KISSsoft
A Gleason Company

KISSsoft Release 2022
Corrections, Features and Improvements

Service Pack 5

General

SP 5 - **Value display issue in tables**

Under some Windows language settings, table values were not displayed correctly in all cases.

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Cylindrical Gears Rating

SP 5 - **Corrected mean line load value shown in graphic comments**

In the face load factor and gap graphics after the face load factor calculation, the mean line load value shown in the comments didn't consider the load factor correctly.

SP 5 - **Face load factor graphics not shown correctly when a load spectrum bin has no torque.**

The face load factors would show incorrect curves when one of the load spectrum bins had no torque.

SP 5 - **Facewidth ratios added to planetary rough sizing results**

Facewidth ratios b/d_1, b/m_n, and b/a have been added as columns in the rough sizing results.

SP 5 - **Improvements in the fine sizing functionality**

When hobbing cutter is selected in tab Reference profile and then used in fine sizing, the tool is now correctly transferred from fine sizing to tab Reference profile. If cutters from database are used for fine sizing, they are now also correctly transferred to tab Reference profile.

SP 5 - **Increase root stress by 1/0.7 for negative (positive) load bins**

When writing load spectrum results in the special .rps report, the option "Increase root stress by 1/0.7 for negative (positive) load bins" is now considered correctly for S_F and σ_F in case the option was applicable. Additionally, the displayed damage values are also shown correctly in the .rps report.

SP 5 - **Load factor for single bin using inclination and deviation correctly**

If a single bin is chosen for the strength calculation, the resulting inclination and deviation for the proportional misalignment is now considered.

SP 5 - **Planetary face load factor calculation improved to correctly consider planet angle**

The planetary face load factor calculation has been changed to improve the calculation of bending for arbitrary planet positions when shaft files are specified.

SP 5 - **Report and graphics show the correct mean line load and equivalent misalignments for face load factor calculation**

The reports and graphics for the face load factor calculation now show the correct values for mean line load and equivalent misalignments regardless of load factor settings.

SP 5 - **Warning message when carrier torque direction does not match the sign of planet pin deformation**

When accepting planetary misalignment settings, a warning is shown to the user if the direction of torque on the planet carrier does not match the sign for the planet pin deformation (dt).

Cylindrical Gears Contact Analysis

SP 5 - **Error message shown for contact analysis calculations which do not converge**
In cases where the contact analysis does not converge for any step, an error message is shown and the results show inconsistent.

SP 5 - **Show frequencies of transmission error amplitude spectrum in the contact analysis report**
The frequencies of each harmonic order are added to the contact analysis report for the transmission error amplitude spectrum.

Bevel Gears

SP 5 - **Bevel misalignment results corrected when load free pattern was selected**
The generated EPG values were represented incorrectly when the load-free contact pattern option was also selected. The results now give the correct values regardless of the settings.

SP 5 - **Contact analysis problem in case cutter radius r_{c0} was not defined**
Contact analysis calculation is improved in case when cutter radius r_{c0} is not defined properly.

Face Gears

SP 5 - **Face gear 2D geometry generation**
The tooth thickness tolerance is now considered properly for the 2D geometry of the face gear.

Plastics Manager

SP 5 - **Tooth root stresses according to VDI 2736 (YF method C) and DAT file for Delrin 100CPE**
The tooth root stresses according to VDI 2736 (Y_F method C) are now correct in the exported DAT file. Until now, the tooth root stress according to VDI 2545 (Y_F method C) were used. Additionally the DAT file for Delrin 100CPE is updated with the correct values for the tooth root stress.

Shafts

SP 5 - **Interpolation of surface treatment factor between the table values**
The surface treatment factor will be iteratively calculated, so that the value doesn't change erratically. The definition of the surface treatment factor KV will be executed with the outer diameter no longer with the raw diameter.

SP 5 - **Shaft convergence in case of shafts with several inner and outer contours with non-rounded lengths of high precision**
In some rare cases when shaft consists of several inner and outer contours with non-rounded lengths of high precision the shaft calculation didn't converge.

Bearings

SP 5 - **Cylindrical roller bearings with axial fixation**

Improved messages when using cylindrical roller bearings with incorrect axial fixation.

