KADKRAFT SYSTEMS
Innovate Simply

KISSsoft
Drivetrain Design Solutions

KISSsoft Release 2019

Module List

NEW

HIGHLIGHTS

- Rolling bearing calculation with connection to SKF cloud
- Contact pattern analysis of asymmetric gears
- Calculation of crossed helical gear with rack
- Feasibility assessment for "Power Skiving"

Sharing Knowledge

Base packages

Base packages

Modules	Description
ZPK	Cylindrical gear package Geometry, control measures (DIN 3960, DIN 3962, DIN 3963, DIN 58400) Tolerances as specified in updated ISO 1328-1:2013 Reference profiles according to JIS 1701-1 Calculation and presentation 2D and 3D of the tooth form for external and internal toothing with tooth flank modification Graphical display of specific sliding One strength calculation for a cylindrical gear, either as specified in DIN 3990, ISO 6336, AGMA 2001, VDI 2545, VDI 2736 or GOST 21354-87 Input of speed for epicyclic gears configuration Tooth friction / power loss acc. to Niemann Extended range for possible profile shift Deep tooth form/short cut tooth form, tools and final machining **NEW** Grinding the tooth root Flash temperature course Scuffing according to DIN 3990 and ISO TS 6336-20/21 Micropitting according to ISO TR 15144-1:2014 (Method B) Input of Individual modifications per tooth **NEW** Arc of circle and spline approximation for 2D export (requires CA1) Extended 2D and 3D tooth form display Animation of gears when meshing, simultaneous display of more than one manufacturing step, measuring function in the graphics, function for saving data for A – B comparison Manual input of active tip and active root diameters in the single gear calculation Tooth form and tool in normal section Collision check, marking of contact point, marking of collision Manufacturing drawings Rights: Z01, Z02 (Z02a, Z13, Z14, Z14a, Z2e), Z05, Z5x, Z5i, Z5j, Z5k, Z19e, Z19m, Z1z
WPK	Shafts and bearing standard package Calculation of deformations also for statically overdetermined systems / multiple supports, and line loads, Input of linear bearing stiffness, Shaft rough sizing 3D display of forces and diagrams of bending also during shaft modeling **NEW** pressure angle and transverse shear Mirror shaft Read-in of a background drawing and show millimeter grid Plain bearings for shaft support Rolling bearing service life (ISO281, L10), Sizing of bearings with price indication **NEW** Bearing power loss One shaft strength calculation, either as specified in DIN 743, in FKM Guideline, Hänchen&Decker, AGMA 6101-E08 or AGMA 6001-E08 Smith and Haigh diagram Extensive bearings database, with and without internal geometry **NEW** Rights: W01, W01c, W01f, W03, W03a, W05, W06a (or W06b, W06c, W6d), W12, K07b

