Service Pack 5

General

SP 5 - Additional check for bearing speed = 0 in case of load spectrum calculation

In case of load spectrum calculation we now check for bearing speed = 0 in each load bin and not only for nominal speeds. In case of a connecting bearing with the same nominal shaft speeds but different load spectrum speeds, no longer the message about bearing speed = 0 is printed.

SP 5 - Some objects disappeared from the 3D viewer

Some objects could disappeared from the 3D viewer when renaming an object from the Element Tree or when calling functions from the shaft contour context menu.

SP 5 - Tool form not completely closed

In some special cases, the tool geometry was not completely closed when operation "Calculate hobbing cutter/reference profile" was applied in tab tooth form.

SP 5 - Visualization of the centrical load force in the 3D viewer

The values set to the parameters to draw the Fx, Fy and Fz forces were mixed up.

Gears

SP 5 - Info text of the helix angle modification for internal gears

The info text of the helix angle modification for internal gears according to ISO 21771 is fixed. The problem was only in the text. The calculations including the effective helix angle were correct.

SP 5 - Large number of slices for the contact analysis can occasionally show incorrect results

Specifying a large number of slices in the contact analysis tab occasionally generated incorrect results.

SP 5 - Misalignment not considered correctly for Load-free contact pattern

Large misalignments specified could show the incorrect pattern in the Load-free contact pattern graphs.

SP 5 - The value for Dii was not according to the ISO 4156

The value for Dii was not according to the ISO 4156. Before, we recalculated the value again, now we take directly the value from the table.

Cylindrical Gears Rating

SP 5 - No load contact pattern is not correctly generated when shaft files are selected.

No load contact pattern was incorrectly calculating the gaps when shaft files were specified.

SP 5 - Planetary constrains using gear pair calculation in KISSsys

When compound planetary gearbox was modeled in KISSsys using gear pair calculations, then the corresponding gear pair files (.Z12) had a special function activated, where the carrier speed can also be defined. The load spectrum can then also be applied to the planet carrier. However, the displayed planed carrier speeds in the load spectrum table were not shown correctly. The calculation results were not affected.

SP 5 - Rainflow calculation for face gears

The determination of load spectrum from time series (rainflow) did not work for face gears.

SP 5 - Rough sizing for cylindrical gears

Rough sizing functionality for cylindrical gear was not working when running through COM.

SP 5 - Roughness factor Z_R calculation for racks

Roughness factor Z_R calculation for racks according to ISO 6336 was slightly wrong. The difference compared to the old results is small.

Cylindrical Gears Contact Analysis

SP 5 - Discontinous behaviour in some contact analysis cases corrected

In some cases in the contact analysis, a discontinuous behavior is appearing during solving the linear equation system. This happens when suddenly a slice (of the face width) is losing or getting into contact.

SP 5 - Forces on flank corrected

In some cases the load on the flank was slightly wrong due to an issue with the normal vector of the flank.

SP 5 - Issue with slow contact analysis calculation improved

Improvement for contact analysis in cases with unequal facewidth done.

SP 5 - Problem with Hertzian stiffness in stiffness matrix corrected

The stiffness matrix of contact analysis did in some cases consider the Hertzian stiffness even when there was no contact.

SP 5 - Variation of speed in contact analysis

In some cases, the variation of the speed of gear B was not calculated in contact analysis.

Cylindrical Gears Geometry

SP 5 - **Active root diameter d_{Nf} calculation**

Active root diameter d_{Nf} was not calculated correctly in some very seldom cases, when undercut was present on both gears.

SP 5 - **Conversion buttons in tab Tooth form**

For the Tooth form operations "Generate cylindrical gear with pinion type cutter" and "Manufacture cylindrical gear with a gear generation process (cutter, grinding wheel)", the conversion buttons for h^*_{aP0}, h^*_{fP0} and h^*_{FfP0} did not work correctly in case of short pitch tools.

SP 5 - **Hand of helix for the crossed helical gear**

The hand of helix of gear 2 was wrong in the drawing data report for the crossed helical gear.

SP 5 - **Selection of a modification data file**

For a topological modification, the selection of a data file in the tab 'Modifications' is corrected.

SP 5 - **Special report file (.rps) for tool export**

When exporting the hobbing cutter data through the special .rps file, the values for h^*_{aP0} and h^*_{hP0} were not calculated correctly in case when tooth thickness factor reference line was different to $\pi/2$.

Bevel Gears

SP 5 - **EPG calculations now match the KISSsys values**

The values generated during the contact analysis for EPG displacements now correctly match the values seen in the bevel displacements template in KISSsys.

SP 5 - **Load free contact pattern incorrect when shaft files are specified**

When shaft files are used for contact analysis, load free contact pattern were biased from axial deformations.

Globoid Worm Gears

SP 5 - **3D generation error of the worm wheel**

Sometimes, the 3D model of the worm wheel can't be generated when the additional operations are defined in the Tooth form tab.

SP 5 - **3D model of the worm wheel with oversize cutter are fixed**

The 3D model and the measurement grid report of the worm wheel is corrected for the case when the oversize factor is set and the "calculation with normal module instead of axial module" flag is checked.

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Sharing Knowledge

Shafts

SP 5 - Changed bearing supports in Example 11 Marine POD Propulsion

An example 11 Marine POD Propulsion did not converge because it had wrongly defined bearing supports.

SP 5 - Component strength values SSK for Tension/ Compression and Shearing was wrong according FKM

Component strength formulas for SSK for tension/ compression and shearing was wrong according FKM 7th Edition. This was changed between the 6th and 7th Edition, the software wasn't updated yet.

SP 5 - Description of helix angle for bevel/hypoid gear in the shaft report

For bevel/hypoid gears on the shaft, the description for helix angle in the report is corrected.

SP 5 - Details of notch effect updated when moving limited cross sections

The details of the notch effect are updated if the limited cross section is moved to another notch.

