

KISSsoft Version 2022

Module List

v2200

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KISSsys Base Packages

Gearbox Kinematics

Module	Description
SYS	KISSsys Software extension for calculating complete systems with power flow transmission calculation, administration of variants and integrated programming language Group-based modeling with new assemblies (e.g. Wolfrom or Ravigneaux) Import of CAD data, collision check Assistant for inputting parallel shafts and planetary stages Automated 3D modeling Quick addition of modules to a model Damage calculation results displayed in tables Template for taking into account additional results (moment of inertia etc.) Planet carrier deformation calculation can be called from KISSsys Interface to GEMS® (requires module CD3) Template for bevel gear displacements (EPG, VHJ) Load spectrum determined from measured torque curve (requires module LKK) Contained module: GPK Required modules: at least WPK and ZPK Rights: K11, K11a, K11c

Standard Gearboxes

Module	Description
GPK	Gear calculation package for sizing and verifying complete gear units, based on KISSsys One- to five-stage cylindrical gear unit One- to four-stage bevel and cylindrical gear unit (requires module ZC1) One- and two-stage worm and cylindrical gear unit (requires module ZD1) One- and two-stage planetary gear unit (requires module ZA1), also with coaxial shafts (requires module WA1) Calculation with load spectra (requires modules ZZ1 and WA8) Required modules: at least WPK and ZPK Rights: K11, K11c

KISSsys Expert Modules

Standard Gearbox Sizing

Module	Description
KS1	Gearbox variant sizing Automated generation of gearbox variants with different stages and transmission ratios from the total ratio and torque on the basis of a KISSsys model For cylindrical gear units whose first stage is a cylindrical, bevel, worm or crossed helical gear stage, and for planetary gear units

Three-axis display of gearbox variants
Rights: K11f

Efficiency

Module	Description
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KS2	Efficiency and thermal rating Calculation of power losses for different meshing, rolling bearings, plain bearings and seals, modification of power loss using factors, torque iteration, taking into account of meshing losses from the contact analysis (requires module ZA30 or ZA34) Determination of thermal rating according to ISO/TR 14179, Part 1 and 2, calculation of heat radiation Rights: K11h
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Modal Analysis

Module	Description
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KS3	Eigenfrequencies and vibration types for transmissions Taking into account of the contact stiffness of gears Calculation of coupled eigenmodes (torsion, bending and axial) Calculation of forced response based on unbalance response Calculation of Campbell diagram Required module: WA1 Rights: K11i1, K11i2, K11i3
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Housing Deformation

Module	Description
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KS4	Housing deformation Calculation of housing deformation on the basis of the bearing forces, determination of bearing offset and tilting of outer ring, iteration of the bearing forces between system calculation and shaft calculation. Requires housing's reduced stiffness matrix (formats according to ANSYS, ALTAIR OptiStruct, etc.) Rights: K11j, K20a, K20b, K20c, K20d, K20e
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KISSsoft Base Packages

