KISSsoft
Drivetrain Design Solutions

KISSsoft Release 2021

Modules List

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Sharing Knowledge

Offer

The KISSsoft software has a modular structure: a variety of calculation modules are available. Just buy the modules you need, to suit your requirements.

Get to know

Our free 30-day test version enables you to evaluate and select the modules independently before purchasing a license. We look forward to receiving your request. Please send it to info@KISSsoft.com.

Description of the modules

The exact content of the individual modules can be found in the KISSsoft product description which is available at https://www.kisssoft.com/de/products/technical-description.

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Base packages

Base packages

Module	Description
ZPK	Cylindrical gear package Geometry, control measures (DIN 3960, DIN 3962, DIN 3963, DIN 58400) Tolerances as specified in updated ISO 1328-1, 2:2020 **NEW!** Reference profiles according to JIS 1701-1 Calculation and presentation 2D and 3D of the tooth form for external and internal toothing Graphical display of specific sliding One strength calculation for a cylindrical gear, either as specified in ISO 6336 (ZA10) or DIN 3990 (ZA11) or AGMA 2001 (ZA12) or VDI 2545 (ZA17) or VDI 2736 (ZA21) or GOST 21354-87 (ZA22) Input of speed for epicyclic gears configuration Tooth friction / power loss acc. to Niemann Deep tooth form/short cut tooth form, tools and final machining Grinding the tooth root Flash temperature course Scuffing according to DIN 3990 and ISO/TS 6336-20/21 Micropitting according to ISO/TS 6336-22 (Method B) Input of individual flank line modifications per tooth Creation of variants for modifications Arc of circle and spline approximation for 2D export (requires CA1) Extended 2D and 3D presentation of the tooth form (ZY1) Tip shortening for involute or imported tooth forms 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 Extensive material database Rights: Z01, Z05, Z05i, Z05t, Z05v, Z19e, Z19m, Z01z
WPK	Shafts and bearing standard package Calculation of deformations also for statically overdetermined systems and line loads Shaft rough sizing 3D display of forces and diagrams of bending also during shaft modeling pressure angle and transverse shear Mirror shaft Read-in of a background drawing and show millimeter grid Tooth trace modification (WA2) Shaft support with rolling bearings, plain bearings or general supports One shaft strength calculation either according to DIN 743 (WA6) or FKM Richtlinie (WA7) or Hänchen&Decker (WA5) or AGMA 6101-F19 and AGMA 6001-F19 (WA10) Smith and Haigh diagram Rolling bearing rating life (ISO 281, L10) with sizing function Bearing power loss, input of linear bearing stiffness Extensive bearings database, partly with indications about internal geometry Rights: W01, W01c, W01f, W03, W03a, W05, W12, W15, K07b

MPK	Shaft-Hub connections Cylindrical interference fit Conical interference fit, considering also diameter tolerances **NEW!** Keys and Woodruff key Multi-Spline, Polygonal connection Involute splined shaft according to DIN5480, ANSIB92, ISO4156, DIN5482, 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 Go and no-go gauges according to DIN 5480 5480-15 Hirth couplings Bolts and pins, welded, glued and soldered joints Clamped connections according to Roloff/Matek, Snaprings Arc of a circle and spline approximation for 2D geometry Extended 2D and 3D presentation of the tooth form (ZY1) Rights: M01a, M01x, M01b, M01c, M02a, M02b, M02c, M02d, M02e, Z09, M03a, M05, M06, M08, M09a, Z05i, Z05n,
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	Elements for shift gearboxes Friction clutches according to VDI 2241:1982 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 (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 2020, 7th 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 trains with spindles Calculation according to Roloff/Matek 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

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 rolls, balls and planes Rights: K14

Base packages

Module	Description
KPK-G	Base package Gearbox ZPK, WPK, MPK, TPK, HPK, RCK

Base packages complete

Module	Description
KPK	Base packages complete ZPK, WPK, MPK, SPK, APK, FPK, RPK, LPK, TPK, HPK, VPK, RCK

Modules for System design and analysis

Module for various gearbox kinematics

Module	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) Load spectrum determined from measured torque curve (requires ZZ6) **NEW!** Includes GPK The corresponding KISSsoft modules (minimum WPK, ZPK) are needed Rights: K11, K11a, K11c