MPK	Shaft-hub connections Cylindrical interference fit Conical interference fit Keys and Woodruff key Multi-Spline, Polygonal connection Involute splined shaft according to DIN5480, ANSIB92, ISO4156, DIN5482, AGMA 6123-B06, AGMA 6123-C16) AGMA 6123 incl. calculation of axis misalignment and crowning and verification of the of the rim fracture Serration shaft with notch flanks according to DIN 5481:2019-4 **NEW** Go and no-go gauges according to DIN 5480 5480-15 Bolts and pins, welded, glued and soldered joints Clamped connections according to Roloff/Matek, Snaprings Arc of circle and spline approximation for 2D export (requires CA1) Rights: M01a, M01x, M01b, M01c, M02a, M02e, M02b, M02d, M02c, Z09, M03a, M08, M09a, Z5i, Z5n, M05
SPK	Bolt calculation according to VDI 2230, Sheet 1, 2015 and Sheet 2, 2014 Single bolt with axial and shearing force Cylindrical flange General connections with user-defined screw configurations (Sheet 2) Calculation according to input FEM results (Sheet 2) Considers high and low temperatures, temperature differences Rights: M04, M04a, M04b
APK	Automotive Friction clutches Synchronization as specified by Borg/Warner Allows for the calculation of either time or force during gear shifting Rights: A10, A20
FPK	Springs Tension springs, compression springs incl. cylindrical and conical compression springs, disc springs (DIN EN 16984:2017, DIN EN 16983:2017 **NEW**), leg springs, torsion springs Tolerance standards for wire diameter (DIN EN 10218:2012, DIN EN 10270-3:2012) Rights: F01, F02, F03, F04, F05, F06
RPK	V-belts, toothed belts, chain drives Strength and dimensioning, roller diameter, distance between axes, number of belts, with or without tensioning pulley Rights: Z90, Z91, Z92
LPK	Stress analysis with local stresses according to FKM Guideline 2012, 6th edition Consideration of support effect, for fatigue and static load For calculation of safety factor and service life on basis of an external FEM calculation Rights: K12
VPK	Linear drive train and Spindles according to Roloff/Matek Calculation of safeties against buckling, flank pressure and more, for the operation modes tightening and loosening Rights: K15
TPK	Chain of tolerances Maximum- minimum dimension analysis, statistic analysis, tolerances: ISO / own input, Rights: K10

	Hardness conversion Hardness conversion according to DIN EN ISO 18265: 2014 from and to HB, HRC, HV, Rm, etc. Rights: K09
HPK	Hertzian Pressure Calculation of hertzian pressure for rolls, balls and planes Rights: K14

Base package Gearbox

Modules	Description
KPK-G	ZPK, WPK, MPK, TPK, HPK Hardness conversion

Base packages complete

Modules	Description
KPK	ZPK, WPK, MPK, SPK, APK, FPK, RPK, LPK, TPK, HPK, VPK Hardness conversion

System Modules

KISSsys

Modules	Description
SYS	KISSsys Software extension for the calculation of complete systems with Power flow transmission calculation, administration of variants and integrated programming language Group-based modeling with new assemblies (e.g. Wolfrom, Ravigneaux) Import of CAD data, collision check Assistant for input of parallel shafts and planetary stages Automated 3D modeling Adding complete stages to an existing model Damage calculation results displayed in tables template for taking into account help results (moment of inertia, etc.) Call the planet carrier deformation calculation in KISSsys Interface to GEMS® (requires CD3) Template for bevel gear displacements (EPG, VHJ) Includes GPK The corresponding KISSsoft modules (minimum WPK, ZPK) are needed Rights: K11, K11a, K11c

Gearbox configurations

Modules	Description
GPK	Package for sizing and rating of complete gearboxes (bearings, shafts, gears) based on KISSsys One to five stage cylindrical gearbox One to four stage bevel and cylindrical gear unit (requires at least ZC1) One to four stage worm and cylindrical gear unit (requires at least ZD1) One and two stage planetary gear unit (requires ZA1), also with coaxial shafts (requires WA1) Load spectra (requires ZZ1, WA8 The corresponding KISSsoft modules (minimum WPK, ZPK) are needed Rights: K11, K11c

KISSsys Efficiency calculation

Modules	Description
KS2	Calculation of efficiency and thermal power Power losses can be changed by predefined factors. Range of options for evaluating thermal power etc. Transferring meshing losses from the contact analysis Power loss and efficiency for plain bearings This function needs a KISSsys or GPK license and requires the appropriate KISSsoft modules (at least WPK, ZPK) Rights: K11h

KISSsys housing deformation

Modules	Description
KS4	Calculation of housing deformation using the bearings' reaction forces Calculates and modifies the bearings offset and tilting The housings' stiffness matrix is used to perform the calculation. This matrix is derived from an FE calculation. (ANSYS, ALTAIR OptiStruct. etc.) This function needs a KISSsys or GPK license and requires appropriate KISSsoft modules (at least WPK, ZPK) Rights: K11j; K20a, K20b, K20c, K20d, K20e