Module	Description
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ZPK	<p>Cylindrical gear package</p> <p>Calculation of cylindrical gear pairs and single gears</p> <p>Calculation of geometry, control measurements (DIN 3960, DIN 3962, DIN 3963 or DIN 58400)</p> <p>Tolerances as specified in updated ISO 1328-1,2:2020</p> <p>Reference profiles according to DIN 867, JIS 1701-1, deep tooth forms and short cut toothing, machining addition, grinding of tooth root</p> <p>Strength calculation for a cylindrical gear, either as specified in ISO 6336 (module ZA10), DIN 3990 (module ZA11), AGMA 2001 (module ZA12), VDI 2545 (module ZA17), VDI 2736 (module ZA21) or GOST 21354-87 (module ZA22)</p> <p>Input of speed for epicyclic gears configuration</p> <p>Calculation of tooth friction and power loss according to Niemann</p> <p>Flash temperature progression</p> <p>Calculation and 2D and 3D display of the tooth form for external and internal toothing</p> <p>Scuffing according to DIN 3990 and ISO/TS 6336-20/21</p> <p>Micropitting according to ISO/TS 6336-22 (Method B)</p> <p>Input of an individual tooth flank modification per tooth</p> <p>Generation of variants for modifications</p> <p>Arc of circle and spline approximation for 2D export (requires module CA1)</p> <p>Extended 2D and 3D display of the tooth form (module ZY1)</p> <p>Tip shortening for involute or imported tooth forms</p> <p>Animation of meshing gears, simultaneous display of more than one machining step, measuring function in the graphic, function for saving data for A – B comparison, collision check, marking of contact point, marking of collision</p> <p>Manual input of active tip and active root circles in the single gear calculation</p> <p>Output of manufacturing drawings</p> <p>Extensive material database</p> <p>Contains module: ZY1</p> <p>Rights: Z01, Z01z, Z05i, Z05t, Z05v, Z19e, Z19m</p>
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WPK	<p>Shafts and bearings standard package</p> <p>Calculation of deformations, including for statically overdetermined systems and line loads</p> <p>Shaft rough sizing</p> <p>3D display of forces and diagrams of bending during shaft modeling</p> <p>Mirror shaft</p> <p>Load a background drawing and display millimeter grid</p> <p>Flank line modification (module WA2)</p> <p>Support with rolling bearings, plain bearings or general supports</p> <p>A shaft strength calculation according to either DIN 743 (module WA6), FKM Guideline (module WA7), Hänchen & Decker (module WA5) or AGMA 6101-F19 and AGMA 6001-F19 (module WA10)</p> <p>Smith and Haigh diagrams</p> <p>Calculation of rolling bearing rating life (ISO 281, L10) with sizing function</p> <p>Bearing frictional power loss, input of linear bearing stiffness</p> <p>Extensive bearings database with some internal geometry details</p> <p>Rights: W01, W01c, W01f, W03a, W15, W51b, W51c</p>
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MPK	Shaft-hub connections
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	<p>Cylindrical interference fit, conical interference fit with diametral tolerances taken into account</p> <p>Key, Woodruff key, multi-spline, polygon</p> <p>Involute splined shafts (DIN 5480, ANSI B92, ISO 4156, DIN 5482 or AGMA 6123-C16) AGMA 6123 with calculation of influence on axis inclination and crowning. Test for ring bursting.</p> <p>Serration splines according to DIN 5481:2019-4</p> <p>Go and no-go gauges according to DIN 5480-15</p> <p>Hirth couplings</p> <p>Bolts and pins</p> <p>Clamped connections according to Roloff/Matek, snap rings</p> <p>Extended 2D and 3D display of the tooth form (module ZY1)</p> <p>Contains module: ZY1</p> <p>Rights: M01a, M01x, M01b, M01c, M02a, M02b, M02c, M02d, M02e, Z09, M03a, M05, M06, Z05i and Z05n</p>
SPK	<p>Bolt calculation according to VDI 2230, Sheet 1, 2015 and Sheet 2, 2014</p> <p>Single bolt with axial and shearing force</p> <p>Cylindrical flange connection</p> <p>General connections with user-defined hole pattern (Sheet 2)</p> <p>Calculation according to input FEM results (Sheet 2)</p> <p>Taking into account of temperature differences</p> <p>Rights: M04, M04a, M04b</p>
APK	<p>Elements for gearbox with shifting elements</p> <p>Friction clutches according to VDI 2241:1982</p> <p>Synchronization as specified by Borg/Warner</p> <p>Enables either time or force to be calculated for gear shifting</p> <p>Rights: A10, A20</p>
FPK	<p>Springs</p> <p>Tension springs, compression springs (cylindrical and conical compression springs), disc springs (DIN EN 16984:2017, DIN EN 16983:2017 with internal or external slots), leg springs, torsion bars</p> <p>Tolerance standards for wire diameters (DIN EN 10218:2012, DIN EN 10270-3:2012)</p> <p>Rights: F01, F02, F03, F04, F05, F06</p>
LKK	<p>Load spectrum generator</p> <p>Load spectrum generation from time series for gears, shafts and bearings</p> <p>"Simple counting" for generating a load spectrum without taking into account alternating torques</p> <p>"Rainflow counting" for generating a load spectrum from time series with alternating torques for gears</p> <p>Rights: K19, K19a</p>
RPK	<p>V-belts, toothed belts and chains</p> <p>Strength and sizing of belt and chain length, roller diameter, center distance, number of belts, with or without tensioning pulley</p> <p>Rights: Z90, Z91, Z92</p>
LPK	<p>Stress analysis with local stresses</p> <p>Calculation according to FKM Guideline 2020, 7th edition</p> <p>Taking into account of the supporting effect for fatigue and static load</p> <p>For calculation of safety factor and service life on basis of an external FEM calculation</p> <p>Rights: K12</p>

VPK	Linear drive trains and spindle drives Calculation, according to Roloff/Matek, of safety against buckling, contact stress and more, for tightening and loosening Rights: K15
TPK	Chain of tolerances Maximum and minimum size analysis, expected values, tolerances according to ISO/own input Rights: K10
RCK	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 rollers, balls and planes Rights: K14

Base Packages Gearbox

Module	Description
KPK-G	Module ZPK, WPK, MPK, TPK, HPK and RCK

Base Packages Complete

Module	Description
KPK	Module ZPK, WPK, MPK, SPK, APK, FPK, LKK, RPK, LPK, TPK, HPK, VPK and RCK

KISSsoft Expert Modules for Gears

Cylindrical Gears

Configuration/Gear sizing

Module	Description
ZA1	Planetary gears, three gears, four gears Rights: Z01a, Z19g
ZA2	Rack Rights: Z01b
ZA3	Rough sizing of macrogeometry for gear pairs and planetary gear stages Sizing according to required safeties, determination of the center distance and facewidth for solutions with the same torque capacity, display of multiple variants, specification of total weight Rights: Z03
ZA4	Fine sizing of macrogeometry

	<p>for gear pairs and planetary gear stages, three gears, and four gears Variation of the module, number of teeth, profile shifts, pressure angle, etc. Calculation of all executable variants, taking into account the installation constraints Automatic sizing of deep tooth forms (requires module ZA5) Calculation of transmission error for all variants (requires module ZA30) Specification of cutter and pinion-type cutter lists per gear All solutions are classified on the basis of different criteria Display of results in tables and graphics Rights: Z04, Z04a</p>
ZA5	<p>Sizing functions and special calculations Sizing of profile shift using different criteria Calculation of the profile shift and tooth thickness allowances from the measured tooth geometry, pre-machining tools with grinding stock, topping tools Sizing of the reference profile for a required transverse contact ratio Rough sizing of modifications (microgeometry), tip and root relief (linear, progressive and logarithmical), crowning and helix angle modification sizing, taking into account axis inclinations as specified in ISO 6336-1, Annex B or in ISO 6336-1, Annex E (requires module ZA35) Report for tolerances according to ISO 1328, DIN 3961, DIN 58405, BS 436, AGMA 2001 or AGMA 2015 Calculation with manufacturing profile shift Sizing of center distance to take into account balanced specific sliding Profile and tooth trace diagrams (K diagrams) Rights: Z01x, Z15, Z19a, Z19d, Z19h, Z19l, Z19n</p>
ZA6	<p>Profile modifications with grinding worms and dressing wheels Calculation of profile modifications on the basis of the geometry of the dressing disc Includes the grinding worms/dressing wheels present in a user-defined file Display of the grinding worms/dressing wheels that are suitable for the toothing Rights: Z19j</p>
ZA7	<p>Asymmetrical gears Calculation of the asymmetric tooth form for all cylindrical gear configurations Strength calculation according to ISO 6336 (requires module ZA10), VDI 2545 (requires module ZA17) or VDI 2736 (requires module ZA21) Sizing of root rounding on a tool with different radii Rights: Z01y</p>
ZA9	<p>Double pinions Kinematics as a double pinion in a four-gear chain (requires module ZA1) Check for collisions Sizing of center distances (requires module ZA4) Rights: Z01c</p>

