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EES KISSSOFT
Engineering | Education | Software

1 Whats new in release 10-2008 of KISSsoft

1.1 Executive summary

The highlights of the release 10-2008 are:

- ✓ **Load distribution calculation on helical gears considering lead and profile corrections**
- ✓ **Transmission error calculation considering lead and profile corrections**
- ✓ **Bevel gear geometry – including hypoid gear geometry – along ISO23509 including strength rating**
- ✓ **Search function in the help menu**
- ✓ **Improved graphics**

Below, all changes are documented for reference.

The new release 10-2008 is shipped out to our customers now, provided that their investment in KISSsoft software is protected by AMC (maintenance and support). A valid AMC contract (maintenance and support contract) ensures that:

- ✓ **You get updates of the software**
- ✓ **You are entitled to software and installation support**
- ✓ **You have confidence that the software is compatible to changing hardware and operating system requirements**
- ✓ **You may get hardware lock / dongle replacement in case of damage or hardware incompatibility**
- ✓ **You will get technical help from our gear engineers**

1.2 Table of content

1.3 Document change record

Revision	Dated	Who	Comments
0	8.12.08	HD	Original document
1	16.12.08	HD	Information on KISSsys added

2 General

2.1 Help and manual

The manual has been extended considerably, it now spans 847 pages instead of about 500 pages as with previous release. It may be downloaded from www.kisssoft.ch/english/downloads/pdf/manual.pdf

The manual is integrated into the software in the tab “Manual”.

A full text search with preview is now available in the tab “Search”.

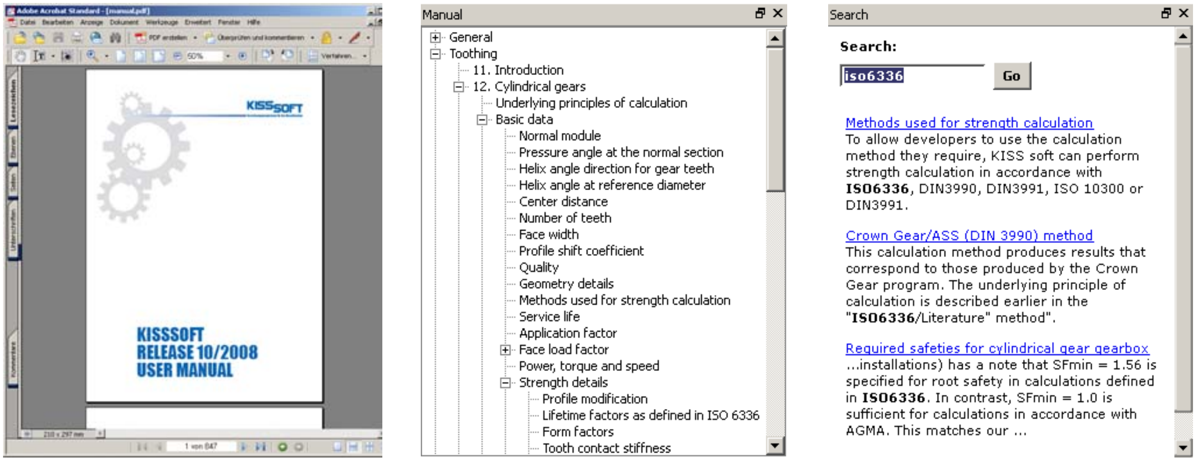


Figure 2-1 New manual (left), software help (centre), search function in the software (right)

2.2 Report editor

The report editor now includes full text search for a string and the user can change the format from portrait to landscape (which is more suitable for e.g. planetary gear calculation report).

Figure 2-2 Report menu now including format and search function

2.3 Graphics

For each line in the graphic, the color and type may be changed.

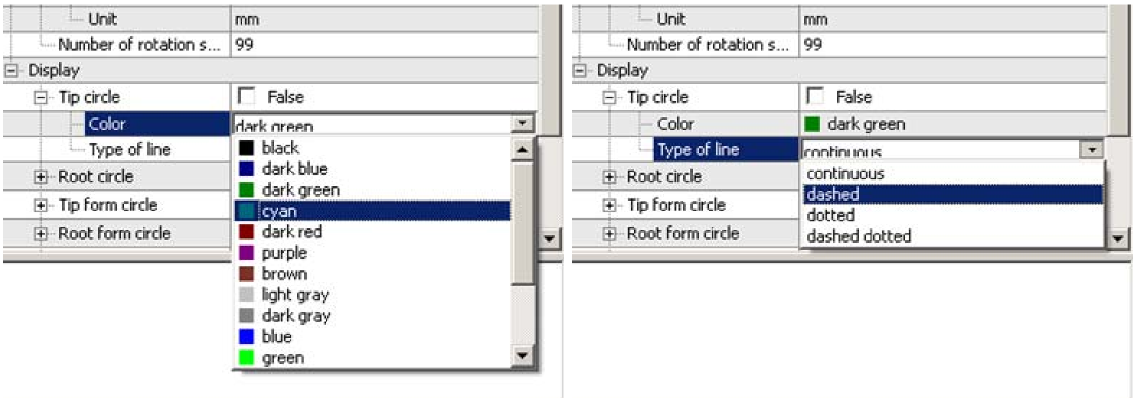


Figure 2-3 Changing attributes of a line in the graphics

Additional comment area is introduced.

Gear pair may be shown for upper, lower or mean centre distance tolerance.

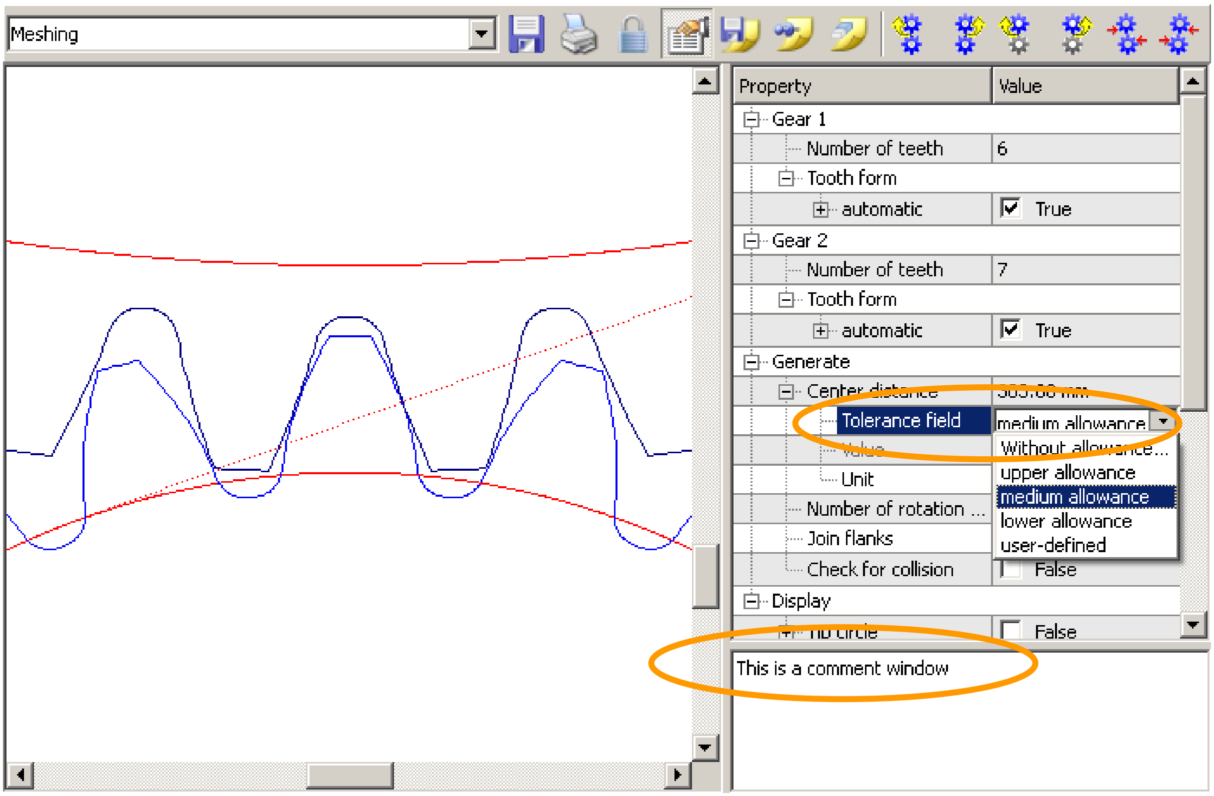


Figure 2-4 Display for different centre distances. Comment window.

Curves may be saved temporarily or permanently using new icons in menu.

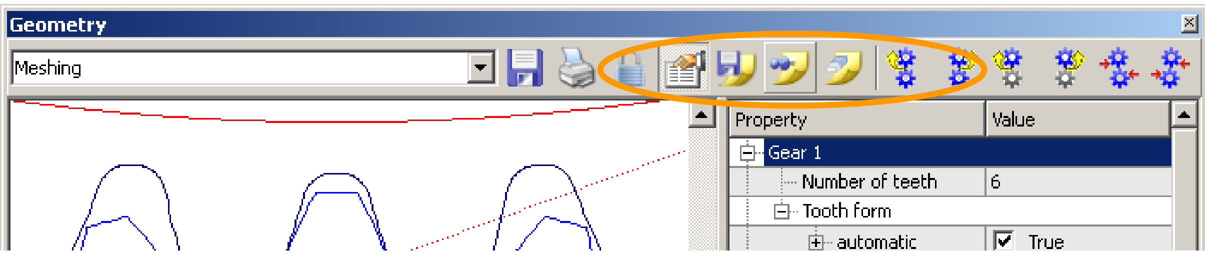


Figure 2-5 Icons for (left) saving curve permanently, (centre) temporarily, (right) deled temporary curve. This applies to the curve selected in the properties.