KISSsys Reliability

Modules	Description
KLR	Calculation and display according to Bernd Bertsche, with 3-parameter Weibull distribution. Input of Weibull shape parameter and coefficient for failure free time For cylindrical gears, planetary gear stages **NEW,** bevel gears and rolling bearings Rights: K18

Expert Modules Gears

Cylindrical gears

Configuration / Dimensioning

Modules	Description
ZA1	Planetary gear, Three gears, Four gears Rights: Z01a, Z19g
ZA2	Rack Rights: Z01b
ZA3	Rough sizing Cylindrical gear pre-sizing (gear pairs, planetary trains) Sizing acc. to required safeties, determination of the possible range for center distance and tooth thickness for solutions with the same torque capacity, Display of several suggestions with indication of the total weight (cost optimization) Rights: Z03
ZA4	Fine sizing (macro geometry) Gear pairs, planetary trains, three gears chain, four gears chain **NEW** The optimization produces a list of all possible variants with various parameters; varying of gear module, number of teeth, profile shift, pressure angle, helix angle, center distance Considers assembly conditions For each solution a separate strength calculation is performed Automatic sizing of deep tooth form (requires module ZA5) Calculation of transmission error for all variants (requires module ZA30) Varying the reference profile Individual definition of cutter and pinion type cutter list for each gear All feasible solutions regarding geometry are listed All solutions are classified as to various criteria Display of results in tables and graphics Rights: Z04, Z04a
ZA5	Geometry sizing functions and special calculations Sizing of profile shift related to various criteria Calculation of profile shift based on measured tooth geometry Calculation of tooth thickness allowances based on measured tooth geometry Pre-machining tools with grinding allowance, Topping tools Sizing for tooth height regarding transverse contact ratio Sizing of linear profile modification Crowning and helix angle modification sized whilst taking into account axis inclinations as specified in ISO 6336-1, Appendix E (requires ZA35) Report for tolerances In accordance with ISO 1328, DIN 3961, DIN 58405, BS 436, AGMA 2001, AGMA 2015 Calculation with manufacturing profile shift Sizing of center distance regarding balanced specific sliding Sizing of helix angle regarding various criteria Profile and tooth trace diagram (K diagrams) Rights: Z01x, Z15, Z19a, Z19d, Z19f, Z19h, Z19l, Z19n

ZA6	Profile modifications with worm grinding wheels and dressing wheels You can check whether a required gear with tip relief can be generated with an available worm grinding wheel/dressing wheel Includes the available grinding worms / dressing wheels from a user-defined file. Displays the suitable grinding worms / dressing wheels in a table Rights: Z19j
ZA7 **NEW**	Asymmetric gears Sizing of asymmetric tooth forms for all cylindrical gear configurations Strength calculation as defined in ISO 6336, VDI 2545, VDI 2736: 2014 (requires ZA10, or ZA17, or ZA21) Sizing of root rounding / tool with different radii Rights: Z1y
ZA8 **NEW**	Power skiving, check for feasibility Estimation of the collision of tool and gear, for internal and external gears Fine sizing of the gears with assessment of the collision risk (needs ZA4) Consider tool shank Rights: Z19p

Strength calculation methods

Modules	Description
ZA10	ISO 6336: 2006 Rights: Z02a
ZA11	DIN 3990: 1988 Rights: Z02
ZA12	AGMA 2001, AGMA 2101 Rights: Z13
ZA13	VDI 2737: Calculate the tooth root load capacity of internal teeth with the influence of the rim thickness, edition 2016 Rights: Z23
ZA14	FVA (output of analogue results like Stplus) Rights: Z10
ZA15	Graphical method for calculating the tooth root stress Rights: Z19i
ZA16	AGMA 925: 2003, lubrication gap and flash temperature course according to AGMA Rights: Z19k
ZA17	VDI 2545: 1981, for plastics, wear calculation with safety against shearing according to Fürstenberger Rights: Z14
ZA18	Static strength (metal and plastic) Rights: Z02x
ZA19	BV-RINA for military vessels, RINA 2010 for commercial vessels, Lloyds Register: 2013, DNV41.2, DNVGL-CG-0036 (2015), (requires ZA10) Rights: Z02b, Z02d
ZA20	AGMA 6011, AGMA 6014, AGMA 6011-J14, AGMA 6004, API 613, AGMA 6015 **NEW** Rights: Z13b