Module for standard gearboxes

Module	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

Expertmodules for system design and analysis

Sizing of standard gearboxes

Module	Description
KS1	KISSsys model for the sizing of Gearbox variants Automatically generates gear unit variants with different stages and transmission ratios from the overall transmission ratio and the torque Results are displayed in 3D For cylindrical gear units with first stage as a cylindrical, bevel, worm or crossed helical gear stage, and for planetary gear units This function needs a KISSsys or GPK license and requires the appropriate KISSsoft modules (at least WPK and ZPK) Rights: K11f

Efficiency

Module	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 and ZPK) Rights: K11h

Modal analysis

Module	Description
KS3	Calculation of the drives eigenfrequencies and vibration modes in shaft systems, Three-gear chains, four-gear chains and planetary systems Takes into account the contact stiffness of the gears

	Outputs of torsional and coupled (torsional, flexural and axial) vibrations Vibration calculation with unbalance response and amplitude via speed Calculation of the Campbell diagram for shaft systems This function needs a KISSsys or GPK license and requires the appropriate KISSsoft modules (at least WPK, ZPK, WA1) Rights: K11i1, K11i2, K11i3

Housing deformation

Module	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

Reliability

Module	Description
KLR	Reliability calculation and display 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 gear stages, bevel gears and rolling bearings Results for gears (bending, pitting) and rolling bearings are displayed in reports and graphics in KISSsoft. Rights: K18

KISSsys Interfaces

Module	Description
KS10	MSC Adams Gear AT Integration Export of KISSsys data into Gear AT. Exports data of the system, bearings, shafts, connecting elements, loads and cylindrical gears (macro and micro geometry) Rights: K11k, K11k1
KS20	REXS export Version 1.1 Export of system data from gear pairs (bevel and hypoid gears, shafts and rolling bearings) with positioning in REXS format Rights: K11k, K11k7

Expert Modules Gears

Cylindrical gears

Configuration / Dimensioning

Module	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-gear chain, four-gear chain 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 Rough sizing modifications (microgeometry), Tip and root relief (linear, progressive and logarithmical), flank line crowning and helix angle modification sized taking into account axis inclinations as specified in ISO 6336-1, Appendix B or 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 ginding worms / dressing wheels in a table Rights: Z19j
ZA7	Asymmetrical gears Sizing of asymmetrical tooth forms for all cylindrical gear configurations Strength calculation as defined in ISO 6336, VDI 2545, VDI 2736 (requires ZA10, ZA17 or ZA21) Sizing of root rounding / tool with different radii Rights: Z01y
ZA9	Double pinion planetary stage calculation Kinematics as double pinion in a four gears chain (needs ZA1) Check for collision With sizing of the center distances (needs ZA4) Rights: Z01c

Strength calculation methods

Module	Description
ZA10	ISO 6336: 2019 and ISO 6336: 2006 (replaced) Rights: Z02a
ZA11	DIN 3990: 1988 Rights: Z02
ZA12	AGMA 2001, AGMA 2101 Rights: Z13
ZA13	VDI 2737: 2016 tooth root load capacity of internal gears with influence of rim thickness Rights: Z23
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 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	ISO 13691: 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 via integrated FEM Solver **NEW!** FE results display in KISSsoft **NEW!** or SALOME Rights: Z38a

Calculation with load distribution

Module	Description
ZA30	Contact analysis for cylindrical gears, taking into account tooth profile and tooth flank modifications, and shaft deformation Tooth flank fracture according to ISO/TS 6336: 4 2019 (requires ZZ4) Calculation of the excitation force according to FVA-No. 487 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 patterns and tooth root stresses along the actual tooth flank Load-free contact pattern and display of the assembly contact pattern Calculation using conical profile shift 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/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 using meshing Rights: Z24, Z25, Z27, Z30, Z31, Z31a, Z32, Z32b, Z32c, 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. Additional functionality as described in ZA30. Rights: Z24, Z25, Z27, Z30, Z31, Z31a, Z32c, Z34, Z36, Z39a, Z39b, Z39c, Z39d
ZA33	Optimization of tooth flank and tooth profile modifications Optimized options for varying and combining data, such as 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 according to ISO 6336-1, 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 and using integrated FEM-Solver **NEW!** for parametrized geometry, import of planet carrier data in STEP format Import of calculation results from ABAQUS FE results displayed in KISSsoft or with SALOME Rights: Z37 (requires at ZA35 or ZA34)
ZA37	Tooth root stresses with 3D FEM Takes into account the load distribution across the facewidth Calculation of the local tooth root stresses using integrated FEM-Solver **NEW!** FE results display in KISSsoft or in Salome Rights: Z38b (requires ZA24 and ZA30 or ZA34)
ZA38	Contact analysis for asymmetric gears Contact stiffness according to Weber/Banaschek and Langheinrich Specification of the tooth fixing position M **NEW!** Rights: Z32a (requires ZA30 or ZA34 and ZA7)