New navigation by using right mouse click in the graphics (Select/Pan/Zoom/Measure):

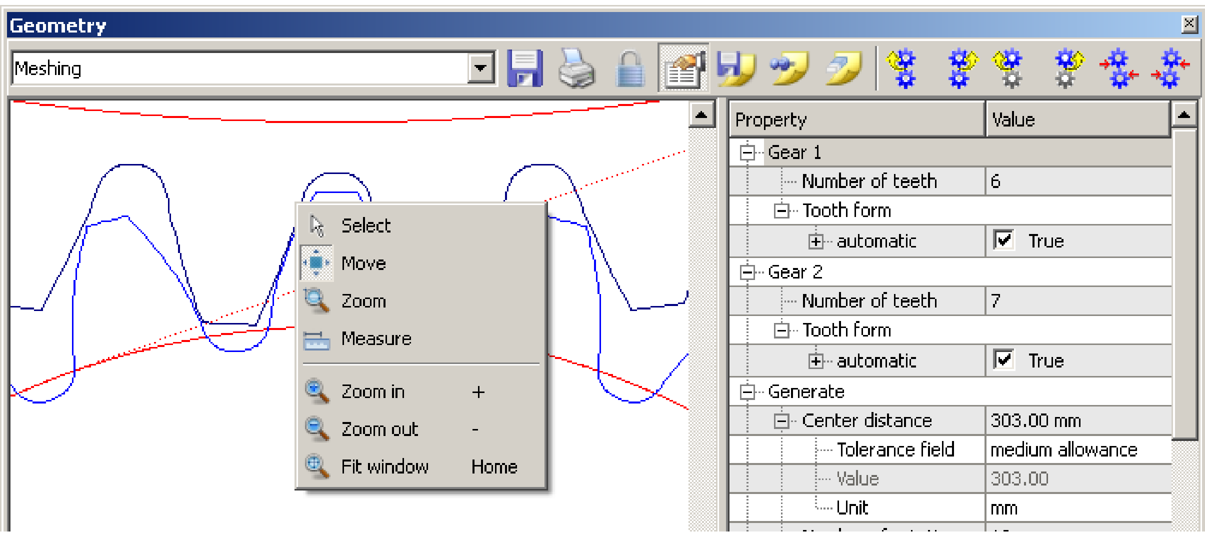


Figure 2-6 Navigation system including measure function.

Measure function in graphics:

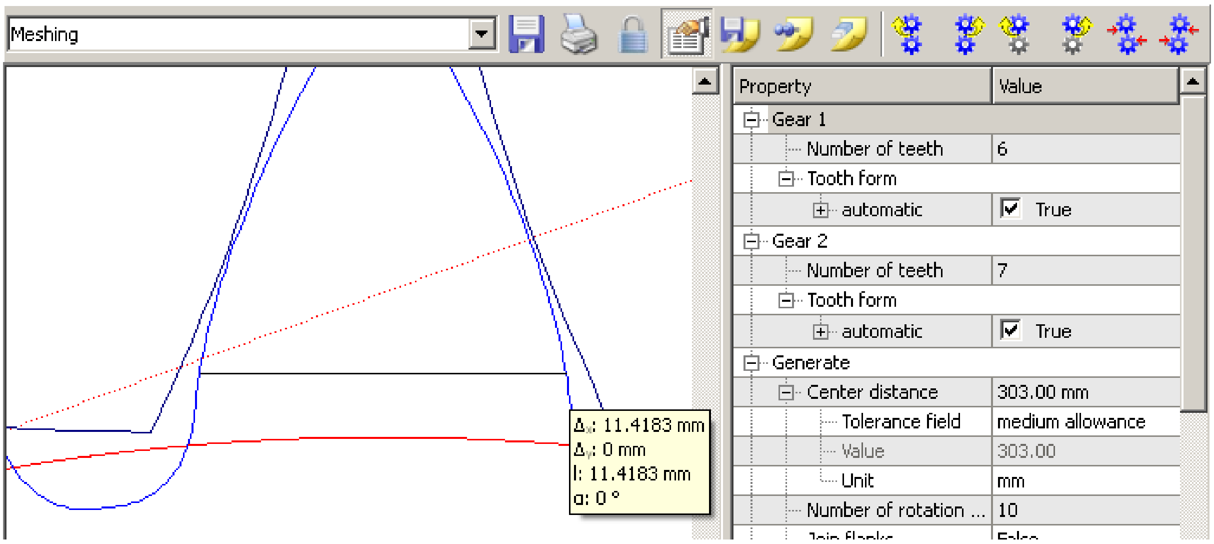


Figure 2-7 Measuring function in gear graphics

Values on co-ordinate system axis may be changed:

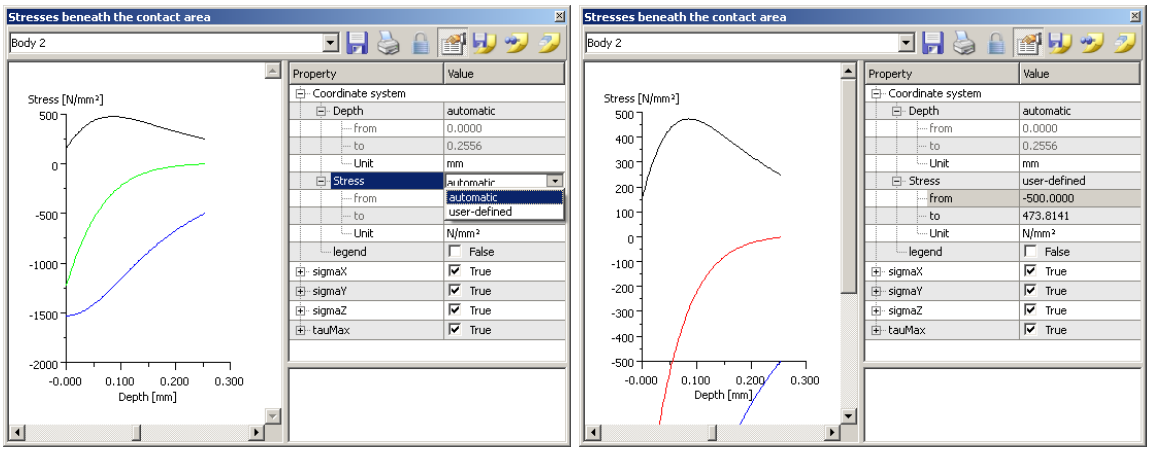


Figure 2-8 Changing the range on the co-ordinates axis

A, B, C, D, E are added in some graphics:

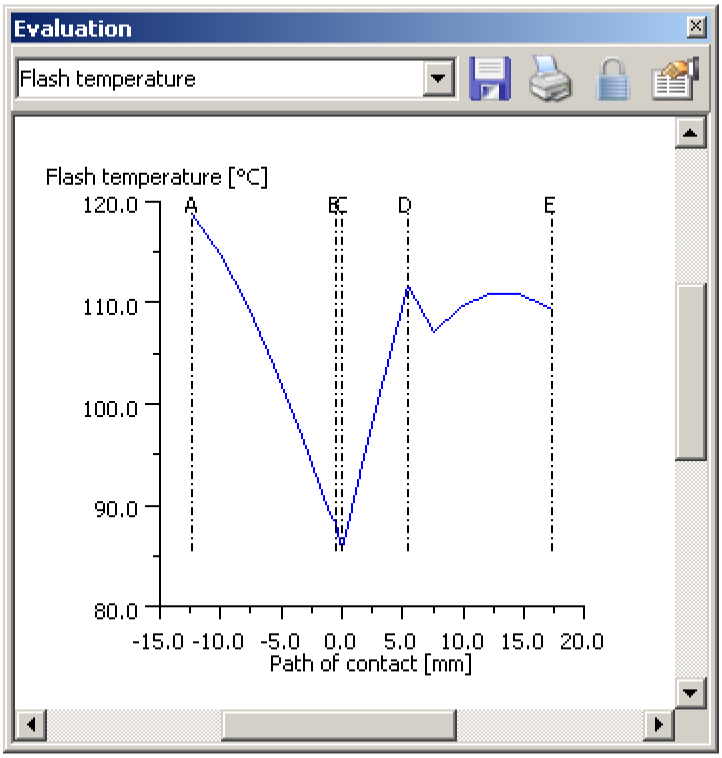


Figure 2-9 Indication of A, B, C, D, E in graphics

3 Shaft calculation

3.1 Additional graphics

Additional graphics have been added in the shaft calculation:

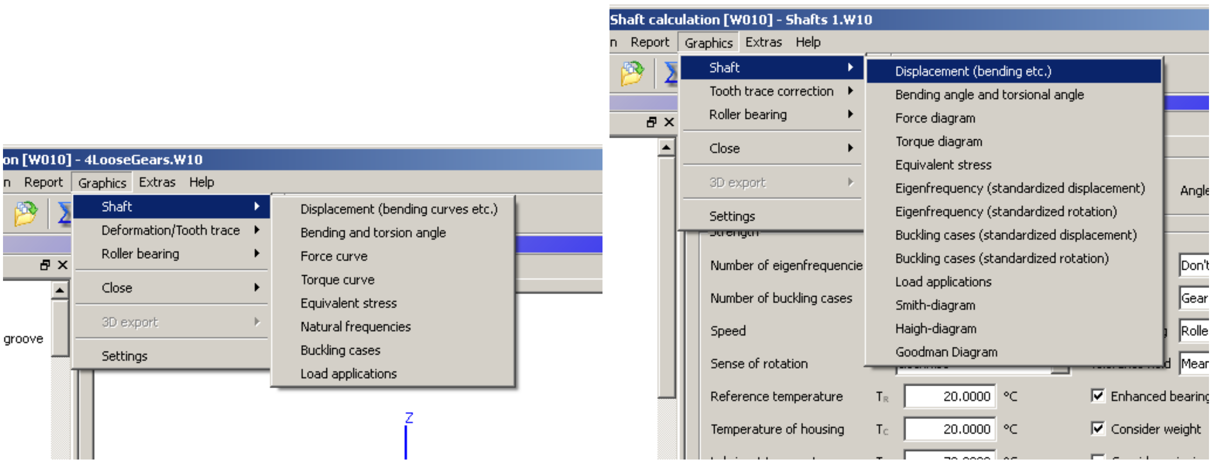


Figure 3-1 Shaft graphics in release 03-2008 (left) and 10-2008 (right)

3.2 Co-axial shafts

The number of co-axial shafts has been increased to 15.

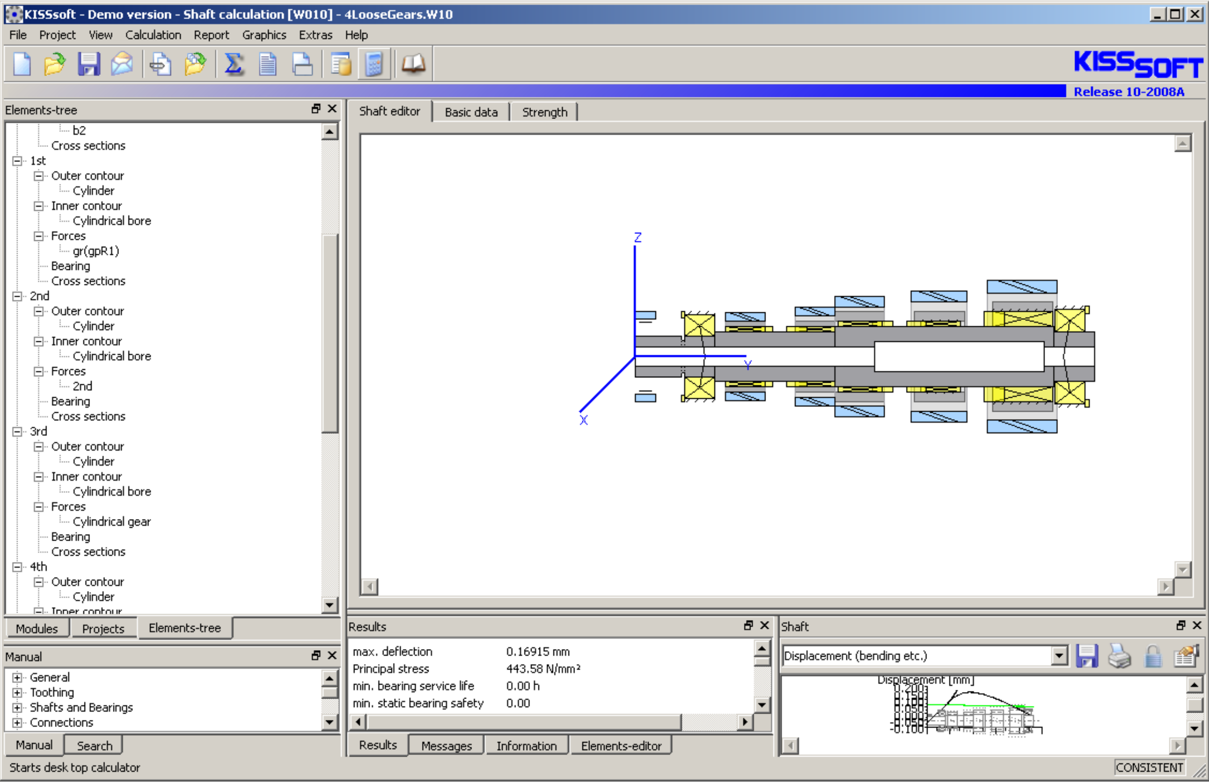


Figure 3-2 Up to 15 co-axial shafts (e.g. to simulate idler gears) may be modelled in a single KISSsoft calculation

Results in graphical format now include sketch of shaft for reference.

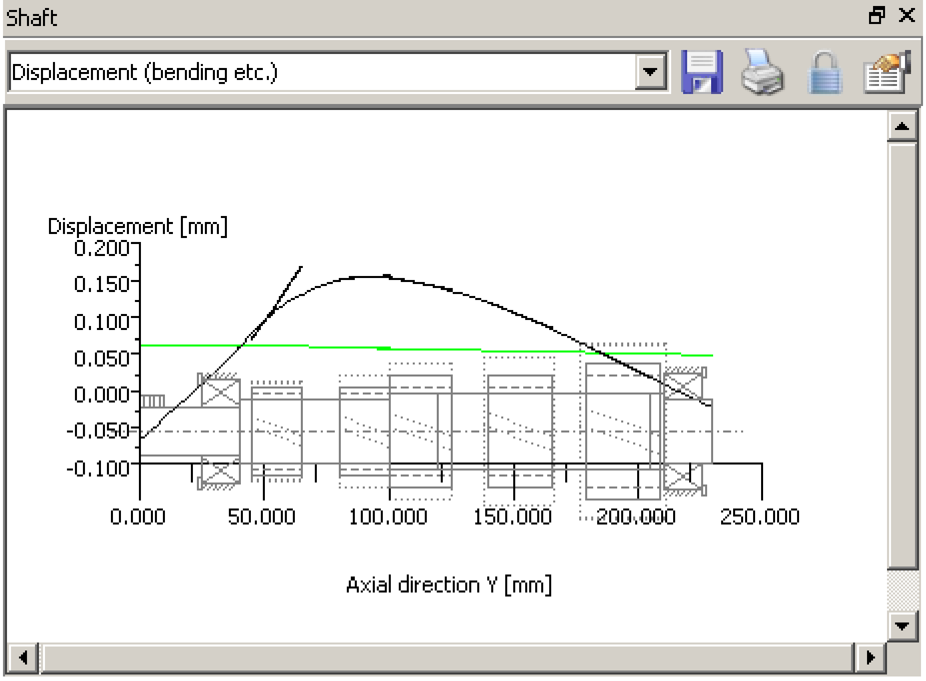


Figure 3-3 Sketch of shaft in graphical results for reference

3.3 Tooth trace deformation

Graphics for the determination of the longitudinal corrections (crowning, end relief and helix angle correction) are now more intuitive as the display the target correction (green), the as-is correction (purple), deformation (red) and the shaft including gears with hand of helix indicated.

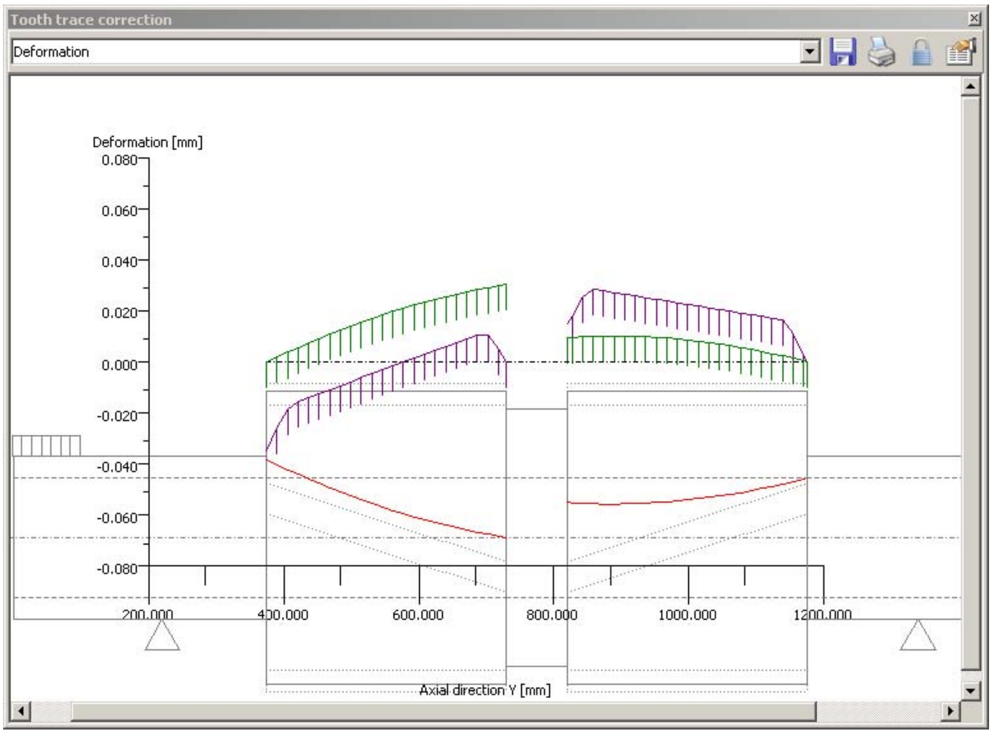


Figure 3-4 Graphics for definition of corrections

Furthermore, the line load graphics has been improved:

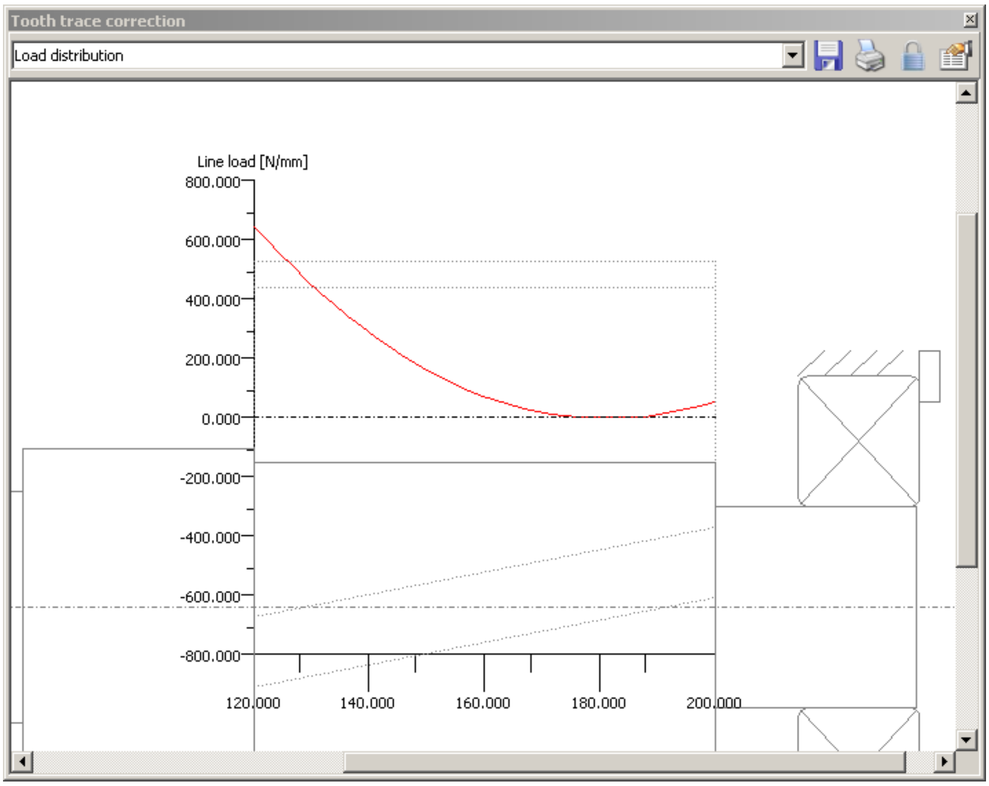


Figure 3-5 Line load graphics for un-corrected gear

Furthermore, the proposed corrections are now listed in the report as angular values:

…

```
For gear calculation:
Tooth trace deviation due to deformation fsh (without correction)
fsh =     0.0244 (mm) =       24.4 (µm)
 (ISO6336, Part 1, C2: fsh_parabol = 32.5 µm; fsh-linear = 24.4 µm)
 (DIN3990, Part 1, E2: fsh_parabol = 32.5 µm; fsh-linear = 24.4 µm)


Input data: Tooth trace  crowned
 fHb=  15.0 µm, cb=  25.0 µm, rCrown=32000.0 mm

Notice:
 Data for exzentric crowning including fHb: x(measured from b/2) =5.60 mm rCrown=31448.3 mm

Notice:
The angle modification fHb corresponds to a helix angle modification -0.0107 °
(Helix angle 14.9893 °)
!! Use correction by helix angle modification only, if the direction of the rotation stays
the same!

Load distribution
Contact stiffness 20.000 [N/mm/µm]
      y (mm)        f (mm)    corr (mm)    f-corr (mm)  w (N/mm)     dFbt (N)
      120.00       0.0325      -0.0250       0.0075     151.7140     166.8853



...
```

Figure 3-6 Modified report for tooth trace calcualtion now including correction values as angle

3.4 Natural frequencies

Natural frequencies are now displayed both for displacement and rotation in separate graphics

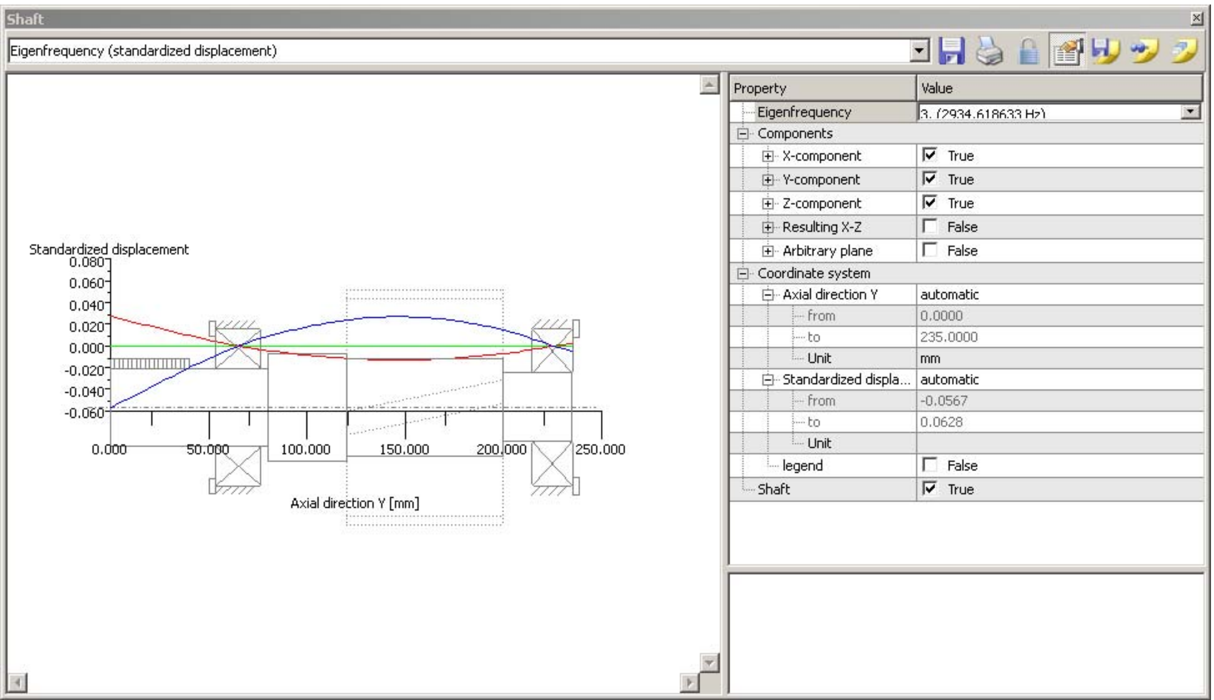


Figure 3-7 Third natural frequency, displacement

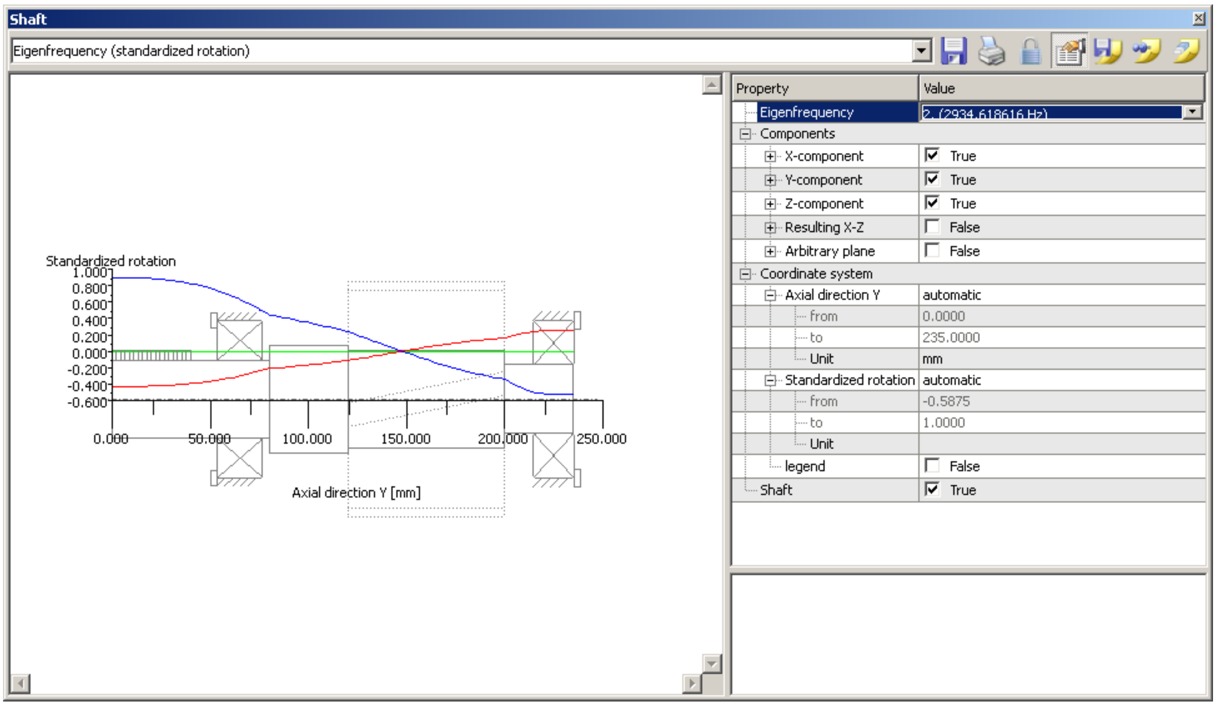


Figure 3-8 Third natural frequency, rotation

3.5 Bearings

Tolerances are now considered for bearing clearance.