ZA21	VDI 2736: 2014, for plastics (Sheet 2), wear calculation with safety against shearing according to Fürstenberger Rights: Z14a
ZA22	GOST 21354-87: 1987, including manufacturing tolerances and tooth thickness allowances Rights: Z02e
ZA23	ISO13691: 2001, for „High speed, special purpose gear units“. Rights: Z02f
ZA24	Tooth root stresses with 2D FEM Calculation of the tooth root stresses for cylindrical gears (with straight or helical teeth) using 2D-FEM Rights: Z38a

Calculation with load distribution

Modules	Description
ZA30	Contact analysis for cylindrical gears, taking into account tooth profile and tooth flank modifications, and shaft deformation Flank fracture according to ISO/DTR 19042 19042-1 (July 2016) (requires ZZ4) Calculation of the excitation force according to FVA-No. 487 Path of contact under load Graphical display of results in groups: excitation, efficiency, forces and stresses, safeties**NEW** Calculation and display of Hertzian pressure, of Contact patterns **NEW** and tooth root stresses along the actual tooth flank Calculation of tooth mesh stiffness and transmission error under load based on the actual tooth form Display of specific sliding, sliding velocity and sliding factors for gears under load from actual tooth form Display of friction loss and local heat generation along the meshing Calculates wear for plastics (dry run) and steel (cold wear) Calculation and display of progression of wear Calculation of safety against micropitting according to ISO TR 15144, Calculation of lubrication gap according to ISO 15144 and AGMA 925 with actual normal force Rights: Z24, Z25, Z27, Z30, Z31, Z31a, Z32, Z36, Z39a, Z39b, Z39c, Z39d
ZA34	Contact analysis for planetary gears, taking into account tooth profile and tooth flank modifications, and shaft deformation Floating sun wheel Flank fracture according to ISO/DTR 19042-1 (July 2016) (requires ZZ4) All other functionalities as described in ZA30. Rights: Z24, Z25, Z27, Z30, Z31, Z31a, Z34, Z36, Z39a, Z39b, Z39c, Z39d
ZA33	Optimization of tooth flank and tooth profile modifications Optimized options for varying and combining data, for example, cross variations of amounts and coefficients All solutions are classified as to various criteria Graphical display of the classification Enhanced graphical representation according to the fine sizing method (requires at least ZA30 or ZA34)

	Rights: Z33
ZA35	Load distribution coefficient KHbeta acc. to ISO 6336 Annex E Gaping and load distribution with shaft deformation and for every variation of tolerances with (+/-)fma and (+/-)fhb displayed as a graphics and listed in the report. Also for individual planets Rights: Z02c
ZA36	Planet carrier deformation, with open-source FE library Code_Aster for parametrized geometry, import of planet carrier data in STEP format Import of calculation results from ABAQUS, Rights: Z37 (requires at ZA35 or ZA34)
ZA38 **NEW**	Contact analysis for asymmetric gears contact stiffness according to Weber/Banaschek Rights: Z32a (requires ZA30 or ZA34 and ZA7)

Contact analysis package

Modules	Description
KAP	ZA30 and ZA34

Contact analysis package complete

Modules	Description
KAPK	ZA30, ZA33, ZA34, ZA35, ZA36, ZA37

Master gears

Modules	Description
ZA40	Master gears Master gear analysis and design Rights: Z29