SP 5 - **Graphics for pressure curve in case of double row rolling bearing with proprietary geometry**

When showing graphics of pressure curve for double row rolling bearing with proprietary geometry results for both rows were plotted for the same number of sections. Now one row has negative section numbers and the other one positive, i.e. the same as roller length in case of non-proprietary rolling bearing geometry.

SP 5 - **Rolling bearing displacement in rolling bearing report when considering calculation with load spectrum**

When considering calculation with load spectrum the results for rolling bearing displacement in rolling bearing report were given in millimeters instead of micrometers.

SP 5 - **Rolling bearing subsurface stresses on inner ring**

Calculation of subsurface stresses on inner ring has been revised so that stress σ_z on the surface equals Hertzian contact stress.

SP 5 - **Updated bearing geometry for few Koyo needle roller bearings**

Few needle roller bearings from Koyo have updated inner diameter, outer diameter and width.

Shaft-Hub Connections

SP 5 - **Hub strength values for splines calculation with K_1 factor improved**

For the hub, the strength values R_m and R_p for splines were always calculated with an K_1 factor of 1.

SP 5 - **Hub tip diameter for GO for gauges**

Hub tip diameter d_a for GO gauges according DIN 5480 is improved in the special report.

SP 5 - **Multiple interference fit mean pressure calculation**

For multiple interference fit, the mean pressure is now calculated more precisely.

Bolts

SP 5 - **Calculation of M_{Amin} from input M_{Amid}**
The value for M_{Amin} is recalculated from the M_{Amax} and M_{Amid}, when M_{Amid} is an input.

SP 5 - **Diameter d_w for the M4 bolt according DIN EN ISO 4017**
The diameter d_w for the M4 bolt according to DIN EN ISO 4017 is now correct.

SP 5 - **Multibolt table sizing function**
When calling the sizing function for the Multibolt table, the first three rows were not updated correctly.

SP 5 - **The tightening technique method 'Hydraulic non-frictional and torsion-free tightening' improved**
The tightening technique method 'Hydraulic non-frictional and torsion-free tightening' is improved, so that the torsion has no influence on the calculation.

SP 5 - **Unused material types excluded**
Material types that are not included in the current material database are excluded from the selection box.

Springs

SP 5 - **Tolerances according to DIN EN ISO 6931-1 and DIN EN 10218-2**
The tolerances for the allowances according to the DIN EN ISO 6931-1 and DIN EN 10218-2 were not read correctly for tension and leg springs.

Proof of Strength with Local Stresses

SP 5 - **Protective layer factor for wrought aluminum alloys**
Protective layer factor for wrought aluminum alloys improved according to the FKM guideline.

Scripting

SP 5 - **Contact analysis variables in SKRIPT**
The support of contact analysis results improved within COM and SKRIPT.

CAD-Interfaces

SP 5 - **Interface to Autodesk Inventor 2024**
Interface to Autodesk Inventor 2024 is added.

Service Pack 4

General

SP 4 **- Material names with special character**
Material names did not allow characters like <, <=, etc.

SP 4 **- PDF resolution was set wrongly when exporting report to PDF**
The line width of a graphic, embedded in a report, was wrong in case the report has been exported to PDF.

SP 4 **- Required safeties not taken over**
The required safeties were not taken over from calculation files of older releases.

SP 4 **- System dynamics reports could not be shown**
System dynamics reports (e.g. modal analysis report in KISSsys) could not be loaded and shown.

Gears

SP 4 **- Housing material did not always update correctly**
The housing material for operating backlash did not update correctly if the material was selected using the plus button.

SP 4 **- Housing material in tab operating backlash**
Housing material (if set to own input) in tab operating backlash was not saved correctly to the calculation file. Results of the operating backlash calculation were not affected.

Cylindrical Gears Rating

SP 4 - **Calculation of tooth flank fracture and micropitting for double helical gears**
Calculation of tooth flank fracture and micropitting for double helical gears was adjusted to properly consider force distribution. Changes in the safety factors of tooth flank fracture and micropitting are expected. Also difference in the effective tip relief is possible.