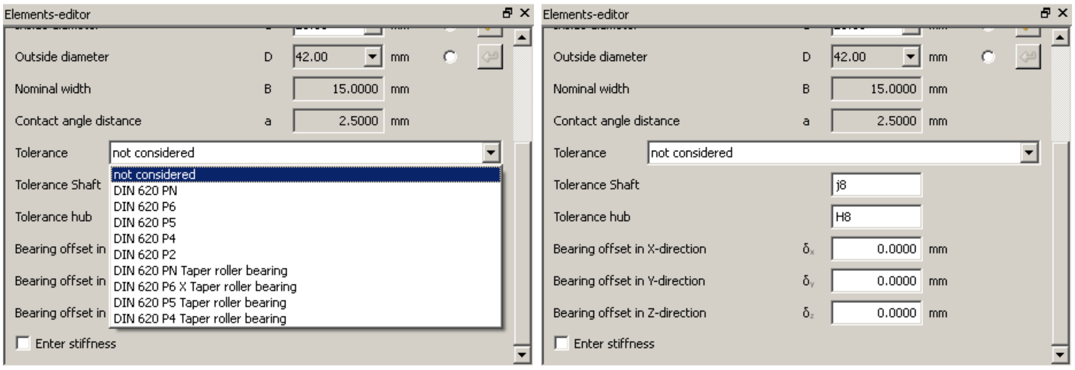
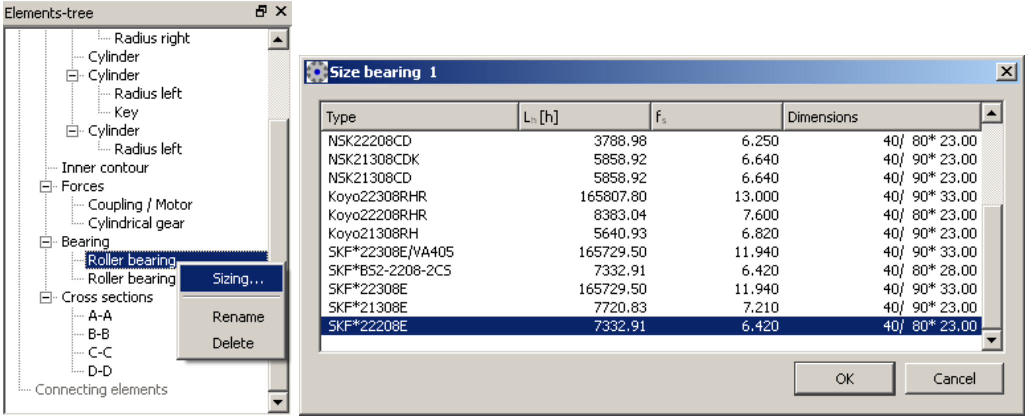


Figure 3-9 Considering of bearing tolerances, inner and outer race tolerances for bearing calculation

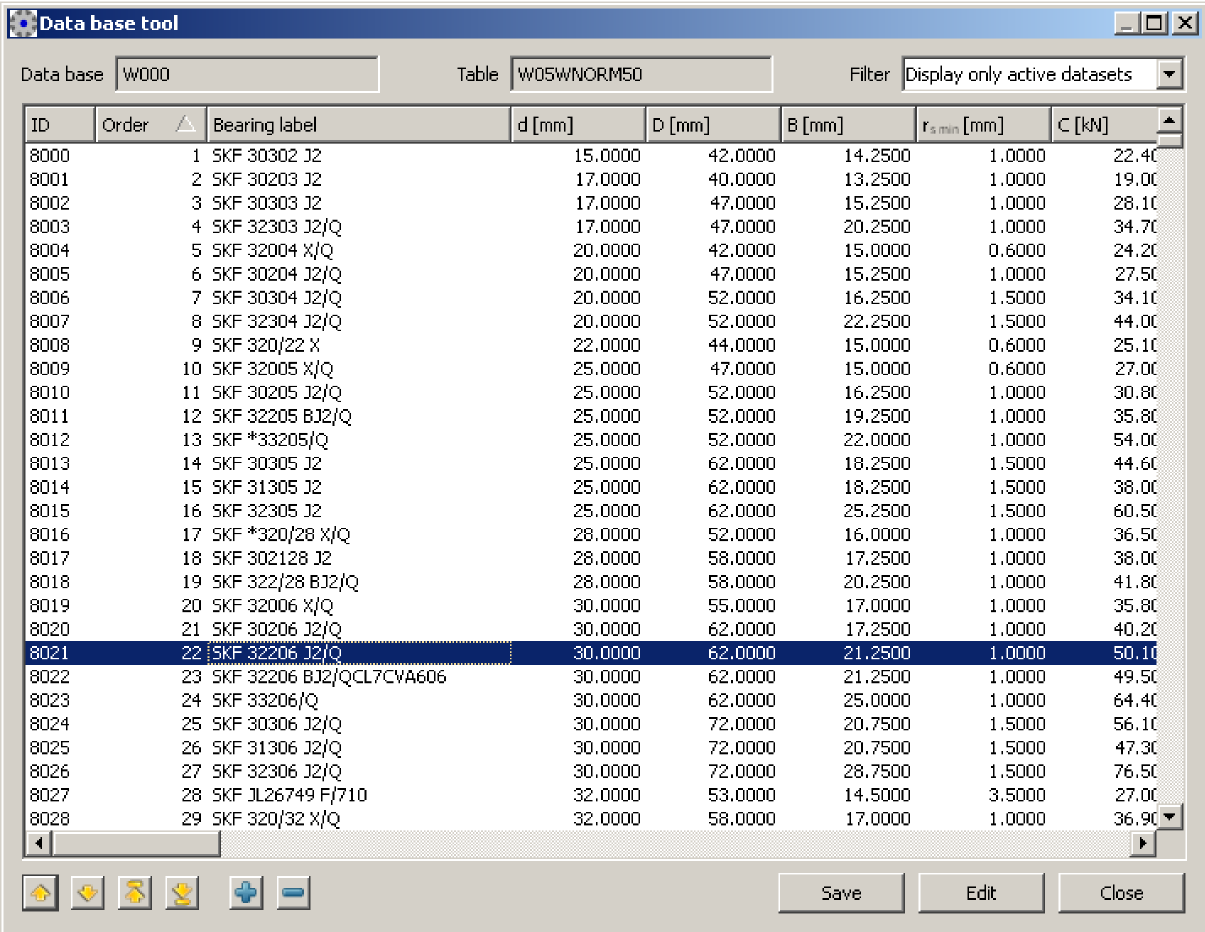
Bearing sizing is now included. For a given bearing, all possible solutions from the database are found (meeting the geometry requirements) and for all bearings, the lifetime is calculated. Then, the appropriate bearing may be selected.



Type	L_h [h]	f_s	Dimensions
NSK22208CD	3788.98	6.250	40/ 80* 23.00
NSK21308CDK	5858.92	6.640	40/ 90* 23.00
NSK21308CD	5858.92	6.640	40/ 90* 23.00
Koyo22308RHR	165807.80	13.000	40/ 90* 33.00
Koyo22208RHR	8383.04	7.600	40/ 80* 23.00
Koyo21308RH	5640.93	6.820	40/ 90* 23.00
SKF*22308E/VA405	165729.50	11.940	40/ 90* 33.00
SKF*BS2-2208-2CS	7332.91	6.420	40/ 80* 28.00
SKF*22308E	165729.50	11.940	40/ 90* 33.00
SKF*21308E	7720.83	7.210	40/ 90* 23.00
SKF*22208E	7332.91	6.420	40/ 80* 23.00

Figure 3-10 Sizing function for bearings

SKF data for single row tapered roller bearings has been updated.