Gear pumps

Modules	Description
ZB1	Gear pumps, Basic calculation Calculation of the transported volume of oil for gear pumps (without consideration of any feed-back volume) for internal and externally geared pumps for both standard involute and non-involute profiles can be combined with fine sizing Rights: Z26
ZB2	Gear pumps, Enhanced calculation Calculation and presentation of the pump characteristics during contact for detailed analysis and optimization Enclosed volume during mesh (feed-back volume), volume under critical in-flow speed at the narrowest point in entry chamber, total volume under entry pressure, torque on both gears (including option for calculation with or without Hertzian Pressure

	consideration), sliding velocity, wear number Alternatively, the Hertzian flattening due to tooth contact can be considered Rights: Z26a, Z32

Bevel gears

Modules	Description
ZC1	Bevel and hypoid gears geometry Geometry according to DIN 3971 and ISO 23509 dimensions of bevel gears (measurements for manufacturing), for straight, helix- and spiral bevel gears, Conventional production, Klingelnberg or Gleason Conversion of Gleason Dimension Sheet for bevel-gear geometry data to DIN 3971 and vice versa Conversion of Gleason Dimension Sheet for parallel tooth height (Klingelnberg, Oerlikon) Rough sizing Verification of the tooth form separately for inside and outside (toe/heel) Rights: Z07, Z07d, Z07m, Z7s1
ZC10	Generation of a 3D model for exporting straight and helical toothed bevel gears with modifications (apexes not in one point), and spiral bevel gears with modifications, for export. Load-free visual examination of the tooth contact by rotating either one, or both, gears (requires CB1) Rights: Z07p
ZC2	Strength acc. to ISO 10300:2001 and ISO 10300:2014 Methods B and C Calculate scuffing for bevel gears according to ISO/DTS 10300-20:2018 (draft) **NEW** Rights: Z07e
ZC3	Strength according to DIN 3991 Rights: Z07g
ZC4	Strength according to AGMA 2003-B97 and AGMA 2003-C10 Rights: Z07j
ZC5	Strength calculation according to Klingelnberg KN3030 1.2 (Spiral bevel gear, palloid and cyclo-palloid gears) Rights: Z07a
ZC6	Strength calculation according to Klingelnberg KN3030 1.2 (hypoid bevel gear, palloid and cyclo-palloid gears) Rights: Z07b
ZC7	Strength according to VDI 2545 Rights: Z07h
ZC8	Static strength bevel gears / differentials Rights: Z07i
ZC9	Strength acc. to ISO 10300:2014 Method B for Hypoid gears Calculate scuffing for Hypoid gears according to ISO/DTS 10300-20:2018 (draft) **NEW** Rights: Z07f
ZC11	Strength acc. to DNV 41.2, root and flank strength, flank breaking, safety hardening depth Rights: Z07l

ZC12	Fine sizing for bevel, hypoid and differential bevel gears Rights: Z07n
ZC30	Contact analysis under load for bevel gears with straight, helical and spiral teeth. Takes into account microgeometry Graphical display of results in groups: excitation, efficiency, forces and stresses, safeties **NEW** Calculation of contact lines, transmission error and stress ratios Calculation of wear Flank fracture according to ISO/DTR 19042 (draft) (requires ZZ4) Calculation of the relative positions VHJ and axis angle errors directly from the shaft deformation Calculation of the excitation force according to FVA-No. 487 1.2.3 Rights: Z24, Z25, Z27, Z35, Z36, Z39a, Z39b, Z39c, Z39d
ZC33	Modification sizing for bevel gears with straight, helical and spiral teeth. Optimization of tooth flank and tooth profile modifications Optimized combinations and different variations (cross-variations of amounts and coefficients, etc.) works also with topological modifications Classification of all solutions relative to different criteria Graphical display of the classification Rights: Z7o

Worms (Globoid)