Strength Calculation Methods

Module	Description
ZA10	<p>Strength according to ISO 6336: 2019 and ISO 6336: 2006 (replaced) Rights: Z02a</p>
ZA11	<p>Strength according to DIN 3990: 1987 Rights: Z02</p>
ZA12	<p>Strength according to AGMA 2001 and AGMA 2101</p>

	Rights: Z13
ZA13	Strength according to VDI 2737: 2016 Tooth root load capacity of internal gears with influence of gear rim thickness Rights: Z23
ZA15	Graphical method for tooth root stress calculation Rights: Z19i
ZA16	Strength according to AGMA 925: 2003 Lubrication gap and flash temperature curve according to AGMA Rights: Z19k
ZA17	Strength according to VDI 2545: 1981 Wear calculation with safety against shearing according to Fürstenberger Rights: Z14
ZA18	Static strength for plastics and metal Rights: Z02x
ZA19	Strength according to BV-RINA and DNV standards BV-RINA for military vessels, RINA 2010 for commercial vessels, Lloyds Register: 2013, DNV41.2, DNVGL-CG-0036 (2019) Required module: ZA10 Rights: Z02b, Z02d
ZA20	Strength according to AGMA standards AGMA 6011, AGMA 6014, AGMA 6011-J14, AGMA 6004, API 613: 2021 or AGMA 6015 Rights: Z13b, Z13c
ZA21	Strength according to VDI 2736: 2014 For plastics (Sheet 2), wear calculation with safety against shearing according to Fürstenberger Rights: Z14a
ZA22	Strength according to GOST 21354-87: 1987 including manufacturing tolerances and tooth thickness allowances Rights: Z02e
ZA23	Strength according to ISO 13691: 2001 for "high-speed special-purpose gear units" Rights: Z02f
ZA24	Tooth root stresses with 2D FEM Calculation of tooth root stresses for cylindrical gear pairs (with straight or helical teeth) Calculation with integrated FEM Solver (CM2®) or Code Aster FEM results display in KISSsoft or with Salome Rights: Z38a

Calculations with Load Distribution

Module	Description
ZA30	Contact analysis for cylindrical gears taking into account flank modifications and shaft deformation Tooth flank fracture according to ISO/TS 6336: 4 2019 (requires module ZZ4)

Calculation of the excitation force according to FVA-No. 487
Calculation of path of contact under load
Graphical display of the results in the excitation force, efficiency, forces and stresses groups
Calculation and display of Hertzian pressure, contact pattern and tooth root stresses along the actual tooth flank
Load-free contact pattern and display of the assembly contact pattern
Calculation with conical profile shift
Calculation of contact 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 power and local heat generation along the meshing
Wear calculation for plastic (dry run) and steel (cold wear)
Calculation and display of the progression of wear
Calculation of safety against micropitting according to ISO/TS 6336: 22
Calculation of lubrication gap according to ISO/TS 6336: 22 and AGMA 925 with actual normal force
Calculation of power loss and speed across the meshing
Rights: Z24, Z25, Z27, Z30, Z31, Z31a, Z32, Z32b, Z32c, Z36, Z39a, Z39b, Z39c, Z39d and K05w

ZA34 Planetary stage contact analysis

taking into account flank modifications and shaft deformation

Floating sun wheel

All other functionalities as described in ZA30

Rights: Z24, Z25, Z27, Z30, Z31, Z31a, Z32c, Z34, Z36, Z39a, Z39b, Z39c, Z39d, K05w

ZA33 Fine sizing of microgeometry for cylindrical gears

for cylindrical gear pairs and planetary gear stages

Microgeometry parameters can be combined and modified

Cross variations of amounts and coefficients

All solutions are classified on the basis of different criteria

Graphical display of the results

Required module: ZA30 or ZA34

Rights: Z33

ZA35 Face load factor $K_{H\beta}$ according to ISO 6336-1, Appendix E

Calculation of gapping and load distribution while taking into account flank modifications and shaft deformation

Variation of tolerances with (+/-)fma and (+/-)fmb

Results are displayed in graphics and reports

Results for individual planets can be output

Rights: Z02c

ZA36 Calculation of planet carrier deformation

Calculation of planet carrier deformation under load, to determine the misalignment of planet wheel axis

Geometry definition with parameters or by loading it from STEP files

Calculation with integrated FEM Solver (CM2®) or Code Aster

FEM results displayed in KISSsoft or with SALOME

Required module: ZA35 or ZA34

Rights: Z37

ZA37 Tooth root stress with 3D FEM

Taking into account of the load distribution across the facewidth from the contact analysis
Calculation with integrated FEM Solver (CM2®) or Code Aster
FEM results display in KISSsoft or with Salome
Required module: ZA30, ZA34 or ZA38
Rights: Z38b

ZA38 Contact analysis for asymmetric toothing
Contact stiffness according to Weber/Banaschek and Langheinrich
Specification of the tooth fixing position M
Required module: ZA30 or ZA34 and ZA7
Rights: Z32a