SP 4 - **Carrier shaft file does consider deformation deflection in all cases**
In cases where the carrier shaft file is specified for the face load factor or contact analysis, the direction of deformation was sometimes inverted.

SP 4 - **Max. sliding velocity at the tip**
Max. sliding velocity at the tip vga was not calculated correctly in case of multiple gear pairs. Also the sliding velocity of the second gear in a pair was not correct.

SP 4 - **Maximum possible root radius coefficient in fine sizing**
Maximum possible root radius coefficient was not set correctly in fine sizing when the option deep tooth form was used.

SP 4 - **Pitting resisting power rating according to API 613 revised**
The equation for the calculation of the pitting resisting power rating to API 613 was revised.

SP 4 - **Planetary contact analysis graphics show same results for each planet**
The graphics of the contact analysis for planetary gears showed the same results for each planet when changing the planet number.

SP 4 - **Using US customary units in fine and rough sizing**
Data was not converted correctly if rough, fine and modification sizing was used with US customary units.

Cylindrical Gears Contact Analysis

SP 4 **- Evaluation area option in contact analysis settings caused prevented graphics from being shown.**

Reducing the evaluation area options in the contact analysis prevented certain graphics from being shown and in some cases caused a crash.

SP 4 **- False torsion warning was shown when calculating face load factor according to Annex E in modules with more than one pair**

Warning messages related to the torsion are shown erroneously in modules with more than one pair when calculating the face load factor according to Annex E. One message read "Torque is not taken into account" and another recommended the user to set the torsion direction 'From shaft calculation'. These messages were shown regardless of torsion settings.

SP 4 **- Fine sizing crashed when contact analysis calculation was done**

In some cases contact analysis in fine sizing of cylindrical gears stopped working.

SP 4 **- Partial load w_t for contact analysis calculation in fine sizing for planetary gears**

Partial load w_t for contact analysis calculation for planetary gears was not considered correctly in fine sizing.

SP 4 **- Planetary CA report display of manufacturing deviations even if not considered**

The contact analysis report displays of any previously entered manufacturing deviations from the factors tab even if not considered in the contact analysis tab.

SP 4 **- Planetary CA resultant load factor now uses maximum dynamic factor**

Planetary CA resultant load factor now uses the maximum dynamic factor between sun/planet and planet/ring if the dynamic factor is considered.

Cylindrical Gears Geometry

SP 4 **- 3D gear geometry in Inventor or Solid Works**

In some cases the 3D model of the gear could not be generated in Inventor or SolidWorks.

SP 4 **- Tip form diameter d_{Fa} calculation with semi-topping tool and tip alteration of the gear**

In some special cases (semi-topping tool, positive tip alteration on the gear), the tip form diameter d_{Fa} was not calculated correctly.

Bevel Gears

SP 4 - **3D bevel geometry with modified blank caused an error in special cases**
3D bevel geometry with modified blank caused an error when the option "Use updated approach for the flank line modification calculation" is selected.

SP 4 - **3D model of internal bevel gear**
The 3D geometry of an internal bevel gear is now working correctly. The shaft editor and 3D viewer in shaft calculation module are also fixed accordingly.

SP 4 - **Measurement grid error of bevel gear**
The measurement grid was wrong when the setting "Use updated approach for the flank line modification" is activated.

SP 4 - **Small correction in the bending moment arm calculation**
For bevel gears with $x_{sm} \neq 0$, the calculation of the bending moment arm h_{Fa} was corrected. Only minor differences are expected.

Face Gears

SP 4 - **High accuracy in the face gear for shaft angle not equal to 90°**
Some of the geometries such as the height of the gear body and the assembly distance are more accurate for the face gear with the shaft angle not equal to 90°.

SP 4 - **Measurement grid of face gear fixed**
The measurement grid of a face gear with a shaft angle not equal to 90 degrees and with an axial offset was wrongly disabled since the release 2021 SP3. Now it's enabled again.

Shafts

SP 4 - **Forced response graphic could not be exported as curve**
Fix in the export of Forced Response graphics as curves.