Modules	Description
ZD1	Worm gear geometry Cylindrical Worms with enveloping worm wheels, geometry according to ISO14521 and DIN 3975 Control measures for worms (measurement over 3 pins) and worm wheels (measurement over balls) Worm sizing with tool module Rights: Z08
ZD10	Generates a 3D model for export. Load-free visual inspection of tooth contact by rotating either one, or both, gears. For flank forms ZA, ZI and ZN, ZC, ZK (requires CB1) Right: Z08p, Z8s
ZD2	Strength according to ISO 14521 Rights: Z08b
ZD3	Strength according to DIN 3996 DIN 3996: 2018 (draft)**NEW** Rights: Z08a
ZD4	Strength according to AGMA 6034 and AGMA 6135 Rights: Z08c
ZD5	Fine sizing for worm gears Rights: Z08n

Crossed helical gears or Worm gears (Cylindrical-Worm gear)

Modules	Description
ZE1	Geometry of crossed helical gears Calculation of crossed helical gear and worm (cylindrical worm and cylindrical worm gear– as e.g. usual in precisions mechanics) Crossed helical gears with external and internal teeth **NEW** Control measures for worms (measurement over 3 pins) and worm wheels (measurement over balls) Collision check Rights: Z17, Z5k
ZE2	Strength calculation on the basis of ISO 6336/Niemann, method Hirn Rights: Z17a
ZE3	Strength calculation for plastics on the basis of VDI 2545, Hoechst method, wear calculation according to Pech Rights: Z17b, Z17c, Z17f
ZE4	Static strength (bending and shearing) for metal and plastic Rights: Z17d
ZE5	VDI 2736 for plastics (Sheet 3), wear calculation according to Pech Rights: Z17e, Z17f
ZE6	Fine sizing for crossed helical gear Rights: Z17n
ZE7 **NEW**	Crossed helical gear with rack Rights: Z17g

Face Gears

Modules	Description
ZF1	Face gears geometry Calculation module that calculates the geometry of face gears coupled with cylindrical pinion gears. 2D views with tooth form simultaneously on the inside, at the center and on the outside. Checking undercut and pointed tooth tip is performed graphically in the 2D view, while tooth addendum height can be varied to prevent pointed tooth tip (including sizing function). Sizing of optimal facewidth Rights: Z06
ZF10	Generates a 3D model, with offset and any shaft angle, for export (requires CB1) Load-free visual inspection of tooth contact by rotating either one, or both, gears. Rights: Z06f
ZF2	Strength calculation on the basis of ISO6336 and literature Rights: Z06a
ZF3	Strength calculation on the basis of CrownGear/DIN 3990 Rights: Z06b
ZF4	Strength on the basis of ISO 10300, Method B Rights: Z06c
ZF5	Strength on the basis of DIN 3991, Method B Rights: Z06d

ZF6	Static strength Rights: Z06e	

Beveloid Gears

Modules	Description	
ZH1	Beveloid geometry and strength (only for external toothing) The strength calculation is covered by a cylindrical gear calculation strength calculation Profile and tooth trace modifications, e.g. negative crowning etc. Graphical contact analysis Rights: Z50	
ZH10	Generate 3D model for export (requires CB1) Rights: Z50p	

Tooth form calculation

Modules	Description	
ZY1	Extended 2D and 3D tooth form display Animation of gears when meshing, simultaneous display of more than one manufacturing step, measuring function in the graphics, function for saving data for A – B comparison, Tooth form and tool in normal section Collision check, marking of contact point, marking of collision Rights: Z05x, Z05j, Z05k	Included in ZPK
ZY2	Import of tooth form or tool geometry Import of any kind of non-involute tooth shapes or tools (e.g. from CAD or 3D-measuring machine or DXF), Approximation of the normal vectors **NEW** Rights: Z05a	
ZY3	Calculation of milling cutter (hob) and pinion type cutter Calculation of type cutter reference profile and pinion (also for the design of special tools) Rights: Z05c	
ZY4	Calculation of counter gear’s tooth form by generating with actual gear Rights: Z05d	
ZY5	Addition for moulding Compensation of shrinking, spark gap, modification of pinion type cutter Rights: Z05e	
ZY6	Topological modifications, Twist due to manufacturing Progressive profile correction, arc-like running in curve, Elliptical root radius; Rights: Z05f, Z05g	
ZY7	Cycloid- and arc of circle tooth forms, designed Involute, Straight line flank Rights: Z05h, Z05n	