Contact Analysis Module Package

Module	Description
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KAP	Module ZA30 and ZA34
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Contact Analysis Module Package Complete

Module	Description
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KAPK	Module ZA30, ZA33, ZA34, ZA35, ZA36, ZA37 and ZA38
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Master Gears

Module	Description
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ZA40	Master gears Master gear sizing and checking Rights: Z29
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Gear Pumps

Module	Description
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ZB1	Gear pumps Basic Calculation of the transported volume of oil for gear pumps (without taking return volume into account) for internal and externally geared pumps Cylindrical gears with involute and non-involute tooth forms (requires module ZY2 or ZY7) Can be combined with fine sizing (requires module ZA4) Rights: Z26
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ZB2	Gear pumps Expert Calculation and display of pump characteristic during meshing Enclosed volume during meshing (return volume), volume with a critical inflow area, inflow speed at the narrowest point, oil inflow at the entry point, volume under pressure at input, torque on both gears, Hertzian pressure, sliding velocity Required module: ZB1 Rights: Z26a
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Bevel Gears

Module	Description
ZC1	Bevel gear geometry Geometry according to DIN 3971 and ISO 23509 Blank dimensions of straight, helix- or spiral bevel gears Conventional manufacturing process, Klingelberg or Gleason Conversion of Gleason Dimension Sheets for conical (Gleason) and uniform tooth depth (Klingelberg, Oerlikon) to DIN 3971 and vice versa Rough sizing macrogeometry Calculation of the involute point Separate verification of the inside and outside tooth form (toe/heel) Rights: Z07, Z07m, Z07s1
ZC10	Generation of 3D model for bevel gears Straight and helical toothed bevel gears with modifications (apexes not in one point), and bevel gears with spiral teeth and modifications 3D model based on the virtual cylindrical gear tooth forms (cylindrical gear involute) Visual examination of the path of contact by rotating either one gear or both Export of 3D model (requires module CB1) Rights: Z07p
ZC2	Strength according to ISO 10300: 2014 and ISO 10300: 2001 for bevel gears Method B and C Calculation of scuffing for bevel gears according to ISO/TS 10300-20: 2021 Rights: Z07e
ZC3	Strength according to DIN 3991: 1988 Rights: Z07g
ZC4	Strength according to AGMA 2003-D19 Calculation of bevel gears strength factor Q Rights: Z07j
ZC5	Strength for bevel gears according to Klingelberg KN 3030 1.2 For palloid and cyclo-palloid manufacturing processes Rights: Z07a
ZC6	Strength for hypoid gears according to Klingelberg KN 3030 1.2 For palloid and cyclo-palloid manufacturing processes Rights: Z07b
ZC7	Strength according to VDI 2545: 1988 Rights: Z07h
ZC8	Static strength for bevel gear pairs and differentials Rights: Z07i
ZC9	Strength according to ISO 10300: 2014 for hypoid gears Method B1 Calculation of scuffing for hypoid gears according to ISO/TS 10300-20:2021 Rights: Z07f
ZC11	Strength according to DNV 41.2, DNVGL-CG-0036 (2019) Tooth root and flank strength, flank fracture, hardening depth safety Rights: Z07l
ZC12	Fine sizing of macrogeometry for bevel and hypoid gears

	Production-specific criteria for forged differential bevel gears Rights: Z07n
ZC13	Calculation of topological modifications for bevel gears Calculation of topological modification based on measurement grid data Specification of measurement grid data in the format defined by Gleason, Klingelnberg, TBevel or Zeiss Rights: Z07s3
ZC14	Sizing of the webbing for differential bevel gears Calculation of the webbing with definition of inside diameter and permissible thrust washer pressure Calculation of the webbing in fine sizing (requires module ZC12) Calculation of the virtual gear on the inside and outside Rights: Z7t
ZC30	Contact analysis under load for bevel gears with straight, helical or spiral teeth Taking into account of microgeometry Graphical display of the results in the excitation force, efficiency, forces and stresses groups Calculation of contact lines, transmission error and stress ratios Display of the load-free contact pattern and the assembly contact pattern Calculation of wear Tooth flank fracture according to ISO/DTR 10300-4: 2019 (draft) (requires module ZZ4) Calculation of the misalignment values, VHJ, and axis angle error directly from the shaft deformation Calculation of the excitation force according to FVA-No. 487 1.2.3 Rights: Z24, Z25, Z27, Z32c, Z35, Z36, Z39a, Z39b, Z39c, Z39d and K05w
ZC33	Fine sizing of microgeometry for bevel gears for bevel gears with straight, helical or spiral teeth Microgeometry parameters can be combined and modified Cross variations of amounts and coefficients Graphical display of the results Required module: ZA30 or ZA34 Rights: Z7o

Worms (Globoid)

Module	Description
ZD1	Worm gear geometry for cylindrical worms and globoid worm gears Geometry according to ISO 14521 and DIN 3975 Control measurements for worms (measurement over 3 pins) and worm gears (measurement over balls) Worm sizing with tool module Rights: Z08
ZD10	Generation of the 3D model for worms and globoid worm gears For flank forms ZA, ZI and ZN, ZC, ZK Visual examination of the path of contact by rotating either one gear or both Export of 3D model (requires module CB1) Rights: Z08p, Z8s

ZD2	Strength according to ISO/TR 14521: 2010 Rights: Z08b
ZD3	Strength according to DIN 3996 DIN 3996: 1998, DIN 3996: 2012 and DIN 3996: 2019 Rights: Z08a
ZD4	Strength according to AGMA 6034 and AGMA 6135 Rights: Z08c
ZD5	Fine sizing of macrogeometry for worm gears Rights: Z08n