Bearings

SP 4 - **Bearing names of some bearings in the database updated**
Some bearing names had hyphen/minus sign (-) replaced with zero (0), for example 70040B0XL02RS0TVP0L055 instead of 7004-B-XL-2RS-TVP-L055.

SP 4 - **Bearing rating life in revolutions in the special report for classic bearing calculation**
Rating life in revolutions (L10 and Lnm) in the special report for classic bearing calculation were always calculated by considering nominal bearing speed. This resulted in wrong results when considering load spectrum with different rotating speeds.

SP 4 - **Comments for bearing in module Rolling bearing ISO 281, ISO 76**
In case when more than 1 bearing was chosen in module Rolling bearing ISO 281, ISO 76, in some cases bearing 2 had wrong comments in the user interface.

SP 4 - **DIN 31652 with ring nut didn't use the half width to define the lubricant flow rate Q1**
For the calculation according DIN 31652 for with ring nut arrangement uses the half width to define the lubricant flow rate Q1. Until now, the whole width was used.

SP 4 - **Fine sizing of internal geometry bearing in module Rolling bearing ISO/TS 16281**
After performing fine sizing of internal geometry bearing in module Rolling bearing ISO/TS 16281 accepting a solution didn't work.

SP 4 - **Message when shaft definition of connecting bearings is inverted**
When connecting rolling bearing had wrong (i.e. inverted) definition for inner and outer shaft and bearing calculation did not consider bearing stiffness calculation according to ISO/TS 16281 wrong message about transition and interference fits was displayed.

SP 4 - **Roller length in case of proprietary rolling bearing internal geometry data**
In case of using proprietary rolling bearing internal geometry data, the roller length and the positions of roller sections are no longer shown in the rolling bearing reports and in the graphics. Instead, only the numbers of rolling element sections are shown.

SP 4 - **Show custom (OTHER) and RKB rolling bearings in selection drop-downs for existing calculation files**
KISSsoft will now show custom bearings (manufacturer=OTHER) and RKB bearings in bearing selection drop-downs by default also for calculation files made with KISSsoft releases prior to 2022. In case of existing older calculation files until now these two manufacturers had to be explicitly turned on in module specific settings.

SP 4 - **Wrong roller length when using spherical roller bearings with TIMKEN cloud services**
When calculating TIMKEN spherical roller bearings and using TIMKEN cloud services the roller length was multiplied by 2.

Shaft-Hub Connections

SP 4 - **Facewidth sizing for spline-hub connections**
Sizing of the facewidth did not work correctly for spline-hub connections.

Bolts

SP 4 - **Average achieved tightening torque wasn't always correctly calculated**

Average achieved tightening torque wasn't always correctly calculated, in some cases the value wasn't in the middle of the maximum and minimum.

SP 4 - **Bolt length sizing improved**

Bolt length sizing gave in some cases strange results, the sizing is improved now.

Proof of Strength with Local Stresses

SP 4 - **Material selection fixed**

The material was not read from the data base correctly. Some of the material data were different, that can have influence on the static utilization results.

Load Spectrum Generator

SP 4 - **Time series to LDD calculation in KISSsys**

Time series to LDD calculation in KISSsys was not running when KISSsys was installed on the server.

Tolerance Chains

SP 4 - **Tolerance calculation wrong in some cases**

In some cases, the tolerances were wrongly calculated.

FEM Calculations

SP 4 - **Request confirmation from the user before overwriting the stiffness matrix of a gear body**

When using the gear body calculation to generate a reduced stiffness matrix, the confirmation of the user is now requested whenever the selected stiffness matrix file already exists.

SP 4 - **The density of the gear body material is not saved correctly with the file**

When using an "Own input" material definition for the gear body, the density of it was not saved correctly with the calculation file. The calculation is performed correctly.

CAD-Interfaces

SP 4 - **Interface to Siemens NX2212**

Interface to Siemens NX2212 added.

SP 4 - **SolidWorks: To cutout the tooth from a cylinder for helical gears with an helix angle bigger than 14° was not always working**

To cutout the tooth from a cylinder for helical gears with an helix angle bigger than 14° and helix left hand was not always working.