SP 5 - Removed message about non-defined load bin when calculating full load spectrum

When the calculation of full load spectrum is considered but an option about considering only one load bin of the load spectrum (which is not selected at that time) is pointing to a non-defined load bin (for example load bin 6 out of total 3 defined load bins) an error message about non-defined load bin was shown.

SP 5 - Shaft length in case of a connecting journal bearing

When a connecting journal bearing is added to the co-axial shaft with non-zero global position of the inner shaft, the length of the inner shaft now has the correct length.

SP 5 - Shaft sizing for deflection corrected

When choosing 'Sizing for deflection', the calculation didn't converge.

Bearings

SP 5 - **Changed bearing type for deep groove thrust ball bearings (one sided) from KRW**

Deep groove thrust ball bearings (one sided) from KRW were in the wrong database table for needle cage bearings. This sometimes also resulted in a non-working approximation of internal bearing geometry.

SP 5 - **Improved convergence of bearing calculation in some cases**

In some certain combinations of loads and internal geometry bearing calculation didn't converge.

SP 5 - **Lifetime of bearings with internal geometry and contact pressure = 0**

Lifetime of bearings with internal geometry and contact pressure = 0 for normal, i.e. engineering notation, is now set to lifetime limit in hours (before it was in revolutions) and for scientific notation to 1e10 hours (before it was set to nan = not a number). In case of load spectrum bin lifetime is always set to 1e10 hours, even in case of engineering notation (before it was set to lifetime limit for engineering notation and to nan = nut a number for scientific notation).

SP 5 - **Symbol for units (minutes) for maximum permissible misalignment in bearing database**

Unit symbol for minutes for maximum permissible misalignment in bearing database is changed from acute to apostrophe. This also enables changing the units via right click on the unit symbol.

SP 5 - **Wrong bearing in the user interface for bearing classic calculation**

When calculating a bearing with the biggest internal or external diameter with module for classic bearing calculation, the diameter and the bearing was automatically changed to next to last selection in the user interface after running the calculation. The calculation itself was carried out with previously selected bearing but the user interface showed the wrong one.

Proof of Strength with Local Stresses

SP 5 - **Selection list of the surface roughness**

When changing the selection list for the surface roughness, the value for own input of R_z was always taken over, not the value from the selected list position.

Tolerance Chains

SP 5 - **Negative tolerances were taken over incorrectly**

In case of negative tolerances, the values were taken over incorrectly.

FEM Calculations

SP 5 - **Correction in the 2D root stress FEM calculation of double helical gears.**

Correction in the geometry used for the 2D root stress FEM calculation of double helical gears, with the CM2 FEM solver.

Scripting

SP 5 - **Generation of random number with uniform distribution**

The generation of random number with uniform distribution in SKRIPT is corrected.

CAD-Interfaces

SP 5 - **Interface to Autodesk Inventor 2023**

Interface to Autodesk Inventor 2023 is added.

SP 5 - **Interface to Siemens NX 2206 added**

Interface to Siemens NX 2206 updated

SP 5 - **User defined parameters in Creo as numbers**

User defined parameters which are exported from KISSsoft to the Creo software, were always set as string, not as e.g. number.

Service Pack 4

General

SP 4 - **KISSsys 3DGLViewer could throw an error message when drawing some planetary models**

Generating planetary models with the 3DGLViewer could throw an error message while drawing the connecting bearings.

Cylindrical Gears Rating

SP 4 - AGMA 6014-B15 Load distribution factor for self-aligning pinion

Load distribution factor calculation according to AGMA 6014-B15 (eq. 25 & 26) for self-aligning pinion was not correctly implemented.

SP 4 - Allow multiple definition of the topological modifications

Currently, we allow the topological modification and the measured manufacturing deviation only once per gear. Now multiple definitions of the modifications are allowed and it's possible to see the effect of the combined modifications.

SP 4 - Average Hertzian Pressure Calculation with Unequal Facewidth

Average Hertzian Pressure was not calculated correctly as it includes the "0" values from portions of the teeth with no load. This occurs when the face widths are unequal or the axial offset is high.

SP 4 - Axial offset for Herringbone gears

It is not possible to define axial offset av for Herringbone gears. The value is now set to 0 mm in the calculation.

SP 4 - Calculation of dFf and dNa for crossed helical gears

Calculation of dNa and dNf has been fixed for crossed helical gears with undercut. This can, in some cases, lead to significant changes in contact ratio and strength results.

SP 4 - Calculation of total contact ratio and working pressure angle

In some cases for cylindrical gears with an undercut, the total contact ratio, the active root diameter, and the working pressure angle were not calculated correctly.

SP 4 - Changing the dedendum coefficient of a hobbing cutter

If you change the dedendum coefficient of a hobbing cutter through a message, now the cutter designation is changed to own input.

SP 4 - dFf calculation for cylindrical gears with undercut

dFf calculation for cylindrical gears with undercut has been improved. The improvement is limited to the cases where root diameter tolerances are manually input.

SP 4 - Effective pressure or helix angle in the modification table

The calculated effective pressure or helix angle shown in the modification table info column is now available also as a KISSsoft variable.

SP 4 - EPG value correction for bevel gears

EPG values generated during bevel contact analysis are corrected and match the KISSsys template values.

SP 4 - Flank calculation according to DNV for bevel gears

The calculated flank contact stress according to DNV in KISSsoft was slightly different compared to the DNV calculation. The reason is that KISSsoft was using the effective facewidth to calculate the stresses, and DNV is using the full facewidth.

SP 4 - Generating a tooth form using an imported asymmetric hobbing cutter from dxf file

In some cases, the tooth form generated using an imported asymmetric hobbing cutter from a dxf file was not fully closed.

SP 4 - Improvements in the calculation of the master gear

Improvements in the calculation of the master gear and bug fix of master gear calculation of crossed helical gears.