Contact analysis package

Module	Description
KAP	ZA30 and ZA34

Contact analysis package complete

Module	Description
KAPK	ZA30, ZA33, ZA34, ZA35, ZA36, ZA37, ZA38

Master gears

Module	Description
ZA40	Master gears analysis and design Rights: Z29

Gear pumps

Module	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 (requires ZB1) Rights: Z26a, Z32

Bevel gears

Module	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 Calculation of the involute point Verification of the tooth form separately for inside and outside (toe/heel) Rights: Z07, Z07d, Z07m, Z07s1
ZC10	Generate 3D model of bevel gears for export (requires CB1) straight and helical toothed bevel gears with modifications (apexes not in one point), and spiral bevel gears with modifications 3D model based on the virtual cylindrical gear tooth form Visual examination of the path of contact by rotating either one gear or both Rights: Z07p
ZC2	Strength according to ISO 10300: 2001 and ISO 10300: 2014 Method B and C Calculates scuffing for bevel gears according to ISO/TS 10300-20: 2018 (draft) Rights: Z07e
ZC3	Strength according to DIN 3991 Rights: Z07g
ZC4	Strength according to AGMA 2003-B97 and AGMA 2003-C10 Calculation of bevel gears strength factor Q 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 according to ISO 10300: 2014 Method B for Hypoid gears Calculates scuffing for hypoid gears according to ISO/TS 10300-20:2018 (draft) 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
ZC13	Sizing of topological modifications Rights: Z07s3
ZC14	Sizing of the webbing for differentials For forged steel bevel gears, based on inside diameter, pressing of the thrust washer Calculation of the virtual gear on front and back side Fine sizing of the webbing (requires ZC12) Rights: Z7t
ZC30	Contact analysis under load for bevel gears with straight, helical and spiral teeth. Takes into account 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 Calculation of wear Tooth flank fracture according to ISO/DTR 10300-4: 2019 (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, Z32c, 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)

Module	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	Generate 3D model for export (requires CB1) For flank forms ZA, ZI and ZN, ZC, ZK Visual examination of the path of contact by rotating either one gear or both Right: Z08p, Z08s
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 for worm gears Rights: Z08n

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

Module	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 Control measures for worms (measurement over 3 pins) and worm wheels (measurement over balls) Graphical analysis of mesh with shaft angles not equal to 90° and in various sections **NEW!** Graphical display of specific sliding **NEW!** Collision check Rights: Z17, Z17h, Z17i
ZE2	Strength calculation on the basis of ISO 6336/Niemann, method Hirn Rights: Z17a
ZE3	Strength calculation on the basis of VDI 2545 and method Hoechst Rights: Z17b, Z17c
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	Crossed helical gear with rack Rights: Z17g

Face gears

Module	Description
ZF1	Face gears geometry Geometry of face gears mated 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	Generate 3D model for export (requires CB1) With offset and shaft angle by choice Visual examination of the path of contact by rotating either one gear or both 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

Non-circular gears

Module	Description
ZG1	Calculation of non-circular gears Only sold together with engineering services performed by KISSsoft AG. Rights: Z40

Beveloid gears

Module	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. Rights: Z50
ZH10	Generate 3D model for export (requires CB1) Visual examination of the path of contact by rotating either one gear or both Rights: Z50p

Gear manufacturing

Module	Description
ZM1	Power skiving, feasibility check for manufacturing 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
ZM2 **NEW!**	Honing, feasibility check for manufacturing Estimation of the collision of tool and gear, for external gears Fine sizing of the gears with assessment of the collision risk (needs ZA4) Rights: Z19h1
ZM3 **NEW!**	Calculation of topological modifications based on measurement grid data Using topological measurement data (from measurement grid) of cylindrical gear tooth flank Requires measurement data in GAMA CMM format For the verification of noise excitation of manufactured gears by means of the loop 'Design – Manufacture - Measure' Rights: Z19x