Forced Response Shafts

SP 4 - **Rotating speeds of non-reference shafts in Campbell diagram and Forced response**

When calculating Campbell diagram or Forced response with more than 1 shaft the calculation didn't consider correct shaft speeds of non-reference shafts if own shaft speed was set for these shafts.

Service Pack 3

General

SP 3 - **Assignment of cookies to users refined**

The floating license bundles all of a user's cookies on one computer and counts this as one session. Up to now, license number and MAC address have been used. To increase robustness, the user name is included in the evaluation. This change is transparent to the user.

SP 3 - **COM: Floating license lost after ReleaseModule**

If calling ReleaseModule() via the COM interface the previously aquired floating license is lost. Now in GetModule() this license is reaquired.

SP 3 - **Cross section type 'splined shaft' had no influence in the strength sizing function**

The cross section type 'splined shaft' was not included in the strength sizing functionality.

SP 3 - **Diagrams printed too light in reports**

When printing a report on a printer with high resolution the diagrams in the reports were printed too light.

SP 3 - **Help system issue**

The F1 help did not always show the correct manual page.

SP 3 - **Planetary contact analysis does not consider load factor correctly when calculating efficiency**

The results of the planetary contact analysis incorrectly applied the load factor when calculating the efficiency of the system.

SP 3 - **Position in table was no longer selected after calculation according DIN 5482**

The position in the table for the profiles according was no longer given in all cases after calculation.

SP 3 - **SKF: Some TRB bearings face to face were in the wrong data base class**

SKF: Some TRB bearings face to face were in the wrong data base class

SP 3 - **User defined KUI variable did not work**

The software crashed when loading a KUI file that contained user defined variables.

SP 3 - **Yield strength value for 20 MnCr 5 corrected**

The yield strength value for 20 MnCr 5 was for diameter 16 mm wrong in the database.

Gears

SP 3 - **Unit conversion for factors**

The modification table did change the unitless factor values in the modification table for US customary units.

SP 3 - **Update issue fixed**

Small update issue in the load spectrum table fixed.

Cylindrical Gears Rating

SP 3 - **Micropitting safety in the results window was overwritten by the contact analysis result**
The safety against micropitting in the basic results window is overwritten by the result of the contact analysis. Now, both the results by the contact analysis (method A) and by strength calculation (method B) are shown when available.

SP 3 - **Normal diametral pitch in fine and rough sizing**
When using normal diametral pitch in fine and rough sizing, the solution was not taken correctly to the main calculation. The normal diametral pitch of the accepted solution was wrong.

Cylindrical Gears Contact Analysis

SP 3 - **Frequency values added next to order of harmonic for amplitude spectrum graphs**
For graphs displaying the amplitude spectrum for various results, the frequency value is displayed along side the harmonic order.

Cylindrical Gears Geometry

SP 3 - **Fixed the flank line diagram and the modification graphics for double helical gears**
For double helical gears, the flank line modifications are applied to the left and right half faces symmetrically. But the flank line diagram and the 3D modification graphics wrongly used the total face width. Both problems are fixed to use half of the total net face width.

SP 3 - **Tooth form settings when exporting Z11 or Z12 file from KISSsoft**
Tooth form settings (Tolerance field for calculation, Approximation for export) were not exported correctly to Z11 or Z12 file from KISSsoft when using File -> Export functionality.

Bevel Gears

SP 3 - **3D CAM model of bevel gear**
When exporting the 3D CAD using the Skin Model (Elongated for CAM) for bevel gears with tip alteration, it did not export the modified flank but the nominal flank.

SP 3 - **Virtual gear data added in the report for AGMA calculation**
The virtual gear data for the bevel gears were missing in the report when the calculation method was set to AGMA.

Shafts

SP 3 - **Correction for missing rigid body modes**

Correction for the cases where some rigid body modes were not reported during a modal analysis calculation.

SP 3 - **DIN 743: To calculate the statically safety will always the positive maximum force used in special cases**

DIN 743: To calculate the statically safety will the positive maximum force used if in the load cycle the maximum values have positive or negative and the equal value.