SP 4 - KHb calculation with stiffness matrices specified had wrong side loaded

Previously KHb results generated through the gear module sometimes had the wrong side of the flank loaded.

SP 4 - Maximum value of face load factor KHb for GOST calculation

The maximum calculated value of face load factor KHb for GOST calculation was not limited by the maximum value set by the user.

SP 4 - Modification rough sizing and helix angle modification

If option "Centric flankline crowning + helix angle modification" was selected in the "Modification rough sizing", the calculated amount of Helix angle modification had the wrong sign in case option "Use the definition of the helix angle modification as a helix slope deviation according to ISO 1328" was selected.

SP 4 - Pinion type cutter from database - change of behaviour

When a data source for a pinion type cutter is changed from a database to own input, now the number of teeth z0 and the profile shift x0 of the pinion type cutter are defined as user input.

SP 4 - Profile diagram error for twist modification

The profile diagram was wrong for the gears having a natural twist for flank line crowning.

SP 4 - Range of diameter axis of the profile diagram

In cases where the active root diameter is not calculated, the range of the diameter axis of the profile diagram was wrong.

SP 4 - Stanyl TW278F10 (DSM) yield strength data for conditioned state

The conditioned yield strength data for material Stanyl TW278F10 (DSM) is corrected for temperatures -40°C, 23°C and 80°C. The change will affect the calculated static yield safety factors. The issue is now fixed. The updated DAT file can be downloaded from the customer portal.

SP 4 - Steel/plastic gear calculation

For steel/plastic gear pair calculations, the YS, YF, ... factors for the tooth root stress calculation were not documented correctly. The calculated tooth root stress is not affected by this documentation issue.

SP 4 - Total torsional angle for rack and pinion

The total torsional angle [j.tSys] for rack and pinion was not calculated correctly.

SP 4 - Wear calculation in contact analysis

Wear was not calculated correctly in contact analysis for the 2nd gear pair in Z14 and Z15 and for the 2nd and 3rd gear pair in the Z16 module.

SP 4 - Wk measurement values for premanufacturing

In the report, the min and max values for Wk for pre-manufacturing were switched. This only affects gear pairs where the pre-manufacturing step was defined only for gear 1.

Cylindrical Gears Geometry

SP 4 - 2D FEM not working for helical gears where tip chamfer is applied in tab tooth form

The 2D FEM was not working for helical gear when tip chamfer was applied in the tab tooth form. The problem was in the transformation of helical gear to a virtual spur gear.

SP 4 - Error in 3D model with a grinding notch

Sometimes the generation of the 3D FEM model failed for the cylindrical gear with a grinding notch.

Shafts

SP 4 - Cross sections were not calculated for AGMA

If the flag 'Don't abort in case of incorrectly defined cross sections' was set, the calculation runs through and set the safeties for this cross-section to 0. When sizing the critical cross-sections according to AGMA, the square groove will have no influence on this sizing, because this cross-section type isn't defined in the AGMA 2001/2101 method.

SP 4 - For mechanical and heat treatment the maximum KV factor is used

Before, the KV factor was used for heat treatment or for the mechanical treatment (rolled, shot-peened). Now the bigger values from heat treatment or mechanical treatment are used.

SP 4 - The additional mass angular position setting was not transferred from KISSsoft to KISSsys

When the additional mass angular position value was set in KISSsoft, the value was not transferred to KISSsys, or vice versa.

SP 4 - Using KISSsys, the default value from the load cycle type for 'calculation with load spectra' was wrong

The load spectra template in KISSsys has only the possibility to set static, limited life, and infinite life to calculate a load cycle. For limited life, the default setting was the method 'Miner elementary according FKM'. Since the 2021 version, the static method is used as the default setting.

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Sharing Knowledge

Bearings

SP 4 - Corrected calculation of contact angles in case of 4-point bearings with completely defined internal geometry

When using a custom 4-point bearing with fully defined internal geometry and non-zero clearance the contact angles were not calculated properly. If the bearing had no clearance this could not be observed because nominal and initial contact angles are the same.

SP 4 - Improved approximation of internal geometry in some cases

In the case of ball bearings whose internal geometry was given with Z=0, Dw=0, and Dpw > 0 the approximation was carried out for all three parameters instead of only for Z and Dw. In case of roller bearings whose internal geometry was given with Dw > 0, Lwe > 0, Dpw > 0 and Z = 0 the calculation did not converge.

SP 4 - Some bearings of SKF tapered roller bearings (back to back, TDO) are reactivated

Some bearings of SKF tapered roller bearings (back to back, TDO) are reactivated because they were missed in the tables which we received from the manufacturer.

Shaft-Hub Connections

SP 4 - The profile shift coefficient of the DIN 5482 example spline "100x94_e9_H10" was wrong

The profile shift coefficient of the DIN 5482 example spline "100x94_e9_H10" was wrong. This affects the reference profile and the tooth thickness as well. All the DIN 5482 examples were reloaded to include the quality 9 for the shaft and the tip chamfer in the Hub.

SP 4 - Tip circle diameter of the 'Go plug gauges' was calculated incorrectly

The tip circle diameter of the 'Go plug gauges' was calculated incorrectly, the tip circle diameter is now smaller.

Bolts

SP 4 - The diameter DA from the plate is used instead of the diameter dw from the head to calculate the friction radius DKm

If the diameter DA of the plate is smaller than the maximum diameter of the head bearing surface dw, DA is used as the outer diameter to calculate the middle friction radius DKm. This is a deviation from VDI 2230 paper 1, but is clearly more accurate in this case.

SP 4 - Utilization of the minimum yield point is always calculated

The utilization of the minimum yield point is now always calculated, if the input is either the tightening torque or the assembly preload.

FEM Calculations

SP 4 - 3D FEM on ring gear with tip rounding didn't work

In some cases of ring gears in planetary systems with tip rounding, the 3D root stress FEM calculation didn't complete.