Crossed Helical Gears or Worms (Cylindrical Worm Wheels)

Module	Description
ZE1	Geometry of crossed helical gears for cylindrical worms and cylindrical worm wheels Crossed helical gears with external and internal teeth Control measurements for worms (measurement over 3 pins) and worm gears (measurement over balls) Graphical analysis of meshing when shaft angle is not equal to 90° and in multiple section levels Graphical display of specific sliding Collision check Rights: Z17, Z17h, Z17i
ZE2	Strength according to ISO 6336/Niemann, Hirn method Rights: Z17a
ZE3	Strength according to VDI 2545 and Hoechst method Rights: Z17b, Z17c
ZE4	Static strength Bending and shearing for metal and plastic Rights: Z17d
ZE5	Strength for plastic according to VDI 2736 (Sheet 3) Wear calculation according to Pech Rights: Z17e, Z17f
ZE6	Fine sizing of macrogeometry for crossed helical gears Rights: Z17n
ZE7	Crossed helical gear with rack Rights: Z17g

Face Gears

Module	Description
ZF1	Face gears geometry Geometry of cylindrical gear pinions paired with face gears for shaft angle = 90°, with no offset 2D display with tooth form on the inside, at the center and on the outside

The checking of undercut and pointed tooth tip is performed graphically in the 2D view, while tip alteration can be varied to prevent pointed tooth tips (with sizing function)
Sizing of optimum facewidth
Rights: Z06

ZF10	Generation of 3D model for face gears For face gears with offset and any shaft angle Visual examination of the path of contact by rotating either one gear or both Export of 3D model (requires module CB1) Rights: Z06f
ZF2	Strength according to ISO 6336 and literature Rights: Z06a
ZF3	Strength according to CrownGear/DIN 3990 Rights: Z06b
ZF4	Strength according to ISO 10300, Method B Rights: Z06c
ZF5	Strength according to DIN 3991, Method B Rights: Z06d
ZF6	Static strength Rights: Z06e

Non-Circular Gears

Module	Description
ZG1	Non-circular gear geometry Calculation of geometry on the basis of a preset operating pitch line or transmission ratio 2D output of tooth form Only in combination with an engineering by KISSsoft AG Rights: Z40

Beveloid Gears

Module	Description
ZH1	Beveloid gear geometry Only for external toothing Strength calculation using the cylindrical gear strength calculation Profile and tooth trace modifications, e.g. negative crowning etc. Rights: Z50
ZH10	Generation of 3D model for beveloid gears Visual examination of the path of contact by rotating either one gear or both Export of 3D model (requires module CB1) Rights: Z50p

Gear Manufacturing

Module	Description
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ZM1	<p>Checking of manufacturability by power skiving</p> <p>Estimation of the collision of the tool and gear, for internal and external toothing Fine sizing of toothing with analysis of the collision risk (requires module ZA4) Taking into account of tool shank Request for offer to supply a tool, from the company Gleason, by sending the gear data Rights: Z19p</p>
ZM2	<p>Checking of manufacturability by honing</p> <p>Estimation of the collision of the tool and gear, for external toothing Fine sizing of toothing with analysis of the collision risk (requires module ZA4) Request for offer to supply a tool, from the company Gleason, by sending the gear data Rights: Z19h1</p>
ZM3	<p>Calculation of topological modifications for cylindrical gears</p> <p>Using topological measurement data (from measurement grid) of cylindrical gear tooth flank Requires measurement data in GAMA CMM format For verifying noise excitation from manufactured gears, using the "Design – Manufacture - Measure" loop (requires module ZA30) Rights: Z19x</p>
ZM4	<p>Manufacturing allowances</p> <p>Twist due to manufacturing for generation grinding, simulation of waviness for flank and profile slope deviation Rights: Z05f, Z05u</p>

Tooth Form Calculation

Module	Description
ZY1	<p>Extended tooth form display</p> <p>for 2D and 3D graphics. Animation of gears when meshing, simultaneous display of more than one machining step, measuring function in the graphic, 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</p>
ZY2	<p>Import of tooth form or tool geometry</p> <p>Import of any kind of non-involute tooth shape or tool (e.g. from CAD or 3D gear metrology system or DXF), approximation of the normal vectors Definition of the base tangent length of non-involute tooth forms Rights: Z05a</p>
ZY3	<p>Calculation of reference profile from DXF</p> <p>For hob cutters and pinion-type cutters, for designing special tools Rights: Z05c</p>
ZY4	<p>Calculation of the paired gear</p> <p>Calculation of generated paired tooth form Rights: Z05d</p>
ZY5	<p>Addition for molding</p> <p>Compensation for shrinkage, spark gap, modification of pinion-type cutter Rights: Z05e</p>
ZY6	<p>Tooth form modifications</p> <p>Circle-shaped entry curve, elliptical root rounding radius (cylindrical and bevel gears)</p>

	Variable tip relief on side I and II for bevel gears Tooth form can be shifted in radial direction per tooth Rights: Z05g, Z05r, Z05s
ZY7	Cycloid and circular arc teeth Constructed involute, straight line flank Rights: Z05h, Z05n
ZY8	Tool scaling Scaling of DXF tool or a tooth form with the gear's normal module Rights: Z05q
ZY9	Elliptical deformation for spur gears For cylindrical gear pair, gear 1 with elliptically deformed external teeth, gear 2 with circular internal toothing Input of half axis ratio, calculation of the shorter half axis 2D graphic showing elliptically deformed gear 1 meshing with circular gear 2 Rights: Z05p

