in the database + new bearings added**
- For some SKF needle bearings in the database the flag without inner/ outer ring was wrong set
- So called 'SKF drawn cup needle roller' bearings are added in the database

KISSsoft - Graphics

SP 3 - **Graphic contact lines on tooth flank showed overlapping lines**
In cases of unloaded parts of the flank due to lead modifications, the Graphic contact lines on tooth flank showed overlapping contact lines along facewidth which was wrong.

KISSsoft - Root stress FEM calculation

SP 3 - **Correction in the use of axial offset in the 3D root stress FEM**
The axial offset of gears was not used correctly in the 3D root stress FEM calculation. This affects mainly the location of maximum stress along the facewidth.

SP 3 - **Correction in the contact analysis settings used in 3D root stress FEM**
The contact analysis (CA) settings set automatically in the 3D root stress FEM, can lead to problems in the run of CA. This is fixed by using the CA settings set in the CA special calculation tab (if present), or the default settings.

KISSsoft - Shaft calculation

SP 3 - **Very large radial bearing offsets could lead to wrong bearing results**
In case of very large radial offsets, the bearing calculation according to ISO/TS 16281 calculation resulted in wrong rating life and stiffness values.

KISSsoft - Splines calculation

SP 3 - **Torque sizing fixed for DIN 5466 and AGMA 6123 methods**
Torque sizing functionality fixed for DIN 5466 and AGMA 6123 methods.

KISSsoft – Planet carrier FEM calculation

SP 3 - **Correction in the geometry of planet carriers with straight flanks**
The cut height of the straight flanks in the planet carrier FEM calculation was not applied correctly.

SP 3 - **Corrections in the handling of the FEM boundary conditions in user-imported planet carrier.**
In the case of planet carrier FEM calculation, when dealing with a user-imported planet carrier geometry, there were some issues with the handling of the FEM boundary conditions. Depending on the imported geometry, final results may be affected.

KISSsys - General

SP 3 - **Handling of Campbell diagram for negative running speeds**
Corrections applied to the Campbell diagram for the case of negative running speeds in the input speed range

KISSsoft Changelog Version 2020 - Service Pack 2

KISSsoft - 3D geometry (STEP interface)

SP 2 - Error in 3D geometry of internal gear with z = 1.
The 3D geometry for internal gear with z = 1 failed when the axial tooth form is used. Now it's fixed.

KISSsoft - Bearing calculation

SP 2 - Oil level in standalone bearing calculation was not correctly forwarded to the SKF bearing cloud interface
When setting a custom oil level in the bearing calculation (W050), that value was not correctly forwarded to the SKF cloud bearing calculation module. This may have raised an error message indicating a wrong oil level or the friction calculation results could have been slightly different.

SP 2 - Improvement: SKF bearing data in KISSsoft updated
SKF bearing data in KISSsoft updated with current data from the SKF database.

KISSsoft - CAD interface

SP 2 - Autodesk Inventor: Interface to Autodesk Inventor 2021
Interface to Autodesk Inventor 2021 implemented.

KISSsoft - Gear calculation

SP 2 - No report shown of planetary contact analysis with load spectrum
In case of contact analysis with planetary gears and load spectrum only the results of the last bin have been shown in the results. This is fixed.

SP 2 - Tooth root radius for internal gear acc. ISO 6336:2019 or VDI 2737
Tooth root radius for internal gear acc. ISO 6336:2019 or VDI 2737, when using premanufacturing and form grinding, was not calculated correctly, which resulted in too low safety factors. The issue is now fixed.

SP 2 - Meaurement grid report for fillet surface gives zero values
Measurement grid report for fillet surface gives zero values if the permissible deviation of the tooth form calculation is too big.

SP 2 - IMPROVEMENT: Intermediate results for YF and YS calculation according to graphical method
Intermediate results for YF and YS calculation according to the graphical method are now available in form of a rps file. The results are available for cylindrical gears.

SP 2 - Wrong contact ratio calculation in case of undercut and negative reserve on the involute
Contact ratio was not calculated correctly in some special cases (undercut on one of the gears, negative reserve on the involute (dNf-dFf<0)). The issue is now fixed.

SP 2 - Measurement grid for worm wheel generates an error when the chamfer angle is not set
Measurement grid for the worm wheel generates an error when the chamfer angle is not set. Now it's fixed.

SP 2 - **ISO 6336:2019 using graphical method with fε**
When using ISO6336:2019 combined with graphical method for YF and YS calculation, the factor fε (load distribution influence factor) was not considered in the YF calculation. This is now added.

SP 2 - **Axial offset not considered correctly in the contact analysis**
Axial offset of the gears was not considered correctly in the contact analysis. Due to the fix, the contact analysis might change a little, depending on the gear configuration and modifications applied (flank line modifications).

SP 2 - **Contact analysis results are not shown correctly on the rack tooth**
Contact analysis results were not shown correctly on the rack tooth. The issue is now fixed.

SP 2 - **Virtual cylindrical gear geometry acc. ISO 10300**
The 2D tooth form of hypoid gears calculated according to ISO 10300 was not correct. The issue is now fixed.