SP 4 - Correction in the planet carrier orientation for the case of an imported STEP model of a carrier

Depending on the orientation of the imported STEP model of the planet carrier used for the planet carrier deformation calculation, some problems were occurring.

SP 4 - Correction in the positioning of the gear, used for the CM2(R) FEM calculation

When calculating the root stress of helical inner gears using CM2(R) FEM, there were some cases where the equivalent spur gear was not positioned correctly. The applied correction may also affect FEM results for other types of gears.

SP 4 - Graphic of FEM tooth root stress at the middle section needed some corrections

The tooth profile was not shown correctly for the case of virtual spur gears. Both pure FEM results and modified stresses are now included.

SP 4 - Improvement of the load distribution used in the CM2(R) 3D FEM root stress calculation

The load distribution used in the 3D root stress FEM with the CM2(R) solver was not correct, in the case of spur gears with variable load distribution along the face width (e.g. unequal facewidth).

SP 4 - Problems in the convergence of KISSsys models with housing deformation calculation

In some KISSsys models (especially ones with highly preloaded bearings) there were some convergence problems in the housing deformation calculation.

SP 4 - Small correction in the load distribution used in the 3D root stress calculation of racks

Correction of a small error in the load distribution of racks, used for the 3D root stress FEM calculation. Improvement in the handling of helical racks.

SP 4 - The gear body geometry saved in the stiffness matrix file was not correct

The gear body geometry is saved in the gear body stiffness matrix file. This geometry can then be viewed in the shaft editor of a shaft calculation file, by loading the stiffness matrix in the respective gear.

SP 4 - Wrongly applied load on the 3D root stress FEM of racks with Salome/Code_Aster

When performing 3D root stress calculation of racks with Salome/Code_Aster, the applied load was not set correctly.

COM-Interface

SP 4 - Additional bearings result are now available through the COM interface

The bearing results contained in the meta variable 'WelG.Waelz' are now available through the COM interface by calling GetVarAsJson("WelG.Waelz[##]").

STEP-Interface

SP 4 - Positioning of the 3D bevel gear export via COM interface didn't work correctly

When you export the 3D model of bevel gears via the COM interface, the positioning options didn't work correctly.

CAD-Interfaces

SP 4 - Interface to Siemens NX 2007

The interface to Siemens NX 2007 is added.

SP 4 - Interface to SolidWorks 2022

Interface to SolidWorks 2022 is added.

Service Pack 3

General

SP 3 - Contact analysis graphics for planetary systems

Contact analysis graphics for planetary systems that are shown on the tooth (normal force, stress distribution and safety against micropitting) were not displayed correctly. The calculated results were correct, it was only not possible to see the results properly in the graphics. The issue is now fixed.

SP 3 - For the sigHlim/ sigFlim conversion in the gear material database, a new database entry is added

For sigHlim/ sigFlim conversion in the gear material database, a new database entry has been added instead of opening the conversion dialog to calculate sigHlim or sigFlim. Additional a message was added if the ISO/AGMA quality class is not defined.

SP 3 - KISSsys 2D diagram text looked pixelated

The text in the 2D diagram looked blurry and pixelated.

SP 3 - Shaft transparency setting was not displayed in the kSys3DGLView

The shaft transparency setting was not taken into account when displaying the kSys3DGLView.

SP 3 - The KISSsys Manual and the programing help were not available

Both the KISSsys Manual and the Programming help in the Help menu, were not available.

Gears

SP 3 - KISSsys planetary model crashed when opening a coaxial calculation

For some planetary models, opening a KISSsoft coaxial shaft calculation generated a crash.

Cylindrical Gears Rating

SP 3 - Allow the relative path for the topological modification template

Topological modification and Measured manufacturing deviation were using only the absolute path for the template file. Now the relative path is used and the file is in the same folder can be used by the file name without assigning full path.

SP 3 - Axial offset and common facewidth calculation

In cases when axial offset between the gears was set and the axial offset was bigger than 2 x difference in the facewidth of the gears, then the common facewidth of the gears was not calculated correctly. This affected results like contact ratio, flank safety factor, ... The issue is now fixed.

SP 3 - Bevel gear topological modification sizing doesn't work for the modified blank

The topological modification sizing of the bevel gear doesn't work in some cases for the modified blank. Now it's fixed.

SP 3 - Calculate hobbing cutter not working for imported asymmetric gear in special watch format

'Calculate hobbing cutter' operation in tab tooth form was not working for imported asymmetric gear in special watch format. The issue is now fixed.

SP 3 - Contact line not shown in graphic

The contact line was not shown in the meshing graphic.

SP 3 - Cylindrical gear rough sizing results

In some cases, the first 5 rough sizing solutions were not according to the following definition in the manual: 1. Solution with the most exact ratio 2. Solution with the maximum center distance 3. Solution with the minimum center distance 4. Solution with the largest normal module 5. Solution with the smallest normal module The issue is now fixed. The displayed solutions are now according to the definition in the manual.

SP 3 - Displaying x and y value in the normal force diagram for Z14

The displayed x and y coordinate (when clicking a mouse button) was not shown correctly for the normal force curve graphics from contact analysis of planetary gears. The issue is now fixed. The displayed results in the graphics are not affected.

SP 3 - dNa calculation of Gear 1 in case of undercut on Gear 2

In some special cases, dNa of gear 1 was not calculated correctly in case that gear 2 had undercut. This also affected the calculated contact ratios. The issue is now fixed.

SP 3 - Face/root apex beyond crossing point calculation for bevel and hypoid gears

Face/root apex beyond crossing point calculation for bevel and hypoid gears according to ISO 23509 is modified for pinion with the eq. 150 and eq. 151 instead of eq. 152 and eq. 153. This is discussed with the ISO committee.

SP 3 - Flank fracture safety factors in contact analysis

Flank fracture safety factors were not calculated in contact analysis if the partial load for calculation was < 100%. The issue is now fixed.