Other Gear-Specific Modules

Module	Description
ZZ1	Load spectra and transmittable torque Calculation of transmittable power with and without load spectrum Calculation of service life with and without load spectrum Calculation of safeties with load spectrum (for cylindrical, bevel, and cross helical gears) Taking into account of the direction of rotation of the individual stages, and their load direction (for cylindrical gears) Graphical display of speed and torque classes Rights: Z16, Z16a, Z18, Z18a, K23
ZZ2	Hardening depth Proposal of required hardening depth based on Hertzian pressure (for cylindrical gears or bevel gears) Graphical display of the results Rights: Z22
ZZ3	Backlash Calculation of backlash after mounting and operating backlash Taking into account of tooth and shaft bending (requires module ZA35) for cylindrical, crossed helical and worm gears Rights: Z12
ZZ4	Tooth flank fracture for cylindrical and bevel gears For cylindrical gears according to ISO/TS 6336-4 For bevel and hypoid gears according to ISO/DTS 10300-4: 2019 (draft) (requires module ZC2 or ZC9) Rights: Z07k
ZZ5	Measurement grid points for topology measurement for flank and root, for cylindrical, bevel and crossed helical gears, worms and globoid worm gears, splines and beveloid gears Output of measurement grid in the formats defined by Gleason and Klingelnberg Required module: CB1 Rights: Z05o

ZZ6	<p>Plastic Materials Manager</p> <p>Easy way to generate plastic material files (DAT files) based on the material properties and measured test bench data according to VDI 2736-4 and VDI 2736 modified (requires module ZA21 or ZE5)</p> <p>Save the new materials directly to the KISSsoft database in the right format for calculations</p> <p>Calculation for dry run</p> <p>Evaluation of pulsator test rig results</p> <p>Rights: K17</p>
ZZ7	<p>Normal backlash based on the effective tooth form</p> <p>For all cylindrical gear configurations except for racks</p> <p>Calculation of backlash for each point of contact for pitch, based on the effective tooth form over complete facewidth. For the watch-making industry and for special tooth forms.</p> <p>Specification of the tooth form via cycloid, arc of circle or DXF</p> <p>Rights: Z19v</p>
ZZ8	<p>Special functions for the watch-making industry</p> <p>Import of DXF files in special format for the watch-making industry</p> <p>Dry run for gears</p> <p>Various special functions for very small gears</p> <p>Rights: Z19w</p>

KISSsoft Expert Modules for Shafts and Bearings

Shafts

Module	Description
WA1	<p>Shaft systems and bearing stiffness</p> <p>Definition of shaft systems with several coaxial shafts</p> <p>Taking into account of bearing offset, bearing clearance, thermal expansion, linked shafts, calculation of non-linear bearing stiffness from the internal geometry</p> <p>Calculation with rolling bearing stiffness matrices from SKF Cloud</p> <p>Temperature conditions for inner and outer ring and for rolling body</p> <p>Approximation of internal bearing geometries with optional input of the number of rolling bodies and other data already available from bearing manufacturers</p> <p>Radial bearing can be calculated either with or without an inner or outer ring</p> <p>Rights: W01a, W01b, W03b, W03c, W03d, W05d</p>
WA2	<p>Flank line modification</p> <p>Calculation of longitudinal deformation, load distribution with and without modification</p> <p>Sizing of the optimal flank line modification, gear body deformation taken into account</p> <p>Taking into account of gear body deformation stiffness matrix</p> <p>Rights: W10</p>
WA3	<p>Buckling</p> <p>for beams and shafts</p> <p>Rights: W13</p>
WA4	<p>Critical speeds and frequencies</p> <p>Calculation of torsional, bending and longitudinal frequencies</p> <p>Calculation and display of Campbell diagram</p>

	Rights: W04, W04x
WA5	Strength according to Hänchen & Decker Shaft sizing based on constant equivalent stress and maximum deformation Rights: W06a
WA6	Strength according to DIN 743, 2012 edition Shaft sizing based on constant equivalent stress and maximum deformation Verification for multiple notches including an input option for FE results according to FVA 700 I Rights: W06b, W06r
WA7	Strength according to FKM Guideline, 2020 edition Shaft sizing based on constant equivalent stress and maximum 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, determination of the core hardness from the tensile strength Rm Rights: W06c
WA10	Strength according to AGMA 6101-F19 and AGMA 6001-F19 Rights: W06d
WA8	Load spectra for shafts and bearings Calculation of shaft limited life and endurance strength Bearing calculation with load spectra Setting of a different temperature for each load bin, affecting the calculation of bearing clearance and service life according to ISO/TS 16281 Rights: W01s, W06s, W06t
WA11	Forced response Shaft vibration calculated on the basis of the unbalance response Definition of the angular position of the eccentric mass Rights: W14

Other Shaft-Specific Modules

Module	Description
DPK	Gear body deformation with FEM Calculation of gear body deformation for external and internal toothings with FEM Definition of the asymmetric gear body geometry (webs, etc.) via parameters Load can be applied manually or in the plane of action of the gear pair Calculation with integrated FEM Solver (CM2®) or Code Aster FEM results display in KISSsoft or with Salome Output of the stiffness matrix for use in shaft or gear calculation Rights: K16

Bearings

Module	Description
WB1	Modified bearing calculation Calculation of rolling bearing rating life L10m and Lnm Influence of lubrication according to ISO 281-1 Thermally permissible service speed acc. DIN 732