SP 2 - **Importing full tooth as dxf not working in special case**
In some special cases, the import of a full tooth as dxf did not work. The issue is now fixed.

SP 2 - **Crash when opening a 2012 gear file**
In some special cases, opening a 2012 gear file resulted in a crash. The issue is now fixed.

SP 2 - **Measurement grid files not saved for the beveloid gear, face gear and worm wheels.**
Measurement grid files were not saved for the beveloid gear, face gear and worm wheels.

SP 2 - **Double planetary stage (in 4-gear-train module): Various improvements**
For a Double planetary stage in the report additional data is documented (speed and power).
A change of the reference gear (sun or ring gear) produced wrong power data; this is now blocked.

SP 2 - **Proposal for profile and face width modifications**
Sizing button "Proposal for profile and face width modifications" in tab Modifications was not using theoretical diameters for the calculation of the modification values. The calculated values did not match with the values displayed in tab Modifications. The issue is now fixed.

SP 2 - **Manufacturing drawing overlay problem**
In some cases, the manufacturing drawing had layout issues when modifications were applied. The issue is now fixed.

SP 2 - **3D modifications graphic**
The 3D modification graphics was not correct in case of unequal facewidth and/or axial offset applied. The issue is now fixed.

SP 2 - **Planetary profile shift sizing changes value even when hitting cancel**
In the profile shift sizing dialog, the profile shift coefficients change even when hitting cancel.

SP 2 - **Changing the reference gear in modules Z080 and Z170**
When changing the reference gear in the Z170 and Z080 modules, the power was not calculated correctly, resulting in different safety factors. The issue is now fixed.

SP 2 - **Twist and manufacturing twist modifications**
Twist and manufacturing twist were not applied correctly to the tooth form. The issue is now fixed and affects the 2D and 3D geometry as well as the contact analysis results.

SP 2 - **Contact analysis did not set the correct part load torque in shaft calculations referenced for multiple meshings**
The contact analysis did not set the correct part load torque in shaft calculations in case these shaft calculations contained gears with multiple meshes.

SP 2 - **Contact analysis convergence problems**
The contact analysis had convergence problems in cases of unequal facewidth or axial offset. This is fixed.

SP 2 - **Wrong info value of the effective pressure angle for the pressure angle modification**
The effective pressure angle in the info field for the pressure angle modification was slightly wrong for helical gears. Now it's fixed.

SP 2 - **Worm wheel drawing doesn't draw the root and reference circle correctly**
Worm wheel drawing shows the root and reference circle as a straight line. Now it's drawn correctly as an arc of circle.

SP 2 - **IMPROVEMENT: Tooth thickness values shown in the report for the premanufacturing step**
Tooth thickness values are now shown in the report also for the premanufacturing step.

SP 2 - **Planetary rough sizing crashes in certain conditions**
With certain calculation methods planetary rough sizing crashes.

SP 2 - **Improvements on the mass and the mass moment of inertia calculation of bevel gears**
Improvements on the mass and the mass moment of inertia calculation of bevel gears:
The calculation of the mass of a bevel gear was too rough.
Now the calculation is improved by using the pitch cone.
The calculation is still not considering exact tooth form but gives much closer value to the mass of the actual gear.
Also, the mass moment of inertia is added in the report based on the same assumption.

SP 2 - **Generate gear with read-in hobbing cutter**
When generating a gear with an asymmetric read-in hobbing cutter and using normal section for the dxf, the tooth form was not generated correctly. The issue is now fixed.

SP 2 - **Display of YM in Duty Cycles**
Alternating bending factor YM per bin was not displayed exactly. This is now fixed. The results were not affected by this problem.

SP 2 - **Wrong tip and root height for face gear**
Tip and root height were not shown correctly in the tooth form report. The issue is now fixed.

SP 2 - **Applying tip rounding from tab tooth form for internal gears**
In some cases, it was not possible to apply the tip rounding in tab tooth form for internal gears. The issue is now fixed.

SP 2 - **Measured torque/time data conversion with Rainflow**
The new option, Measured torque/time data conversion into a duty cycle with Rainflow,
was improved:
-The 'Spread of torque bin width' is adapted according to an example in ISO6336-6 giving a better distribution at high and low torque.
-Additional information's in the reports.
Fixed: Gear configurations as planetary stages or 3-, 4-wheel chains did not work properly.

SP 2 - **Improvement: Measurement grid report in Zeiss format is implemented for bevel gears**
Measurement grid report in Zeiss format is implemented for bevel gears.

SP 2 - **Tip diameter change when modifications are applied**
In some special cases (start of modification at the tip defined at tip form diameter), the tip diameter of the gear was changed after the modifications were applied. The issue is now fixed.

SP 2 - **Static safety factors inverted in the results window**
Static safety factors (yield <-> ultimate) were inverted in the results window. The issue is now fixed.

KISSsoft - General

SP 2 - **The material type list shows only types that have enties in the data base**
The material selection has a list for the type and a list for the materials of this type. Selecting a type that has no matching data base entries caused messages about unknown data base enries. This is no fixed by not showing these types at all.