SP 3 - Input of inertia values in the user interface was not possible

It was not possible to activate the input fields for inertia in the user interface. The issue is now fixed.

SP 3 - Internal gear pump calculation

Some results of the calcualtion of internal gear pumps were not correct. The issue is now fixed.

SP 3 - Modification table update fixed

The modification table was not updated correctly after sizing if the modification tab was undocked.

SP 3 - Problem with three gears fine sizing

When choosing a solution from fine sizing results of three gears train, the internal message "moduleID not available" pops up and it blocks choosing the solution. Now the problem is fixed.

SP 3 - Reliability factors in AGMA calculation

In some cases, the reliability factors KR for bending and pitting were not considered correctly when calculating service factors. The issue is now fixed.

SP 3 - Single tooth factors ZB and ZD

Single tooth factors ZB and ZD were not calculated correctly according to ISO 6336:2019-2 in case that M1 or M2 was smaller than 1.0. The issue is now fixed.

SP 3 - Special gear report (Tool data export for database)

In the rps file "Tool data export for database", the tip rounding and/or the tip chamfer was not documented properly. In some special cases, also the normal module was not correct. Both issues are now fixed.

SP 3 - Static strength calculation according to ISO 6336

Static strength calculation for cylindrical and beveloid gears was still using YF that was calculated with ISO 6336-3:2006 version. Now the calculation is updated and uses ISO 6336-3:2019 equations.

SP 3 - Switch of license did not reload correctly

Some user interface conditions where not reloded correctly when the user switched the license file.

SP 3 - Taking over a solution from planetary fine sizing resulted in different safety factors

In some cases when deep tooth form is used in fine sizing of planetary gears, the root rounding coefficient of the reference profile was not transferred correctly from the fine sizing results to the main calculation. The issue is now fixed.

SP 3 - Tip clearance in the operating backlash calculation

When considering water/humidity absorption, the tip clearance was not calculated correctly in the operating backlash calculation. The issue is now fixed.

SP 3 - Worm gear forces when using AGMA calculation

Efficiency was not considered when calculating worm gear forces using AGMA 6135. The issue is now fixed.

SP 3 - Wrong helix angle when importing a GDE file

When importing a GDE file for a helical gear, the helix angle was not imported correctly. The issue is now fixed.

Shafts

SP 3 - Added methods to set and get power, torque or speed of a load element through COM

New methods to be used with the COM's interface CallFuncNParam were added to the shaft module. Based on an unique element id of a load, the corresponding power, torque or speed can be get or set. The functions introduced are GetPowerOfShaftItem, SetPowerOfShaftItem, GetTorqueOfShaftItem, SetTorqueOfShaftItem, GetSpeedOfShaftItem and SetSpeedOfShaftItem.

SP 3 - Enabling sizing of tooth trace modification also for option "None"

Sizing of tooth trace modification in the Tooth trace modification calculation has been enabled also for option "None" in the drop down control. In case of "None" the drop down control will be changed to "flankline crowning" and the sizing will be carried out for "flankline crowning".

SP 3 - FKM: Formulas to calculate Kf for splined shaft and splines were swapped

In the strength calculation according FKM the formulas to calculate Kf for splined shaft and splines were swapped (5.3.18 and 5.3.19). To calculate the related stress gradient of the splined shaft cross section, the depth of the splined shaft was not known.

SP 3 - Improved shaft convergence for selected configurations

For some quite specific shaft configurations which required a significant number of iterations to converge, the convergence behavior was improved to reduce the time required to calculate those calculations.

SP 3 - Input as factor for load spectrums of force elements enforced

When defining load spectra for forces in elements such as centrical loads, the corresponding input must be specified as factor. The corresponding dialog was adjusted to enforce this.

SP 3 - Problem in the bearing stiffness matrix part of the report of the shaft system dynamic analysis in KISSsys

The bearing stiffness matrix is not documented correctly in the system dynamics report in KISSsys.

SP 3 - Reference rating life was not shown in the results window in case of load spectrum calculation

For calculations with load spectra, the corresponding bearing reference rating life was not shown in the results window. The reports were not affected and did list these values.

SP 3 - The 3D Viewer didn't display the shaft deformation

The 3D Viewer displayed the shaft elements deformation but not the shaft deformation.

Bearings

SP 3 - Do not cut off bearing lifetime to Lnh = 1 mio h in case of lifetime calculation for load bin in load spectrum

Bearing lifetime which exceeds 1 mio hours is automatically limited to 1 mio hours. Until now this was also done in case of lifetime calculation for load bin in load spectrum unless flag "Display rating life in scientific notation" in module specific settings was checked. This has been changed so that the bearing lifetime for load bin is not cut even if flag "Display rating life in scientific notation" is unchecked.

SP 3 - For four-point bearings reading the file W10 from the bearing module W51

Axial clearance and contact angle in case of four-point bearing were not displayed correctly in user interface when using file interface in module W051, i.e. when calculating a four-point bearing defined in a shaft calculation file in module W010.

SP 3 - Recalculation of an axial bearing offset based on a "pretension" force is removed

In the past, based on the input for "Pretension force in Y-direction" the offset of the rings in Y-direction in a non-mounted bearing could be calculated. This is removed, because it does not serve any practical purpose and because it was frequently misunderstood as a setting to define the pretension force on the bearing in the mounted situation (e.g. after assembly or in operation).

SP 3 - User defined roller length was not considered for roller bearings

In case all 4 relevant internal geometry details were user defined (number of rolling elements, roller diameter, pitch diameter and roller length), the corresponding roller length was not considered and ignored.

Bolts

SP 3 - **Not readed roughness value caused wrong embedding value**

The value for the roughness was only read for 'own input'. Therefor the embedding couldn't be calculated correctly.

SP 3 - **Preview update issue**

The bolt positions were not updated in the preview in some cases.