Further gear specific modules

Modules	Description
ZZ1	Load spectra, service life, transmissible torque/power Calculation of transmissible power with and without load spectra Calculation of service life with and without load spectra Calculation of safeties with load spectra (for cylindrical, bevel, and cross helical gears) Taking into account the direction of rotation and load of the individual stages (for cylindrical gears) Rights: Z16, Z16a, Z18, Z18a
ZZ2	Hardening depth Proposal of required hardening depth based on Hertzian pressure (for cylindrical gears, bevel gears) Rights: Z22
ZZ3	Backlash Calculation of acceptance-backlash and operating-backlash Taking into account tooth and shaft bending (requires ZA35) (for cylindrical-, crossed helical- and worm gears) Rights: Z12
ZZ4	Tooth flank fracture calculation for cylindrical and bevel gears According to ISO/DTS 6336-4 **NEW** For bevel and hypoid gears according to ISO/DTS 10300-4:2019 **NEW** Rights: Z07k
ZZ5	Measurement grid points for measuring topology, flank and root, for cylindrical, bevel and crossed helical gears, for worms and globoid worm wheels and for splines For measurement machines: Klingelnberg and Gleason (requires CB1) Rights: Z05o
ZZ7	Normal backlash based on the effective tooth form This calculates the normal backlash for each point of contact for pitch based on the effective tooth form over complete facewidth. This calculation is especially important for the watch manufacturing industry, and for special tooth forms (cycloid, arc of circle or tooth form via DXF), and is available for all cylindrical gear configurations (except for racks) Rights: Z19v

Expert modules Shafts and Bearings

Shafts

Modules	Description
WA1	System of shafts composed of various coaxial shafts Calculation of the deformation in the shaft system Taking into account the bearing offset, bearing clearance, thermal expansion, linked shafts, nonlinear bearing stiffness calculated from the internal geometry Approximation of the internal bearing geometries with optional input of the number of rolling bodies and available data from bearing manufacturers **NEW** Radial bearing can be calculated either with or without an inner or outer ring Rights: W01a, W01b, W03b, W03c, W03d
WA2	Tooth trace modification Calculation of longitudinal deformation Load distribution with and without modification Sizing of the optimal tooth trace modification Take into account gear body deformation Implementation of the displacement matrix from the gear body deformation calculation in DPK (DPK see page 16) Rights: W10
WA3	Buckling (for beams and shafts) Rights: W13
WA4	Critical speeds and frequencies Torsions-, bending-, longitudinal frequencies Campbell diagram Rights: W04, W04x
WA5	Strength calculation according to Hänchen& Decker Shaft design regarding constant equivalent stress and maximal deformation Rights: W06a, W12
WA6	Strength calculation acc. to DIN 743, 2012 edition Shaft design regarding constant equivalent stress and maximal deformation Rights: W06b, W12
WA7	Strength calculation acc. to FKM, 2012 edition Shaft design regarding constant equivalent stress and maximal deformation, Endurance limit calculation for surface treated parts according to section 5.5 Options for coefficient Kf according to sections 4.3.2 and 4.3.3, determining of the core hardness from the tensile strength Rm Rights: W06c, W12
WA10	Strength calculation based on AGMA 6101-E08 and AGMA 6001-E08 Rights: W06d, W12
WA8	Load spectra for shafts and bearings Calculation for shaft limited life- and endurance strength Bearing calculation with load spectra Setting of separate temperatures for each load bin with consideration in the calculation of bearing clearance and lifetime according to ISO/TS 16281

	Rights: W01s, W06s
WA11	Forced vibration Vibration on the shaft calculated on basis of the unbalance response Compensation for imbalances by defining the angular position in the "eccentric mass" force element Rights: W14