ID	Order	Bearing label	d [mm]	D [mm]	B [mm]	$r_{s\,min}$ [mm]	C [kN]
8000	1	SKF 30302 J2	15.0000	42.0000	14.2500	1.0000	22.4
8001	2	SKF 30203 J2	17.0000	40.0000	13.2500	1.0000	19.0
8002	3	SKF 30303 J2	17.0000	47.0000	15.2500	1.0000	28.1
8003	4	SKF 32303 J2/Q	17.0000	47.0000	20.2500	1.0000	34.7
8004	5	SKF 32004 X/Q	20.0000	42.0000	15.0000	0.6000	24.2
8005	6	SKF 30204 J2/Q	20.0000	47.0000	15.2500	1.0000	27.5
8006	7	SKF 30304 J2/Q	20.0000	52.0000	16.2500	1.5000	34.1
8007	8	SKF 32304 J2/Q	20.0000	52.0000	22.2500	1.5000	44.0
8008	9	SKF 320/22 X	22.0000	44.0000	15.0000	0.6000	25.1
8009	10	SKF 32005 X/Q	25.0000	47.0000	15.0000	0.6000	27.0
8010	11	SKF 30205 J2/Q	25.0000	52.0000	16.2500	1.0000	30.8
8011	12	SKF 32205 BJ2/Q	25.0000	52.0000	19.2500	1.0000	35.8
8012	13	SKF *33205/Q	25.0000	52.0000	22.0000	1.0000	54.0
8013	14	SKF 30305 J2	25.0000	62.0000	18.2500	1.5000	44.6
8014	15	SKF 31305 J2	25.0000	62.0000	18.2500	1.5000	38.0
8015	16	SKF 32305 J2	25.0000	62.0000	25.2500	1.5000	60.5
8016	17	SKF *320/28 X/Q	28.0000	52.0000	16.0000	1.0000	36.5
8017	18	SKF 302128 J2	28.0000	58.0000	17.2500	1.0000	38.0
8018	19	SKF 322/28 BJ2/Q	28.0000	58.0000	20.2500	1.0000	41.8
8019	20	SKF 32006 X/Q	30.0000	55.0000	17.0000	1.0000	35.8
8020	21	SKF 30206 J2/Q	30.0000	62.0000	17.2500	1.0000	40.2
8021	22	SKF 32206 J2/Q	30.0000	62.0000	21.2500	1.0000	50.1
8022	23	SKF 32206 BJ2/QCL7CVA606	30.0000	62.0000	21.2500	1.0000	49.5
8023	24	SKF 33206/Q	30.0000	62.0000	25.0000	1.0000	64.4
8024	25	SKF 30306 J2/Q	30.0000	72.0000	20.7500	1.5000	56.1
8025	26	SKF 31306 J2/Q	30.0000	72.0000	20.7500	1.5000	47.3
8026	27	SKF 32306 J2/Q	30.0000	72.0000	28.7500	1.5000	76.5
8027	28	SKF JL26749 F/710	32.0000	53.0000	14.5000	3.5000	27.0
8028	29	SKF 320/32 X/Q	32.0000	58.0000	17.0000	1.0000	36.9

Figure 3-11 Updated SKF data for single row tapered roller bearings

4 Helical Gearing

4.1 Module specific settings

For the graphics, the x-axis may now be defined in the settings as follows (see second graphics for effect):

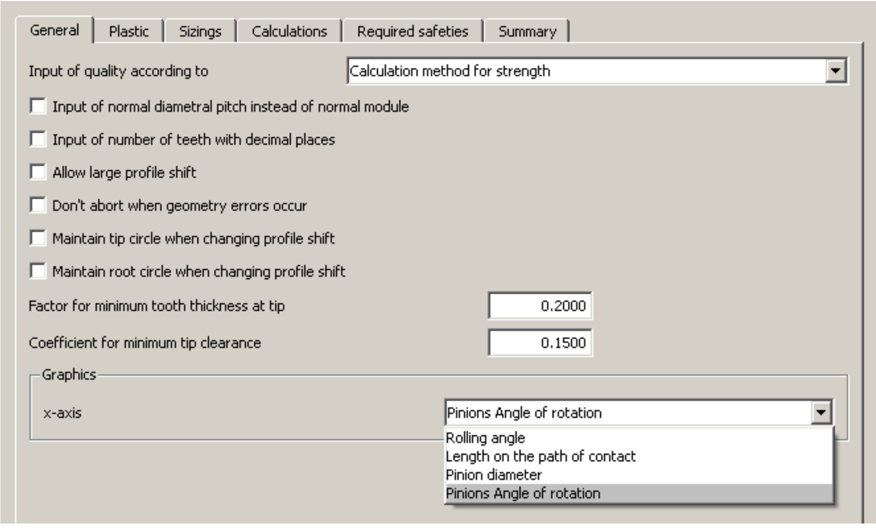


Figure 4-1 Definition of x axis for graphics

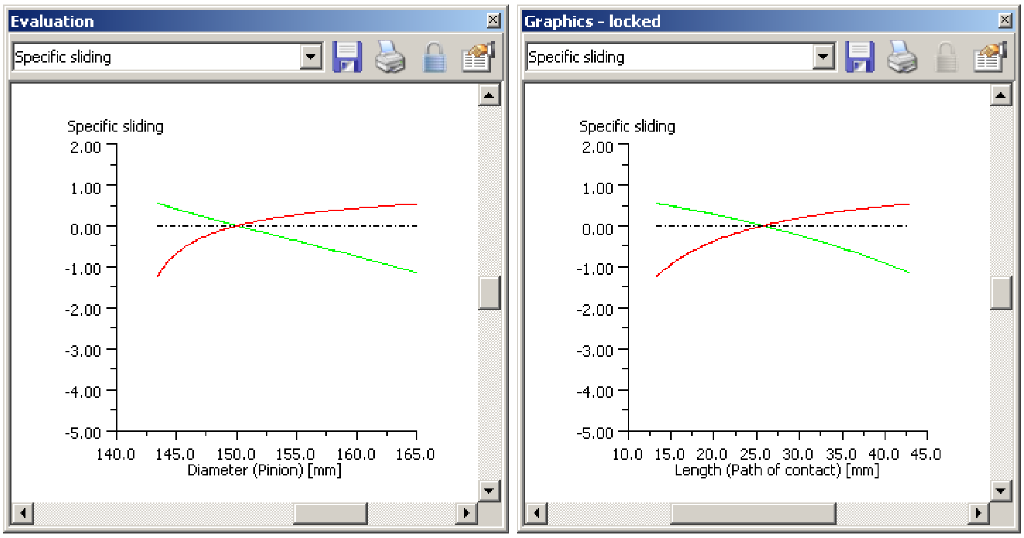


Figure 4-2 Specific sliding vs. pinion diameter (left) and vs length along path of contact (right) as determined by settings

4.2 Gear geometry

A sizing function to calculate the maximum possible root radius is now included. This allows for “full fillet” design, resulting in maximised root strength:

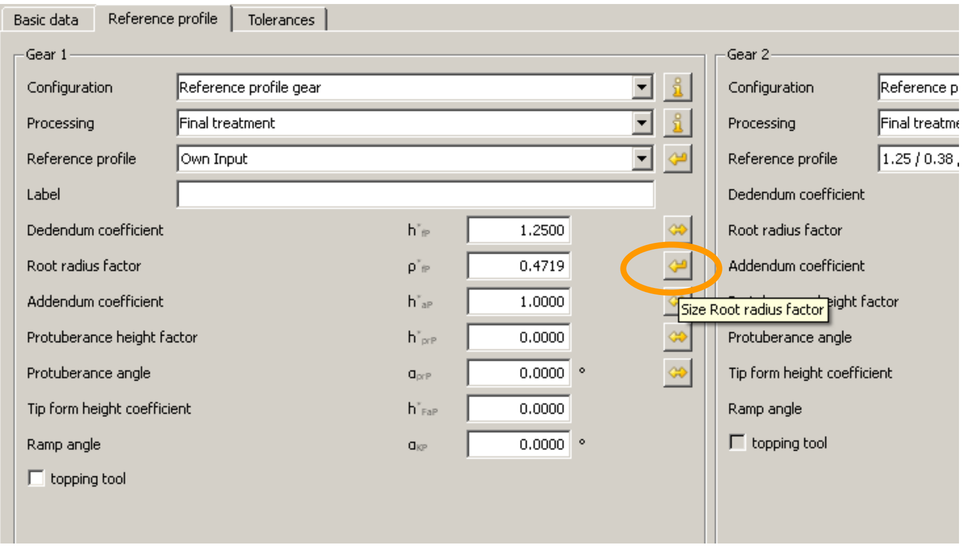


Figure 4-3 Sizing function for rhofp* in tab "Reference profile"

The pressure angle can now be reverse calculated from span measurements. Using the conversion button next to the field for pressure angle, two span measurements may be given. Then, the corresponding pressure angle is calculated.

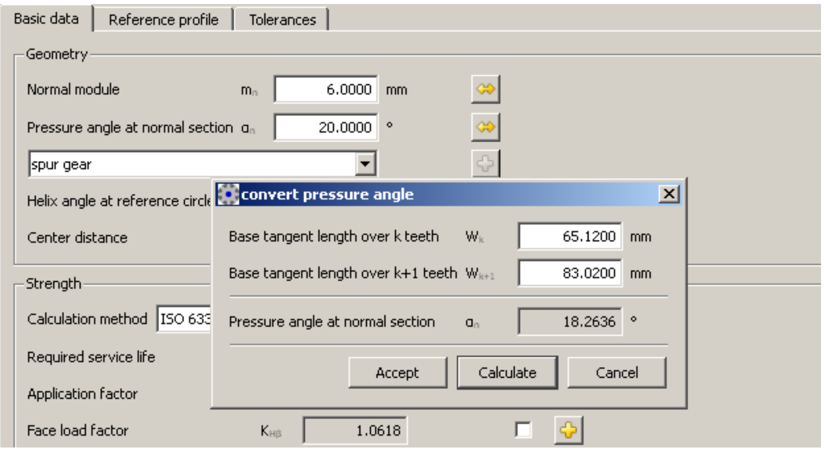


Figure 4-4 Calculation of pressure angle from span measurements

4.3 Gear material

For a given material hardness and material type, SigmaHlim and SigmaFlim values may now be directly calculated as per ISO6336 as a function of materal quality. This allows for quick input of a new material even if only little data is known. For this, select – in the gear calculation – the option “Own input” in materials list. Then, you will find conversion buttons for SigmaHlim and SigmaFlim.