SP 3 - **The resiliences of the plates were calculated wrongly when an extension sleeve was used**

For the calculation of the resilience of the plates the wrong bearing surface diameter was considered when extension sleeves were used or when the head and nut bearing surfaces differed greatly from each other in diameter.

SP 3 - **The roughness Rz was not correctly read if you change from own input to a list selctionly**

The roughness Rz was not correctly changed back to the value in the database if you change from own input to a list selction.

SP 3 - **Values of the shear strength for cast iron GJL were wrong**

Values of the shear strength for cast iron GJL were wrong, were calculated with old factors.

SP 3 - **Wrong roughness in clamped parts**

The roughness for the clamped parts is read incorrectly from the table.

Hertzian Pressure

SP 3 - **Value b for the width of the pressure ellipse corrected**

The value b for the width of the pressure ellipse to calculate the Hertzian pressure is corrected with 2*b.

FEM Calculations

SP 3 - **Corrections in the dr, dt signs and in the carrier orientation for the planet carrier FEM calculation**

The dr and dt values calculated using FEM had wrong signs in some planet carrier setups (mainly single walled, loaded from side II). The orientation of the planet carrier was also flipped in these cases.

SP 3 - **Limit FEM mesh size for gear bodies with big dimensions**

Gear bodies with big dimensions could lead to very big calculation times. Elements size is now controlled to prevent such cases.

SP 3 - **Update of the reference torque in the planet carrier calculation**

The reference torque of the FEM planet carrier calculation is wrongly reported as zero, if the planet carrier geometry settings window is not opened.

COM-Interface

SP 3 - **Function "CalculateCAStep" no longer requires previous "CalculateCA" call**
Previously "CalculateCAStep" would crash unless the entire contact analysis was run by calling "CalculateCA". It's now possible to run "CalculateCAStep" by itself.

CAD-Interfaces

SP 3 - **Interface to Solid Edge 2022**
Interface to SolidEdge 2022 added.

Service Pack 2

General

SP 2 - **Demo version started always in German**
The language of the demo version was changeable but the setting was not stored for the next start.

SP 2 - **Double click on report failed**
Double click on 'new' report caused a failure.

SP 2 - **Problem in the report generation of the dynamic analysis of shaft system in KISSsys**
An error message appears in KISSsys when the shaft system dynamic analysis report is generated.

SP 2 - **Radio buttons in dialog 'convert profile shift' were not working**
The radio buttons in dialog 'convert profile shift coefficient' were not working correctly.

SP 2 - **Selection in Z09A table did not update the data directly**
After a Selection in the Z09A table, the data was updated only after calculating or switching tabs.

SP 2 - **Specific sliding for crossed helical gears**
In special cases when Hoechst calculation method was selected, it was not possible to generate "Specific sliding" graphics for crossed helical gears. The issue is now fixed.

SP 2 - **Warning about missing folder `KISSsoft` in test version**
If KISSsoft was started in test version mode, a warning about a missing folder `KISSsoft` could appear.

Gears

SP 2 - **The Angle of the first planet is not transferred from KISSsys to KISSsoft**
The position of contact of the first planet setting in KISSsys was not transferred to its respective setting 'Angle to first planet' in KISSsoft

Cylindrical Gears Rating

SP 2 - Applying flank line modifications from modification rough sizing

In some cases, the calculated flank line modification from the modification rough sizing were not taken correctly to the modification tab. The issue is now fixed.

SP 2 - Applying helix angle modification, parallel (arc minute)

When applying "Helix angle modification, parallel (arc minute)", the calculated amount of modification was slightly wrong (we were considering normal pressure angle instead of transverse pressure angle in the equations). The issue is now fixed. The calculated tooth form is now marginally changed, which will also have a small effect on the CA results.

SP 2 - Contact ratio messages for face gear calculation

Sometimes, a wrong contact ratio message was shown for face gears, stating that contact ratio is < 1.0 (even though it was > 1.0). The issue is now fixed.

SP 2 - dFa was not calculated correctly for crossed helical worm

dFa was not calculated correctly for crossed helical worm (Z170) in case that a tip rounding was applied in the normal section.

SP 2 - dNa and dNf not shown correctly in the CA results

dNa and dNf was not displayed correctly in the CA results. The contact analysis results were not affected. The issue is now fixed.

SP 2 - Elliptic deformation calculation in tab Tooth form

It was not possible to calculate elliptic deformation in tab tooth form. The issue is now fixed.

SP 2 - Empty column titles in the rough sizing calculation results table

In special case (when option "Calculate only geometry" was selected in fine sizing), some columns of the rough sizing results table had no titles. The issue is now fixed. The calculated results were not affected.

SP 2 - Face/root apex beyond crossing point calculation

Face/root apex beyond crossing point calculation was not correct for bevel gears. The calculated values were used for information purpose only. The issue is now fixed.

SP 2 - Fine sizing with modification variants

The accepted result from fine sizing was not assigned to a variant when the result contained modifications and the calculation did use modification variants.

SP 2 - 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 2 - Geometry part of the gear report restructured

Geometry part of the gear report is now restructured. The new rpt files are located in ext/rpt/prv folder and must be copied to ext/rpt to use them.

SP 2 - High Hertzian pressure in CA when semi-topping was applied

In some cases when semi-topping was applied on gears, high Hertzian stresses occurred in the contact analysis. The issue is now fixed.

SP 2 - Honing offer tool was not working correctly

Several variables in the honing offer tool did not print correctly (@UNKNOWN DATADICT) and infographics have been wrong. This is fixed.

SP 2 - Imperial unit system bug in modification table

Factor 1 in the modification table was not correctly shown in the imperial unit system. The resulting tooth form was not correct. The issue is now fixed.

SP 2 - Importing tooth form in special watch format (CH)

The import of a tooth form using the special watch format (CH) has been improved.

SP 2 - Individual modifications per tooth were not saved

The data for individual modifications per tooth was not transfered from the input dialog.