SP 3 - **Negative dimensions for shaft contours**

Inputting of negative dimensions for lengths, diameters, etc. for shaft contours has been disabled in the element editor window

SP 3 - **Shaft temperature in case of single bin calculation**

When calculating SINGLE BIN from a load spectrum shaft temperature given in that load bin was not considered in the calculation of bearing clearance change.

SP 3 - **Strength calculation according FKM Rpmax to calculate the plastic support number is in some cases wrong**

Strength calculation according FKM Rpmax to calculate the plastic support number is in some cases wrong. For torsion, tension and shearing were in some cases wrong values for Rpmax calculated, that the plastic support number npl was wrong.

Bearings

SP 3 - **3D graphics for load distribution of roller bearings with load spectrum and bin > 1**
When showing 3D graphics for load distribution of roller bearings with load spectrum the graphic for load bins > 1 was not correct

SP 3 - **Bearing clearance in case of load spectrum**
In case of load spectrum shaft and bearing reports used to contain information about bearing clearance for nominal loads. For load spectrum calculation these two reports now contain information about bearing clearances for each load bin separately.

SP 3 - **DIN 31652: with ring nut wasn't used the half width to define the parameter**
For the calculation according DIN 31652 for with ring nut arrangement should use the half width to define the parameter Eps, hlim, beta, ... Until now was the whole width used.

SP 3 - **Grease in bearing lubricant drop down menu**
Greases are shown in the bearing lubricant drop down menu.

SP 3 - **Reference bearing lifetime in the shaft calculation report with SKF bearing stiffness interface enabled**
When SKF stiffness interface was enabled bearing reference lifetimes printed in the shaft calculation report in the section containing results of KISSsoft ISO/TS 16281 calculation were taken from SKF bearing stiffness interface and not from KISSsoft calculation. This section was rearranged so that it is now more clear where the results are coming from.

SP 3 - **Wrong pmax in the results for load bins with zero rotating speed**
If bearing rotating speed for some of the load bins was zero, maximum contact pressure of all load bins in the results might not be calculated correctly.

Bolts

SP 3 - **Additional value ratio S_{AE} shown in the result table**
Additional value ratio S_{AE} shown in the result table and in the report for all bolts.

SP 3 - **Graphic pretension forces and tightening torque shows in special cases wrong lines**
Graphic pretension forces and tightening torque shows in case, if it's not yield point controlled wrong lines for vref.

SP 3 - **Smallest safeties of all bolts are written in multi bolts calculation in the report.**
Smallest safeties of all bolts are written in multi bolts calculation in the report.

FEM Calculations

SP 3 - **Correction in the gear selection for the FEM root stress calculation, in the case of 3 and 4 gears chains and planetary gears**
In the FEM root stress calculation, when selecting gear pairs other than the first one (in the case of 3 and 4 gears chains and planetary gears) the gear calculated was not the correct one.

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CAD-Interfaces

SP 3 - **Interface to SolidWorks 2023**

Interface to SolidWorks 2023 is added.

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Service Pack 2

General

SP 2 **- 4 gear chain report not fully shown**
4 gear chain report was not fully shown in case only geometry was calculated.

SP 2 **- Hardness conversion for hardnesses outside of the range**
The hardness conversion was not working correctly in some cases, if the value is outside the range of the table. The extrapolation was wrong then.

SP 2 **- Input for graphic list**
The status could not be defined in the graphic list.

SP 2 **- Sort functionality in tables**
The sort functionality in tables was not available as in previous versions.

Gears

SP 2 **- 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 2 **- Large number of slices for the contact analysis occasionally showed incorrect results**
Specifying a large number of slices in the contact analysis tab occasionally generated incorrect results.

SP 2 **- User interface values changing in the manufacturing tab**
In cases when option 'Start modification at the root: Own input (grinding flank only)' was selected, in some cases the User interface values changed if different radio button was selected.

SP 2 **- Window buttons for rough and fine sizing added**
The window buttons for minimizing and maximizing the rough and fine sizing dialogs were missing.

Cylindrical Gears Rating

SP 2 **- Load spectrum from time series for planetary gears**
Load spectrum from time series was not working for planetary gears when the reference gear was set to planet carrier.