	<p>Lubrication, lubricant temperature, friction and contamination can be defined for each individual rolling bearing</p> <p>Bearing rating life and modified rating life calculation using SKF Cloud® Calculation for hybrid bearings according to the GBLM method in SKF Cloud®</p> <p>Rights: W05a</p>
WB2	<p>Calculation of reference rating life with internal geometry according to ISO 16281</p> <p>Calculation of rolling bearing rating life L10r and Lnmr (requires module WB1)</p> <p>Diagram of the load distribution in the bearing</p> <p>Diagram of the load distribution over the rolling bodies and races</p> <p>User-specified input of roller profiles</p> <p>Graphic showing stresses under the contact surface</p> <p>Calculation of bearing rating life L10r and L10mr (requires module WB1) using SKF Cloud®</p> <p>Required module: WA1</p> <p>Rights: W05b, W05c</p>
WB3	<p>Plain hydrodynamic bearings</p> <p>Plain hydrodynamic radial bearings, oil or grease lubricated, according to DIN 31657 and DIN 31657-4: 2019, DIN 31652, ISO 7902: 2020 and Niemann</p> <p>Plain hydrodynamic axial bearings: Calculation of pad thrust bearings and tilting-pad thrust bearings according to ISO 12130</p> <p>Rights: W07, W07a, W07b, W07c, W07d, W07e, W08</p>
WB4	<p>Calculation of a single bearing with internal geometry according to ISO/TS 16281</p> <p>Calculation possible without the WPK module</p> <p>Own input of inner and outer ring deformation values</p> <p>Import load value from the planetary stage calculation</p> <p>Rights: W51</p>
WB5	<p>Rolling bearing fine sizing</p> <p>Optimization of the internal geometry of bearings through variation calculation</p> <p>Variants are displayed in a list, or graphically (requires module WB4)</p> <p>Rights: W51a</p>

KISSsoft Expert Modules for CAD Interfaces

2D Export

Module	Description
CA1	<p>2D DXF and IGES Export</p> <p>Rights: K05a, K05e</p>

3D Export

Module	Description
CB1	<p>STEP and Parasolid format export in 3D</p> <p>using the Parasolid kernel</p>

	<p>Display and export of cylindrical gears with modifications, and straight and helical toothed bevel gears (apexes in one point, without modifications), beveloid gears, beveloid gears, splines (shaft-hub), shafts, racks</p> <p>Display as skin model for checking paths of contact</p> <p>Rights: K05u</p>
CB2	<p>Integration with Solid Edge (versions 2019-2022)</p> <p>Generation of 3D gears (cylindrical gears, worms, crossed helical gears, straight bevel gears, splines (shaft-hub), shafts and racks) directly from the calculation, using the KISSsoft menu in Solid Edge</p> <p>Contains module: CC1</p> <p>Rights: K05d, K04</p>
CB3	<p>Integration with SolidWorks (versions 2018-2022)</p> <p>Generation of 3D gears (cylindrical gears, worms, crossed helical gears, straight bevel gears, splines (shaft-hub), shafts and racks) directly from the calculation, using the KISSsoft menu in SolidWorks</p> <p>Contains module: CC1</p> <p>Rights: K05k, K04</p>
CB4	<p>Integration with Inventor (versions 2018-2023)</p> <p>Generation of 3D gears (cylindrical gears, worms, crossed helical gears, straight bevel gears, splines (shaft-hub), shafts and racks) directly from the calculation, using the KISSsoft menu in Inventor</p> <p>Contains module: CC1</p> <p>Rights: K05m, K04</p>
CB5	<p>CATIA integration (versions V5 R20-R22, V5-6r2013-2020)</p> <p>Generation of 3D gears (cylindrical gears, worms, crossed helical gears, straight bevel gears, splines (shaft-hub)) (produced by: SWMS)</p> <p>Rights: K05o*</p>
CB6	<p>Integration with Creo Parametric (versions 5-8)</p> <p>Generation of 3D gears (cylindrical gears, worms, crossed helical gears, straight bevel gears, splines (shaft-hub)) (produced by: Applisoft)</p> <p>Contains module: CC1</p> <p>Rights: K05q*, K04</p>
CB7	<p>Integration with Siemens NX (versions NX1899 - NX2007)</p> <p>Generation of 3D gears (cylindrical gears, worms, crossed helical gears, splines (shaft-hub), shafts and racks) directly from the calculation, using the KISSsoft menu in NX</p> <p>Contains module: CC1</p> <p>Rights: K05n, K04</p>

* See Conditions

KISSsoft Expert Modules for Other Interfaces

Module	Description
CD1	<p>GDE exchange format</p> <p>Gear Data Exchange GDE Version 2.6 in XML format according to VDI 2610</p> <p>Cylindrical gear export</p> <p>Rights: K05f</p>

CD2	GAMA exchange format GAMA cylindrical gear export (only macrogeometry) Rights: K05g
CD3	Interface to GEMS® Data exchange with GEMS® (Gleason's bevel gear manufacturing and analysis software) via KISSsys and KISSsoft Export and import of bevel and hypoid gear geometry, operating data and misalignments Display of results from GEMS® load contact analysis in KISSsys Rights: K11k6, K05j
CD4	Tooth form export Export of tooth form and tool geometry in X and Y coordinates, normals or radiuses of curvature Data in the transverse section, normal section or axial section Rights: Z05b

KISSsoft Expert Modules for COM Interfaces

Module	Description
CC1	Basic COM interface Integration of KISSsoft in your own programs, via the COM interface. Basic KISSsoft functions for, for example, loading and saving files, creating reports and performing calculations can be called. Access to all the variables in a calculation and all the reports generated during the calculation Rights: K04
CC2	Expert COM interface Numerous sizing and optimization functions can be called, as can scripts (requires module CC3). Contact analysis can be controlled via the COM interface. Required module: CC1 Rights: K04a