SP 2 - License check for calculation files with pre-machining

In case pre-machining was defined and the license ZA5 was not available, the pre-machining step was automatically deleted. The issue is now fixed, the calculation is stopped if the license is not available.

SP 2 - Measurement grid calculation returns error for GDE export

Measurement grid calculation returns error in some cases when the GDE export is activated. Now it's fixed.

SP 2 - Measuring in the bevel gear sketch did not work

The measuring in the bevel gear sketch graphic did not work.

SP 2 - Meshing graphics not shown correctly when running 2D FEM using virtual spur gear

Meshing graphics was not shown correctly when running 2D FEM using virtual spur gear for the second time (meshing graphics was shown with virtual spur gear). It did not affect any results. The issue is now fixed.

SP 2 - Modification rough sizing results

The calculated flank line modifications in modification rough sizing calculation were not calculated correctly. The issue was limited to annex E calculation when considering torque direction. The issue is now fixed.

SP 2 - Normal space width for racks

Normal space width (efn) for racks was not calculated correctly. The issue is now fixed.

SP 2 - Rough sizing crash for cylindrical gears

In certain cases, when the main calculation was not consistent (for instance shaft files were missing), KISSsoft closed unexpectedly when running rough sizing calculation. The issue is now fixed.

SP 2 - Runout values for the operating backlash calculation

In some special cases for small gears (mn<1), the calculated runout values used for the operating backlash calculation were 0. The issue is now fixed.

SP 2 - Saving load spectrum data from a rainflow calculation to a server location

It was not possible to save the load spectrum file from the rainflow calculation to a server location. The issue is now fixed.

SP 2 - Several improvements for profile and tooth trace diagrams

Several improvements and fixes were made for profile and tooth trace diagrams. 1. Improved marker structure to prevent the text overlap. This also solved the problem in the diagram generated through COM interface. 2. Added additional diameter markers, such as reference diameter and operating pitch diameter 3. Always use the nominal face width instead of the effective face width for tooth trace diagram. 4. Added an option to hide tolerance band 5. Added an option to control the number of

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points of profile diagram for GDE export and in profile diagram report. You can change the maximum number of points in the Module specific settings > Diagram. If the input value is big enough such as 9999 or is less than 3, the number of points is controlled automatically by the program. 6. Some other small aesthetic improvements

SP 2 - **Topological modification sizing of bevel gear gives an error when using modified blank**
The topological modification sizing of bevel gear doesn't work when the gear has a modified blank and the distance from the front side to the pitch apex is too small. Now the problem is fixed.

SP 2 - **Unit conversion did not work in modification table**
The value was only shown correctly for the default unit if the user was working with modification variants in the modification table.

Shafts

SP 2 - **Bearing designation added to results window**

In addition to the bearing name also the designation is now shown in the results window.

SP 2 - **Deleted messages about entering own value for clearance in case of tapered roller bearings when using SKF calculation module**

In some cases the message "You cannot enter your own value for the bearing clearance." has been printed when calculating taper roller bearings with SKF calculation module. Since internal clearance can not be set for these bearings anyway the message was wrong. This has been fixed so that the message is not printed anymore.

SP 2 - **Export of load spectrum in the shaft module could fail**

Due to some issue in updating the UI of a shaft load spectrum it could happen, that an export of the load spectrum data contained wrong data.

SP 2 - **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 2 - **Helix direction of internal gear in 3D viewer of shaft calculation and KISSsys (new viewer) is wrong**

Helix direction of internal gear as displayed was wrong in shaft 3D viewer and the new KISSsys 3D viewer. Now it's fixed.

SP 2 - **Improved reporting of contact angle and center of pressure point for bearings with contact angle**

Report of contact angle and center of pressure point in shaft reports has been extended, so that it contains center of pressure point both in global and local coordinates and also the contact angle.

SP 2 - **Load spectrum export / import did not consider absolute values**

When exporting or importing load spectra in the shaft calculation module, they were not properly handled when they were specified with absolute values instead of factors.

SP 2 - **Lubrication and contamination information was missing in the shaft report**

Lubrication and contamination information was missing in the shaft report.

SP 2 - **Non-SKF bearings were listed in the SKF bearing section**

In the results window also non-SKF bearings, without results, were listed in the SKF results section.

SP 2 - **Pressure angle matching issue between gear and shaft calculation**

For some setups with gears that are in contact with multiple counter gears the corresponding operating pressure angle were not calculated correctly in the shaft calculation which resulted in a pressure angle 'not matching' warning.

SP 2 - **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.

SP 2 - **Showing an incorrect sign for maximum bending moment in free cross section**

When defining the maximum bending moment manually in a free cross section, it could occur that the value was shown as negative although this should be an absolute, positive, value.

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SP 2 - The shaft calculation did not correctly consider gears as masses with stiffness acc. to ISO 6336-1

When selecting the shaft calculation option to consider gears mounted by interference fit with stiffness according to ISO 6336-1, the mass of such gears was calculated about 50% too small and stiffness was also slightly too small.

SP 2 - User defined bearing data in calculation file was not updated

If an user defined bearing data was changed in the database, the corresponding serialized data attached to the calculation file was not updated.

SP 2 - Wrong graphical representation of bearing fixation for axial/thrust connecting bearings

Graphical representation of left/right fixation for axial connecting bearings in the shaft editor was reversed. This has been fixed.

Bearings

SP 2 - Calculation of P_1 for thermal safe operating speed for paired tapered roller bearing

The calculation of the thermal safe operating speed according to DIN 732 for paired tapered roller bearings is corrected for P_1.

SP 2 - Corrected calculation of fatigue load limit Cu for roller bearings with Dpw > 100 mm and unknown inner geometry

In cases when fatigue load limit Cu is not given by the bearing manufacturer calculation of Cu for roller bearings with unknown inner geometry is carried out according to equations given in ISO 281 section B.3.3. For bearings with dimensions Dpw > 100 mm until now these calculations assumed the same exponent in the equation both for ball and roller bearings which resulted in smaller Cu for roller bearings (and consequently smaller factor aISO and shorter modified lifetime).