KISSsoft - Graphics

SP 2 - **CA graphics did not display curve based axes correctly**
The curved based option did not work for the contact analysis graphics.

SP 2 - **Data Matrix Export was not working**
The 3D-Graphic data matrix export of the modifications was not working. This is fixed .

KISSsoft - KISSdesign

SP 2 - **Update issue in sketcher fixed**
The sketcher was not updated correctly in case keyboard short cuts were used to create elements on a new shaft and the axis was defined above the shaft.

SP 2 - **Background color of column 'input' in power loss table fixed**
The items in the column did not have the grey backgound if they where not editable.

KISSsoft - Root stress FEM calculation

SP 2 - **Wrong working flank selection in the 3D root stress FEM calculation of asymmetric tooth profiles.**
The working flank of asymmetric tooth profiles was not selected correctly in some cases. This resulted in the wrong selection of loaded face in the 3D root stress FEM. The applied correction changes also slightly the FEM results for some normal profiles.

KISSsoft - Shaft calculation

SP 2 - **3D viewer update**
Changing the diameter with the grip points in the shaft editor did not update the 3D viewer.

SP 2 - **Cross section are not shown in detail in the shaft report**
Cross section are not shown in detail in the shaft report, this part was missing.

SP 2 - **Maximum deflection and maximum stress shown in the results window could be wrong in case of using load spectrums**
To determine the maximum deflection and maximum stress shown in the results window, the nominal case was considered even if a load spectrum was configured.

SP 2 - **Mass of shafts with non-circular profiles (e.g rectangular profile) is not calculated correctly**
Mass of shafts with non-circular profiles (e.g rectangular profile) was not calculated correctly.

SP 2 - **A few shaft calculations where the supports were not properly set up did not show an error**
In some rare cases it had happened that the shaft calculation found a solution to a configuration which in fact was not properly supported with bearings or general supports. In such cases no error message was shown even though the results were clearly outside of any reasonable range. This was fixed by now classifying such cases as non-converging solution.

SP 2 - **Inaccuracy in the bearing stiffness matrix calculation for dynamic calculations**
The bearing stiffness matrix used for the dynamic calculations in the shaft module was populated with partially inaccurate terms. This has been fixed and may slightly influence some of the results.

KISSsoft – Planet carrier FEM calculation

SP 2 - **Wrong dt sign in some cases of FEM planet carrier calculation**
In the FEM planet carrier calculation, the resulting sign of the dt value was wrong for the case of the sun being loaded on the right flank and the carrier torque being on side II.

SP 2 - **Wrong pin length used for the load application in the planet carrier FEM calculation with user imported step file.**
The pin length used for the load application in the planet carrier FEM calculation with user imported step file was wrong. Now the full length of the user defined pin is used.

KISSsoft Changelog Version 2020 - Service Pack 1

KISSsoft - CAD interface

SP 1 - **Siemens NX: Interface to NX 1926**
Interface to Siemens NX 1926 added.

SP 1 - Surface factor YRrelT according ISO6336:2006 for nitrided steels
Surface factor YRelT in ISO6336-3:2006 has a printing error in the exponent, 0.0058 should be 0.005. In ISO6336-3:2019 the exponent is 0.005. So, in DIN3990-3 and in ISO6336-3:2006 the exponent is now 0.005.

SP 1 - Virtual number of teeth of a helical gear approximation
For the calculation of the force application angle according ISO 6336-3:2006, a simplified equation 22 was used to calculate the virtual number of teeth for helical gears. Now a more precise equation 21 is used. This change will affect the root strength calculation.

SP 1 - 4 new Solvay plastic materials added
4 new plastic materials from Solvay were added to the KISSsoft database. Only static material data is currently available (fatigue data is being measured). The materials are Amodel AXS-1640HSL, Ryton R 4 200BL, Ryton XE-5430 and Xencor LGF 1930 FW HS. Material data are delivered on request only.

SP 1 - Improvement: AGMA bending stress can be calculated with xE.m, xE.e or xE.i
Following AGMA908, Tooth form factor Y must be calculated with the manufacturing profile shift xE. The basic idea is to measure xE on the finished gear and to use this value. It is not defined in AGMA908 if in design phase, when xE can not be measured, xE max, mean or min should be used. So normally the xE mean is applied in calculations.
Now the input in 'Module specific settings', tab 'Calculations', for 'Strength calculation with tooth thickness' can be used also for AGMA calculations.
The manufacturing profile shift xE used for factor Y is documented in the report.

SP 1 - 2D FEM calculation
Various improvements and small bug fixes were done for the 2D FEM root stress calculation (reports, user interface, equivalent spur gear calculation, ...).

SP 1 - Progress bar on active screen
Progress bars had been shown on the primary screen but are now shown on the active screen.

SP 1 - Added message if h/r is outside of the range for the kf definition (AGMA 6101)
Added message if h/r is outside of the range for the kf definition (strength calculation according AGMA 6101-F19)

SP 1 - Fixed sense of rotation for imported step file
When selecting a reference boundary for the rotation definition of the imported step file, the orientation was not checked. This is now fixed, when setting the rotation after positioning the step file, the value and sense of rotation are passed from the boundary.