Other shaft-specific modules

Modules	Description
DPK	Gear body deformation For asymmetric gear bodies, the resilience of the gear body is calculated using the integrated FE Software Code Aster (flexibility of gear rims and webs in axial plane). Precise determination of the gear flank misalignment. Display of the results of the deformation calculation in the software Salome. Output of the stiffness matrix Also for internal toothing. Gear body geometry for inclined webs Display the gear body in a preview, and check independently of the FE calculation Rights: K16

Bearings

Modules	Description
WB1	Enhanced bearing calculation (L10m, Lnm) Influence of lubrication according to ISO 281-1 Thermally permissible service speed acc. DIN 732 Definition of the contamination for each rolling bearing individually Calculation of bearing rating life and modified rating life using SKF Cloud®**NEW** Rights: W05a
WB2	Reference service life calculation according to ISO 16281 (L10r or Lnmr if combined with Module WB1) Diagram of the load distribution in the bearing Diagram of the load distribution over the rolling bodies and races User specified input of roller profiles Works for thrust needle roller bearings Graphic showing stresses under the contact surface Rights: W05b, W05c (This Module requires WA1)
WB3	Plain hydrodynamic bearings Hydrodynamic radial plain bearings: Oil or grease lubricated, according to DIN 31657, 31657-4:2019 **NEW**, DIN 31652 and Niemann Hydrodynamic axial plain bearings: Calculation of pad thrust bearings, tilting-pad thrust bearings, according to ISO 12130 Rights: W07, W07a, W07b, W07c, W7d, W7e, W08
WB4	Calculation of a single bearing with internal geometry according to ISO/TS 16281 Own input of the inner and outer ring deformation (possible without the WPK) Deformation of bearing rings through external load Input loads from the planetary stage calculation

	Tilting of elastic bearing rings is taken into account Rights: W51
WB5	Rolling bearing fine sizing Optimization of the internal geometry of bearings through variation calculation Variants are displayed in a list, or graphically (needs the WB4 module) Rights: W51a

CAD Interfaces

2D Export

Modules	Description
CA1	2D DXF and IGES Export Rights: K05a, K05e

3D Export

Modules	Description
CB1	STEP and Parasolid format export in 3D through Parasolid kernel Display and export cylindrical gears with modifications, and straight and helical toothed bevel gears (apexes in one point, without modifications), beveloid gears, display as skin model for checking tooth contact, spline (shaft-hub), shafts, rack Rights: K05u

COM Interfaces

Modules	Description
CC1	COM interface, basic Calls basic KISSsoft functions, such as report creation, CalculateRetVal, and KsoftVersion, via the COM interface On request, can also display KISSsoft messages Usage with Python **NEW** Rights: K04
CC2	COM interface, expert (includes CC1) Most of the sizing and optimization functions are provided by the extended COM interface, which is accessed using CallFunc and CallFuncNParam. Contact analysis can now be completely controlled via the COM interface. Rights: K04, K04a

Interfaces for data exchange

Modules	Description
CD1	GDE exchange format: Gear Data Exchange GDE in XML format according to VDI 2610:2014, export available under special reports for cylindrical gears. Rights: K5f
CD2	GAMA exchange format: Gleason Automated Measurement and Analysis GAMA export is now available under special reports for cylindrical gears Rights: K5g
CD3	Interface to GEMS® Data can be exchanged with GEMS® (Gleason's bevel gear manufacturing and analysis software) via KISSsys and KISSsoft **NEW** It is now possible to export and import bevel and hypoid gear geometry data and misalignments due to loads. The results of the GEMS® contact analysis under load can then be displayed in KISSsys. Rights: K11k6, K5j
CD4 **NEW**	Tooth form Export Export of tooth form and tool geometry in X, Y coordinates (optionally also with normal vectors and curvature radii) Data in transverse, normal or axial section Rights: Z5b