SP 2 - Evaluation error message thrown during the Load Spectrum calculation

An evaluation error message is thrown when the bearing data is collected during the load spectrum calculation.

SP 2 - Internal geometry of custom bearings in the database was not taken into account

Due to changes in the code in version 2021, internal geometry of custom bearings in the database was not taken into account. Instead, internal geometry was approximated from external geometry. This has been fixed.

SP 2 - Roller length for thrust needle cages was ignored

In case that the roller length was specified a roller thrust bearing in the database, the corresponding value was ignored and approximated instead.

SP 2 - The forces for general bearings and general connections are not transferred correctly to KISSsys

When the forces for general bearings and general connections are transferred from KISSsoft to KISSsys, the values were not connected with the correct variable.

Shaft-Hub Connections

SP 2 - In the Feather Key calculation, the required safety 'Smin' variable is obsolete.

The Feather Key calculation 'Smin' variable, used to control the required safety, is obsolete. The new variables 'SminShaft', 'SminHub' and 'SminKey' replace 'Smin', and were introduced to control the required safeties of the shaft, hub and the key separately in the calculation.

Bolts

SP 2 - Extension sleeves under nut takes the wrong admissible pressure

If you have an extension sleeve under the nut the admissible pressure was wrong.

SP 2 - Multibolt configuration with a factor for thrust bolt > 1.0 was not possible to be calculated.

It was not possible to calculate a multibolt configuration with a factor for thrust bolt > 1.0. An error message was shown and the calculation was stopped.

SP 2 - The multi-bolt connection calculation was aborted when FM< FMmax occurred

The multi-bolt connection calculation was aborted when the condition FM < FMmax occurred. The error message was converted into a warning that the calculation will run anyway.

SP 2 - The results for a multi bolt calculation were only the first time calculated

For a multi bolt configuration the results were only calculated once. In following calculations the result remained the same.

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FEM Calculations

SP 2 - **CM2 FEM mesher cannot work when a skin 3D model is requested**
When a skin 3D model is requested in the "Generation of 3D" properties, then the CM2 FEM mesh cannot be generated. This is now fixed

SP 2 - **Depth of cavities in planet carrier cannot be zero**
In some planet carrier designs there may be a need to include a cavity only on one side of the planet carrier. For that reason, it is now possible to define cavities with zero depth.

SP 2 - **Improvement in the quality of the 3D FEM mesh of the CM2 solver**
An improved FEM mesh quality is achieved in the 3D root stress analysis with the CM2 solver. Small differences in the results are expected.

SP 2 - **Limit of FEM mesh size for planet carriers with big dimensions**
In some planet carrier models with big dimensions, the resulting FEM mesh contains too many elements, resulting in an unresponsive FEM solver. A limit in the mesh size is set. This might also result to small differences in models of smaller dimensions.

SP 2 - **Small correction in the handling of convergence accuracy in the housing stiffness calculation**
A small correction is applied in the handling of the convergence accuracy setting in the housing stiffness calculation. Depending on the complexity of the problem, there may be a small difference in the results.

SP 2 - **Small correction made in the generation of contact lines in the 3D root stress calculation of racks.**
There was a small error in the generation of the contact lines used in the 3D root stress calculation of racks.

COM-Interface

SP 2 - **Function "CalculateCAStep" had a bug in some cases with helical gears**
Fixed a bug where helical gears could sometimes have incorrect contact.

STEP-Interface

SP 2 - **Errors in saving 3D gear model via COM interface**
Saving 3D system model was not possible via COM interface when using "ExportGear3D_0" function. Also, in planetary gear, the sun gear is saved instead of the internal gear when using "ExportGear3D_3" function. Same thing happens for three gear and four gear train. Now the errors are fixed.

SP 2 - **Set default view of 3D gear geometry to isometric view**
The default view of 3D gear geometry is set to Isometric view instead of Front view. This is because, for example, in case of using skin model for spur gear, the 3D geometry of the gear is not shown at first sight. This change applies to the single and system models of all gear types including spline. Bevel gear model will not be changed and keep the front view as default.

CAD-Interfaces

SP 2 - Interface to Siemens NX 1980
Interface to Siemens NX 1980 is added.

Service Pack 1.1

General

SP 1.1 - Fixed issue that prevented file access with from network paths
Opening files from or saving files to a uniform naming convention path (UNC), such as \\myServer\..., was not possible.

SP 1.1 - Fixed missing release version information on network installations
If KISSsoft was install on a network share, the corresponding release information such as KISSsoft 2021-SP1 was not shown

SP 1.1 - Fixed recurring update message on network installations
If KISSsoft was install on a network share, it showed a message upon each start indicating an update was available even though it was up-to-date.

SP 1.1 - Fixed results windows and start page that were not shown on network installations
If KISSsoft was install on a network share, the results windows, the start page, and other HTML-based windows were not shown.

Service Pack 1

General

SP 1 - Graphic state was not restored in all cases
The grafic state was not restored from the user settings in cases where the graphic was already open before but not ok.

SP 1 - Rainflow matrix graphic was merging elements when x/y axis was customized
In the case of the x/y axis was scaled by the user, the data points got merged and biased the resulting view of the rainflow data. This is fixed

SP 1 - Rainflow matrix graphic was missing results
The rainflow matrix graphic was showing zero as a result of the frequency in some cases. This is fixed.

Cylindrical Gears Rating

SP 1 - Improved dSm value to be more precise in the profile diagram
The dSm value in the profile diagram could be slightly different as it was not using the exact mean diameter. Now it's improved to show more precise value.

Bevel Gears

SP 1 - The load-free contact pattern was not showing correct data for gear B

The load-free contact pattern of gear B was wrong and showed the results of gear A. This is fixed.