SP 2 **- 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 2 - **Modification fine sizing with variants**

In some special cases when running the modification fine sizing with several variants defined, some of the modifications were not considered properly in the calculation. This happened in case some of the modifications were imported from the Modification tab.

SP 2 - **Problem with face chamfering in contact analysis**

If only on one gear, of a gear pair, face chamfering is applied, the contact analysis was not switching to the calculation model for unequal facewidth.

Cylindrical Gears Geometry

SP 2 - **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 2 - **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 2 - **Minimal tip clearance for fine sizing**

When using option "Adjust dedendum coefficient for minimum tip clearance" in fine sizing, the minimum value for sizing is now taken from Module Specific Settings -> Sizing -> Coefficient for tip clearance. Before the value was taken from Module Specific Settings -> General -> Coefficient for minimum tip clearance. The value can also be set directly in fine sizing using a + button.

SP 2 - **Operation for 'Cut tooth tip' in tab Tooth form**

The operation 'Cut tooth tip' did not work correctly in case a full tooth dxf was imported and the tooth form calculation in KISSsoft was still symmetric.

SP 2 - **Tolerance band in profile diagram**

Tolerance band in profile diagram was working only when Y-axis is set as the rolling length.

SP 2 - **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.

Bevel Gears

SP 2 - **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 2 - **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 2 - **Scuffing and tooth flank fracture calculation for hypoid gears**
In the scuffing and tooth flank fracture calculation for hypoid gears, the forces calculated without friction are now used.

Globoid Worm Gears

SP 2 - **3D generation error of the worm wheel**
Sometimes, the 3D model of the worm wheel couldn't be generated when the additional operations are defined in the Tooth form tab.

SP 2 - **Material list of the worm wheel**
Material list of the worm wheel was wrong read out, the list was corrupt after the first selection.

Crossed Helical Gears

SP 2 - **Rough sizing of crossed helical gears**
Rough sizing for crossed helical gears did not consider the input torque in the calculation. Additionally, the required scuffing safety was ignored in the calculation.

SP 2 - **User interface error in the crossed helical gear and the beveloid gear**
In the crossed helical gear and the beveloid gear, the checkbox for the center distance behaved wrongly. For example, when you uncheck the center distance input and change profile shift coefficient, the checkbox was enabled again.

Shafts

SP 2 - **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 2 - **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.

Bearings

SP 2 - **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 2 - **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.

SP 2 - **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 2 - **Distance to pressure point for TIMKEN single row tapered roller bearings**
Distance to pressure point for TIMKEN single row tapered roller bearings was not calculated correctly

SP 2 - **Improved convergence of bearing calculation in some cases**
In some certain combinations of loads and internal geometry bearing calculation didn't converge.

SP 2 - **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).

Shaft-Hub Connections

SP 2 - **The buttons for the multiple interference fit dialog were missing**
The buttons to handle the rows in the multiple interference fit dialog, were missing.

Synchronizers

SP 2 - **List for wear rate class wasn't correct set**
The selection list for wear rate class wasn't correctly set.

Proof of Strength with Local Stresses

SP 2 - **Own input for roughness**
If you defined an own roughness value, the value was not overtaken, the value was always set to 0 during the calculation.

Tolerance Chains

SP 2 - **Negative tolerances were taken over incorrectly**
In case of negative tolerances, the values were taken over incorrectly.

FEM Calculations

SP 2 - **Improvements in the visualization of the FEM mesh**
Improvements in the FEM post-processor for FEM mesh visualization and discretized colors.

CAD-Interfaces

SP 2 - **Interface to Siemens NX 2206 added.**
Interface to Siemens NX 2206 updated

SP 2 - **Interface to Siemens NX1953 crashed**
The interface to Siemens NX1953 crashed when trying to create a gear from KISSsoft.

SP 2 - **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 1

General

SP 1 **- Arrows for speed of shafts modified in the 3D viewer**
The tip size of the arrow for the speed is increased to improve the visibility. A new arrow is added at the shaft end to visualize the sense of rotation.

SP 1 **- Color scaling in 3D-Graphics corrected**
For the 3D-graphics, the color range is corrected.