Tooth form calculation

Module	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
ZY2	Import of tooth form or tool geometry Import of any kind of non-involute tooth shape or tool (e.g. from CAD or 3D measuring machine or DXF), approximation of the normal vectors Indication of the base tangent length of non-involute tooth forms Rights: Z05a
ZY3	Calculation of hobbing cutter/hob and pinion type cutter reference profiles (also for designing 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	Manufacturing specific flank line and root modifications Twist due to manufacturing, Circle-shaped running-in curve, elliptical root fillet (cylindrical and bevel gears **NEW!**) Variable tip relief for side I and II for bevel gears **NEW!** Rights: Z05f, Z05g

ZY7	Cycloid- and arc of circle tooth forms, designed Involute, Straight line flank Rights: Z05h, Z05n
ZY8	Tool scaling Scaling the DXF tool or tooth form with the gear's normal module, Rights: Z05q
ZY9	Elliptical deformation for spur gears. Cylindrical gear pair, gear 1 as elliptically deformed external gear, gear 2 as circular internal gear. Input of half axis ratio, calculation of the shorter half axis. The 2D graphic shows the elliptically deformed gear 1 meshing with the circular gear 2. Meshing interference checks can be performed. No 3D graphics. For the development of "wave gears" or "harmonic drives" Rights: Z05p

Further gear specific modules

Module	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) Graphical display of speed and torque classes **NEW!** Rights: Z16, Z16a, Z18, Z18a, K23
ZZ2	Hardening depth Proposal of required hardening depth based on Hertzian pressure (for cylindrical gears, bevel gears) Graphical display of the results Rights: Z22
ZZ3	Backlash Calculation of acceptance-backlash and operating-backlash Takes 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/TS 6336-4 For bevel and hypoid gears according to ISO/DTS 10300-4: 2019 (draft) 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, splines and beveloid For measurement machines: Klingelnberg and Gleason (requires CB1) Rights: Z05o

ZZ6	Plastics Manager Easy way to generate plastics 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). Save the new materials directly to the KISSsoft database in the right format for calculations Calculation for dry run Evaluation of results from pulsator test machine Rights: K17
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
ZZ8	Special functions for the watch-making industry Import of DXF files in special format for the watch industry Dry run for gears Various special functions for very small gears Rights: Z19w
ZZ9	Load spectrum from measured torque curve "Simple count" method to determine a torque/speed load spectrum without considering alternating torques "Rainflow" method to determine a speed load spectrum including alternating factors for the tooth root considering positive and negative torques (requires ZZ1) Rights: Z18b, Z18br

Shafts and Bearings expert modules

Shafts

Module	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 Calculation with stiffness matrix of rolling bearings from SKF Cloud **NEW!** Temperature conditions for inner and outer ring and for rolling body Approximation of internal bearing geometries with optional input of the number of rolling bodies and data from bearing manufacturers Radial bearing can be calculated either with or without an inner or outer ring Rights: W01a, W01b, W03b, W03c, W03d, W05d
WA2	Tooth trace modifications 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 Calculation of the displacement matrix with DPK 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 Verification for multiple notches including an input option for FE results according to FVA 700 I Rights: W06b, W06r, W12
WA7	Strength calculation acc. to FKM, 2020 edition **NEW!** 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-F19 and AGMA 6001-F19 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 Definition of load spectrum dependent degrees of freedom Rights: W01s, W06s, W06t
WA11	Forced response Shaft vibration calculated on the 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

Module	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) Prediction of the gear flank misalignment. FE results display in KISSsoft or in 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