KISSsoft Expert Modules for Scripting

Module	Description
CC3	SKRIPT Basic Integrated programming language for loading and running scripts in a KISSsoft file. Basic KISSsoft functions for loading and saving files, creating reports and performing calculations can be called. Runs automatically at specific time points during the calculation Rights: K22
CC4	SKRIPT Expert Provides access to all functions that can be accessed using the extended COM interface, in a particular calculation module. External programs can be run, graphics can be generated. Required module: CC3

Rights: K22a

Module Package

Module	Description
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CPK	Modules CC1, CC2, CC3 and CC4
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KISSsoft and KISSsys Expert Module for Reliability

Module	Description
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KLR	Reliability Calculation and display of reliability according to Bernd Bertsche with 3-parameter Weibull distribution, VDMA 23904 and AGMA 6006 Input of Weibull shape parameter and coefficient for failure-free time For cylindrical gears, planetary stages, bevel gears and rolling bearings Rights: K18
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Languages

Module	Description
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LA1	German: Software user interface, reports, graphics, messages, Right: K02
LA2	English: Software user interface, reports, graphics, messages, Right: K02a
LA3	French: Software user interface, reports, graphics, messages, Right: K02b
LA4	Italian: Software user interface, reports, graphics, messages, Right: K02c
LA5	Spanish: Software user interface, reports, graphics, messages, Right: K02d
LA6	Russian: Software user interface, reports, graphics, messages, Right: K02e
LA7	Portuguese: Software user interface, reports, graphics, messages, Right: K02f
LA8	Chinese: Software user interface, reports, graphics, messages, Right: K02g

Services

Customizing

We can tailor our software to suit our customers' requirements. If you can't find the functionality you require in the list, please contact us directly. Our team of experts will then work together with you to develop your own specialized solutions.

Software Engineering

KISSsoft AG also provides software engineering and consultancy services. Our expertise and experience have been gathered over many years, working on a multitude of different projects in a wide range of industries. We would be delighted to make you a specific offer as well.

Training courses

Our training courses teach you how to make best possible use of our software and explain the most important theories on which it is based. You will find more information about public training courses, and also the registration forms, on our website.

Please contact us directly if you would like information about company-specific training courses.

Workshops

You will be able to work on your project with KISSsoft and KISSsys in a workshop, under the guidance of a KISSsoft instructor. The specialist theoretical knowledge you need will be explained to you. The workshop topic will be agreed by you (the customer) and KISSsoft AG.

Licenses, Purchase and Rental

Single user license

The single user license runs on a dongle. The calculation program can be installed on various computers, but calculations can only be performed with a dongle in a USB port. The single user license is also available as a node-locked license without a dongle.

Network license

We offer a network license for an unrestricted number of users, but the number of simultaneous users is limited to the number of access rights. We charge an extra 25% on listed prices for a simultaneous user. The license is restricted to one geographical location. Additional sites or global licenses are available at an extra cost (on request).

Purchase

Purchasing licenses enables you to use them for an unrestricted time period. Additional modules can be purchased at any time. Only single user licenses (with a USB dongle or tied to a specific computer) and network licenses can be purchased. A single user license can also be upgraded to a network license. Updates, support and patches will all be provided if you purchase a service contract. See below. Compatibility with new operating systems is not guaranteed for licenses without a service contract. There is no minimum amount for a purchase.

Rental

Rental permits the use of licenses for a limited period of time. Rental is only available for stand-alone licenses. Additional modules for purchased licenses cannot be rented. Modules can neither be added nor removed for the duration of the rental period. The rental option is available for single user licenses (tied to a specific computer) and for network licenses. The rental price includes updates, support and patches. The minimum rental period is 6 months. The rental fee is 48% per annum, with a minimum charge of EUR 500.00 per rental agreement.

Other rental models are available upon request.

Maintenance contract

The maintenance contract applies to purchased licenses and ensures KISSsoft will run smoothly and efficiently in the long term. It offers the following benefits: technical support for calculation methods, support for using the software and updating it to new standards or reconfiguring it to suit new (Windows) operating systems, one update a year, patches, information that patches have been released and other features.

Price: 15% of software value per year, minimum charge of EUR 100.00 per year. Additional conditions are detailed in the sample contract.

* Third party suppliers

Modules marked with * have been developed by one of our partners. These modules might have different sales conditions. Details on request.

Universities

Special sales conditions apply for universities. Please refer to our website for more information.

Delivery

Courier shipping costs: EUR 170.00 for a license value of less than EUR 1000.00.

Offer

The KISSsoft software has a modular structure: a variety of calculation modules are available. You can simply buy the modules you need, to suit your application.

Getting to know our software

You can use our free 30-day test version for independent evaluation and select your modules package before purchasing a license. We look forward to receiving your inquiry. Please send it to info@KISSsoft.com.

Price conditions

The prices listed are in EUR and apply to the purchase of a single user license for use for an unlimited period of time. For information on network licenses and rental licenses, see page 26. We accept no responsibility for errors and reserve the right to change prices without advance notice. Taxes, custom duties and delivery costs are not included.

Description of modules

The KISSsoft product description describes the exact content of the individual modules. You will find it at <https://www.kisssoft.com/de/products/technical-description>.

License Conditions

Licenses are subject to the License Conditions, which you accept by installing or using KISSsoft. The License Conditions are also an element of a commercial offer and we will provide you with a copy of it on request. When you purchase a license, the licensor (KISSsoft AG) will grant you (the licensee) a single non-exclusive, non-transferrable, non-publishable, non-cancellable right (except in accordance with defined conditions), to use the software for your own purposes, to the agreed extent (e.g. concerning modules, duration etc.). This license cannot be sublicensed, is or is not geographically restricted, and does or does not have a time restriction on it.

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