SP 1 **- Coordinate system settings of matrix graphics**
For graphics using the matrix diagram, such as Campbell diagram of forced response calculation, the coordinate system settings are corrected.

SP 1 **- Export the profile diagram according to GAMA format**
Export of the profile diagram to GAMA format implemented.

SP 1 **- List of report templates**
A list of used report templates is added on the tab “Information” in the menu 'Report -Settings'. On the same tab the current temporary folder is shown, also a button to copy the path to the clipboard.

SP 1 **- Some objects disappeared from the 3D viewer when the shafts were rotating**
Some objects could disappear form the 3D viewer while the shafts were rotating, if an element from the Shaft view was selected.

Gears

SP 1 **- Display of 'removed' calculation method when opening a KISSsoft gear calculation file from a previous version**
If a KISSsoft file from a previous release is opened with KISSsoft release 2022, and the calculation method was removed, the KISSsoft user interface will show now the removed calculation method additionally.

Cylindrical Gears Rating

SP 1 **- Implementation of DIN ISO 1328-2:2021**
Calculation of "Total radial composite deviation" and "Radial composite deviation, tooth-to-tooth" according to DIN ISO 1328-2:2021 is now implemented.

Cylindrical Gears Contact Analysis

SP 1 **- 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 1 - **Angular position of gears of a 3-gears-train**
Possibility added to define the angular position between the gears 1-2 and 2-3 of a 3-gears train.

SP 1 - **Calculation of protuberance amount for pinion type cutter and constructed involute**
Calculation of protuberance amount pr for pinion type cutter and constructed involute is corrected. Until now, the calculation of protuberance was based on the rack instead on the involute.

SP 1 - **Several improvements for profile diagram**
Several improvements were done for the profile diagram. 1. Direct input of the tolerance band is possible 2. Minimum tolerance band can be defined through direct input 3. Tolerance band can be defined separately for asymmetric flanks through direct input 4. GAMA tolerance band can be imported 5. Profile diagram range can be defined separately with the modification control diameter

Bevel Gears

SP 1 - **Change of the menu title of the Geometry 2D of bevel gear**
The menu titles of the graphics 'Geometry 2D' of bevel gears are changed to indicate the geometry is based on the virtual cylindrical gear.

Globoid Worm Gears

SP 1 - **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.

Crossed Helical Gears

SP 1 - **Added proposition for zero backlash for crossed-helical gears**
In the report of the operating backlash, the proposition for zero backlash changing the tooth thickness and/or the center distance is added. Additionally, in the tab 'Operating backlash' the value for tolerances to get zero backlash is proposed.

Shafts

SP 1 - **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 1 - **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.

Bearings

SP 1 - **Bearings from RKB added to the database**
Bearings from the manufacturer RKB added in the KISSsoft database. All bearing types from the current catalogue from RKB are added.

SP 1 - **Database for SKF bearings updated**
Bearing database was updated with latest bearing data from SKF.

SP 1 - **Disabled constant and elastic bearing ring deformation calculation method**
Constant and elastic bearing ring calculation method is disabled in module Rolling Bearing ISO/TS 16281.

SP 1 - **Proper consideration of raceway profile modifications for cylindrical roller bearings**
Raceway profile modifications for cylindrical roller bearings were taken as half of actual modification.

SP 1 - **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.

Bolts

SP 1 - **User interface for own input for plates material is changed**
The user interface for the definition of the plates material is adopted to the usual layout of other KISSsoft modules.

Springs

SP 1 - **Additional diameters of the mandrel or bush for compression springs added**
In the report, the diameters of the mandrel or bush for compression springs are added.

FEM Calculations

SP 1 - **Deformation scaling value for the maximum animated deformation**
For the FEM post-processor, the maximum animated deformation is now controlled by the scaling for the static view.

Scripting

SP 1 - **Generation of random number with uniform distribution**
The generation of random number with uniform distribution in SKRIPT is corrected.

KISSsoft
A Gleason Company

Interfaces for Data Exchange

SP 1 **- Import profile diagram in GAMA format**

User can import the tolerance range of the profile diagram in the GAMA format.

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