Module	Description
WB1	Enhanced bearing calculation (L10m, Lnm) Influence of lubrication according to ISO 281-1 Thermally permissible service speed acc. DIN 732 Lubrication, lubricant temperature, friction and contamination for each individual rolling bearing definable Bearing rating life and modified rating life calculation using SKF Cloud® Calculation for hybrid bearings according to the GBLM method in SKF Cloud® Rights: W05a
WB2	Reference rating 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 Calculation of bearing rating life L10r and L10mr (benötigt WB1) using SKF Cloud® **NEW!** (This module requires WA1) Rights: W05b, W05c
WB3	Plain hydrodynamic bearings Hydrodynamic plain journal bearings: Oil or grease lubricated, according to DIN 31657, DIN 31657-4:2019, DIN 31652, ISO 7902:2020 **NEW!** and Niemann Hydrodynamic axial plain bearings: Calculation of pad thrust bearings, tilting-pad thrust bearings, according to ISO 12130 Rights: W07, W07a, W07b, W07c, W07d, W07e, 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

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

3D Export

Module	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
CB2	Integration with Solid Edge (versions ST10 - ST2021): 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, includes CC1 Rights: K05d, K04
CB3	Integration with SolidWorks (versions 2018-2021): 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, includes CC1 Rights: K05k, K04
CB4	Integration with Inventor (versions 2018-2021): 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, includes CC1 Rights: K05m, K04
CB5	CATIA integration (versions V5 R20-R22, V5-6r2013-2020): Generation of 3D gears (cylindrical gears, worms, crossed helical gears, straight bevel gears, splines (shaft-hub)) (manufacturer: SWMS) Rights: K05o*
CB6	Integration with Creo Parametric (Creo3 to 5): Generation of 3D gears (cylindrical gears, worms, crossed helical gears, straight bevel gears, splines (shaft-hub)) includes CC1, (manufacturer: Applisoft) Rights: K05q*, K04
CB7	Integration with Siemens NX (versions NX1847 - NX1953): 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 NX, includes CC1 Rights: K05n, K04

* please refer to the conditions

COM Interfaces

Module	Description
CC1	COM interface, basic Integration of KISSsoft in your own programs, via the COM interface. Basic KISSsoft functions for loading and saving files, creating reports, performing calculations, etc, 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 (Includes CC1) Access to numerous sizing and optimization functions. Calling scripts (requires CC3). Contact analysis can now be controlled via the COM interface. Rights: K04, K04a

Scripting

Module	Description
CC3	Scripting Integrated programming language for loading and running scripts in a KISSsoft file. Basic KISSsoft functions and numerous sizing and optimization functions can be called. Runs automatically at specific time points during the calculation (after loading the file, before saving, before or after the calculation, before creating the report). Rights: K22

Interfaces for data exchange

Module	Description
CD1	GDE exchange format: Gear Data Exchange GDE Version 2.6 in XML format according to VDI 2610, export available for cylindrical gears Rights: K05f
CD2	GAMA exchange format: GAMA export available for cylindrical gears (macrogeometry only) Rights: K05g
CD3	Interface to GEMS® Data can be exchanged with GEMS® (Gleason's bevel gear manufacturing and analysis software) via KISSsys and KISSsoft. 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. Operating data transfer Rights: K11k6, K05j
CD4	Tooth form export

	Export of tooth form and tool geometry in X, Y coordinates (optionally also normal and radius of curvature) Data in the transverse section, normal section or axial section Rights: Z05b

Languages

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

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.

Engineering

KISSsoft AG also provides 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 also be delighted to make you a specific offer.

Training courses

Our training courses teach you how to make best possible use of our software and explain the most important theories that lie behind it. 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 process your project with KISSsoft and KISSsys in a workshop, under the guidance of a KISSsoft instructor. The required specialist theoretical knowledge will be explained. The workshop topic will be agreed by 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 executed with dongle in the USB port. The single user license is also available as node-locked license without dongle.

Network license

We offer a network license for any 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 enables you to use licenses for an unrestricted time period. Additional modules can be purchased at any time. Only single user licenses (with a USB plug or node-locked) 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 available only 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 (connected 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 of EUR 500.00 per rental agreement.

Other rental models are available upon request.

Maintenance contract

The service contract applies to purchased licenses and ensures KISSsoft will run smoothly and efficiently over the long term. It offers the following benefits Technical support on the calculation methods, software usage support, updates of software, adaptations to new standards and full compatibility with new operation systems at a rithm of one update a year, patches, and some additional features.
Price 15% of software value per year, minimum of 100 EUR per year. Additional conditions are detailed in the sample contract.

* Third party manufacturers

* = Software developed by one of our partners. The modules marked with * may have different conditions. Details on request.

Universities

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

Shipment

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

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