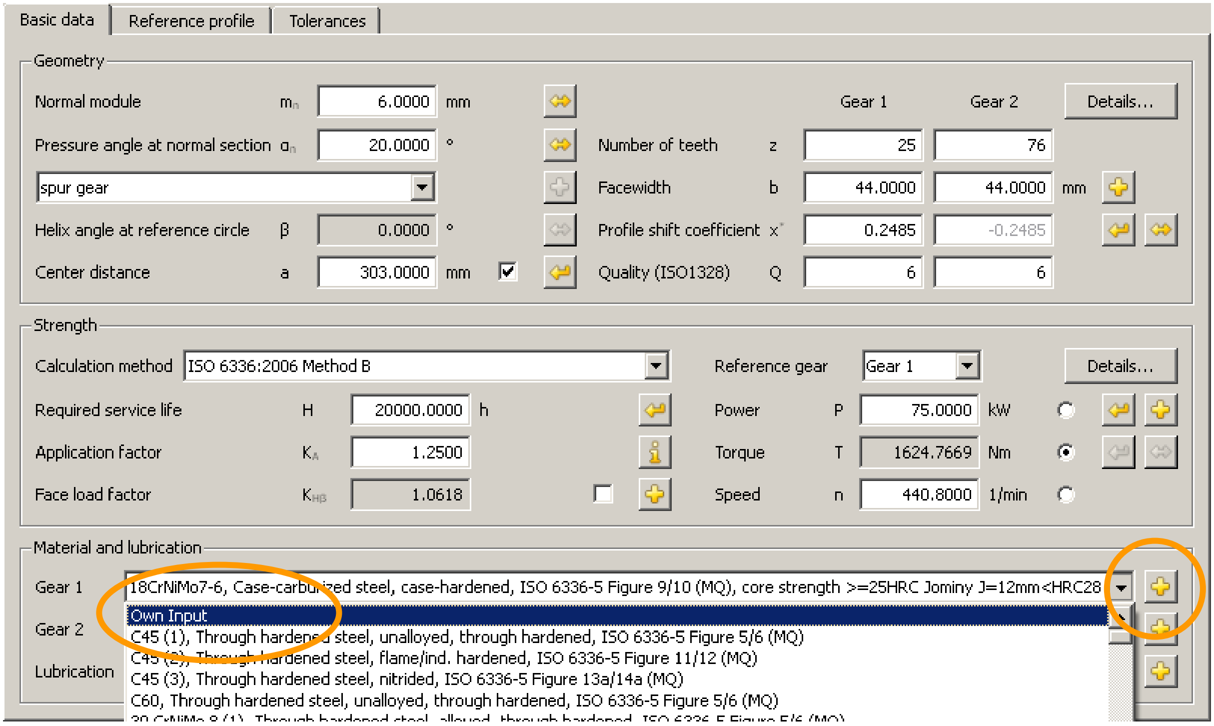


Figure 4-5 Select "Own Input" and then press "+" button

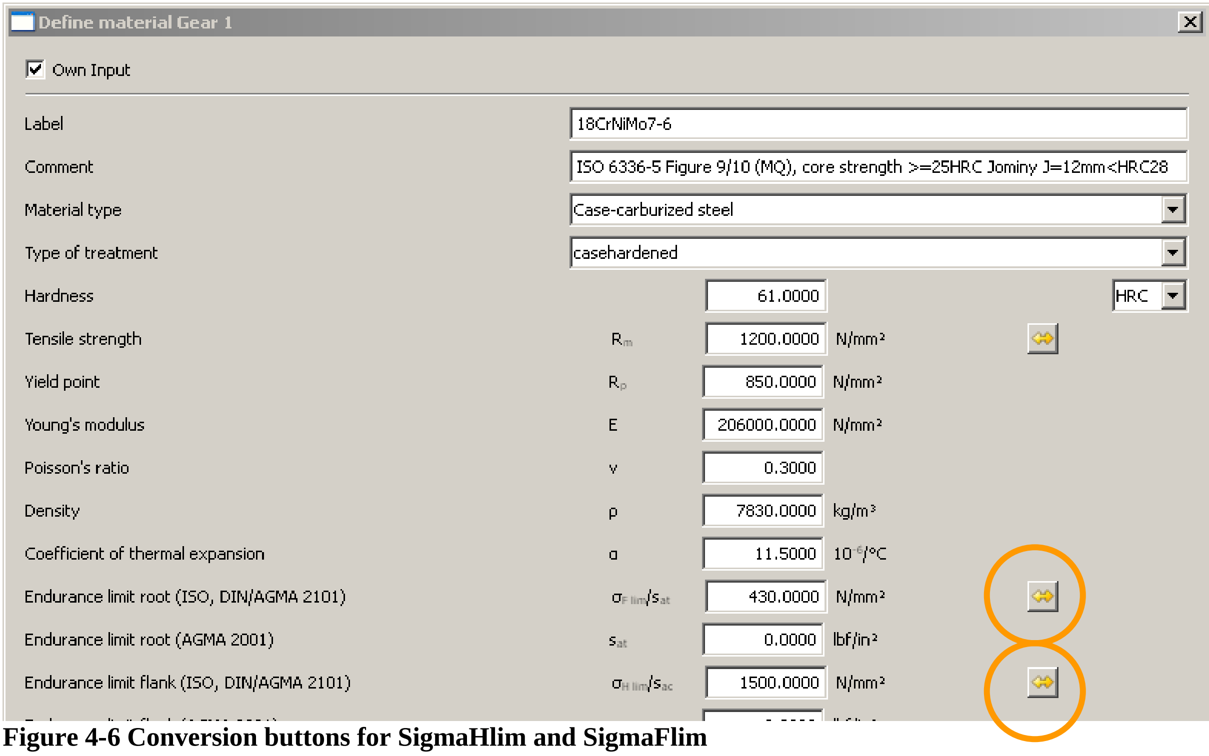


Figure 4-6 Conversion buttons for SigmaHlim and SigmaFlim

The conversion tool will convert the hardness into a permissible root stress and flank stress:

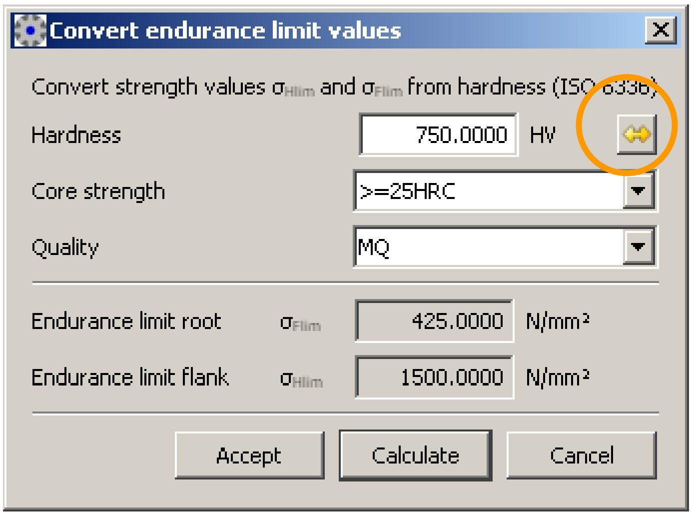


Figure 4-7 Tool to calculate permissible material values as per ISO6336. User the conversion button to convert different hardness values.

S-N curves are now all shown in a single graphic for comparison (here, using a planetary gear set as example)

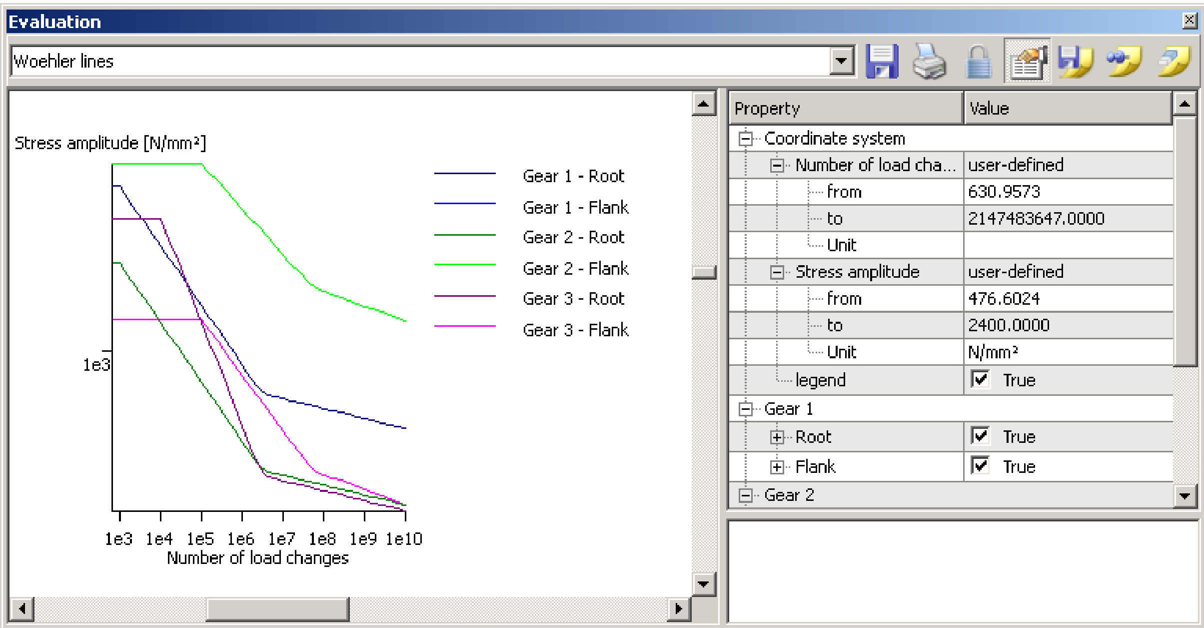


Figure 4-8 S-N curves of root and flank of all three gears in a planetary set

In the same manner, the safety factor curves showing safety factor vs. load cycles have been added as an output:

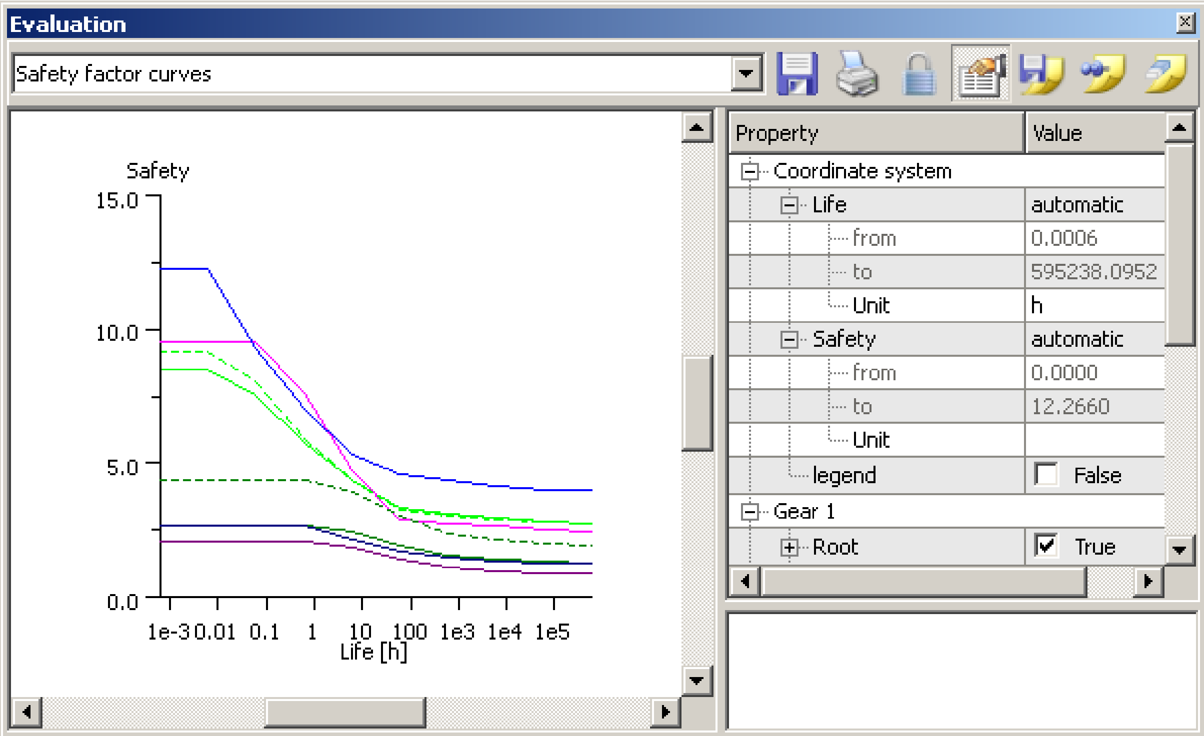


Figure 4-9 Safety factor vs. load cycles

4.4 Hardness depth

A new report is added where recommended hardness depth values according to different sources are proposed:

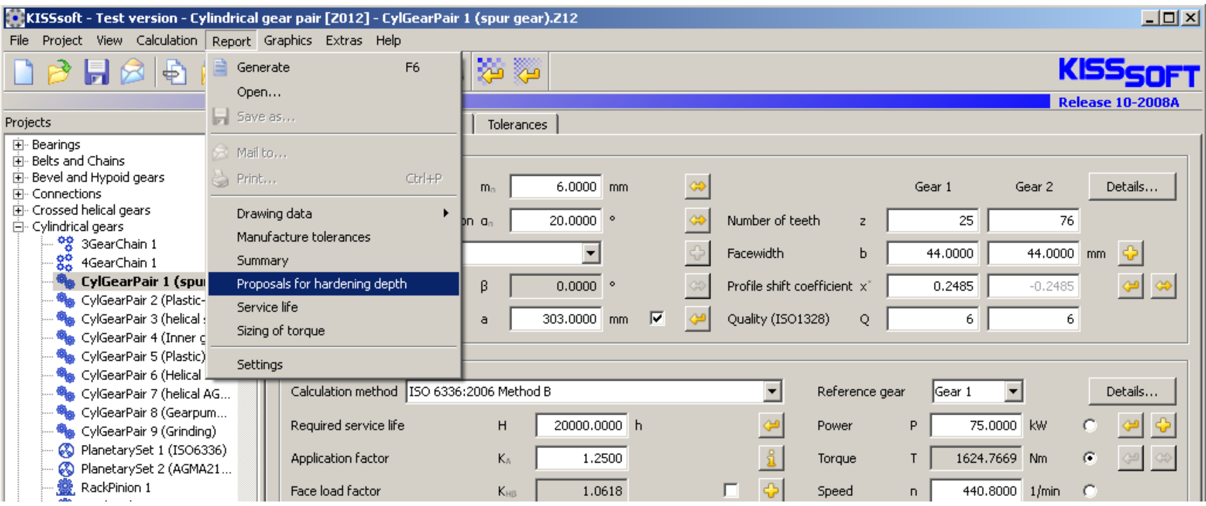


Figure 4-10 Call the new hardness depth report

```
                                                   Calculation programs for machine des
————————————————————————— KISSsoft - Release 10-2008 ——————————————————
KISSsoft evaluation

———————————————————————————————————— File —————————————————————————————————————
Name       : CylGearPair 1 (spur gear)
Description: KISSsoft example
Changed by : Dinner          on: 09.12.2008          at: 10:28:29
————————————————————————————————————————————————————————————————————————————————
```

```
Proposals for the hardening depth


Gear pair 1-2

Maximum shear stress                               [tauFmax]       305.47    N/mm²
tauFmax converted in HV (Si= 1.63)                 [HVSi]          311.20    HV
Contact (Flank pressure)                           [sigHcont]     1017.28    N/mm²
Maximum radius of flank                            [rho_r]          19.30    mm
Low Shear stress maximum                           [hmax]            0.273   mm
Proposal for hardness-depth EHT                    [EHT]             0.546   mm

Gear 1

Material                                            18CrNiMo7-6
Type of treatment                                   case-hardened
Hardness                                            61 HRC

Propositions Niemann, Bd.II (p.133)
Casehardening (mn: 2.00 mm...40.00 mm)
Hardening depth Ehthmin...Ehthmax:                               0.75 mm...1.09 mm

Propositions AGMA 2101-D04 (p.32-34)
for carburized and induction hardened external gears
                                                   [hemin]           0.89    mm
for tooth-to-tooth induction hardened external gears
                                                   [hemin]           1.31    mm

Propositions ISO 6336 part 5 (p.21-23)
Case depth for external gears to avoid pittings
                                                   [Ehtmax]          2.40    mm
                                                   [EhtHopt]         0.90    mm
based on case crushing
Quality ML                                         [EhtcML]          1.19    mm
Quality MQ/ME                                      [EhtcMQ]          0.79    mm

Gear 2

Material                                            18CrNiMo7-6
Type of treatment                                   case-hardened
Hardness                                            61 HRC

Propositions Niemann, Bd.II (p.133)
Casehardening (mn: 2.00 mm...40.00 mm)
Hardening depth Ehthmin...Ehthmax:                               0.75 mm...1.09 mm

Propositions AGMA 2101-D04 (p.32-34)
for carburized and induction hardened external gears
                                                   [hemin]           0.89    mm
for tooth-to-tooth induction hardened external gears
                                                   [hemin]           1.31    mm

Propositions ISO 6336 part 5 (p.21-23)
Case depth for external gears to avoid pittings
                                                   [Ehtmax]          2.40    mm
                                                   [EhtHopt]         0.90    mm
based on case crushing
Quality ML                                         [EhtcML]          1.19    mm
Quality MQ/ME                                      [EhtcMQ]          0.79    mm

!! For production with grinding allowance, the allowance should be added to that indicated in
the drawings !!
End report                                                          lines:   74
```

Figure 4-11 Hardness dept report

4.5 Rough sizing

Input and results are now in two different tabs:

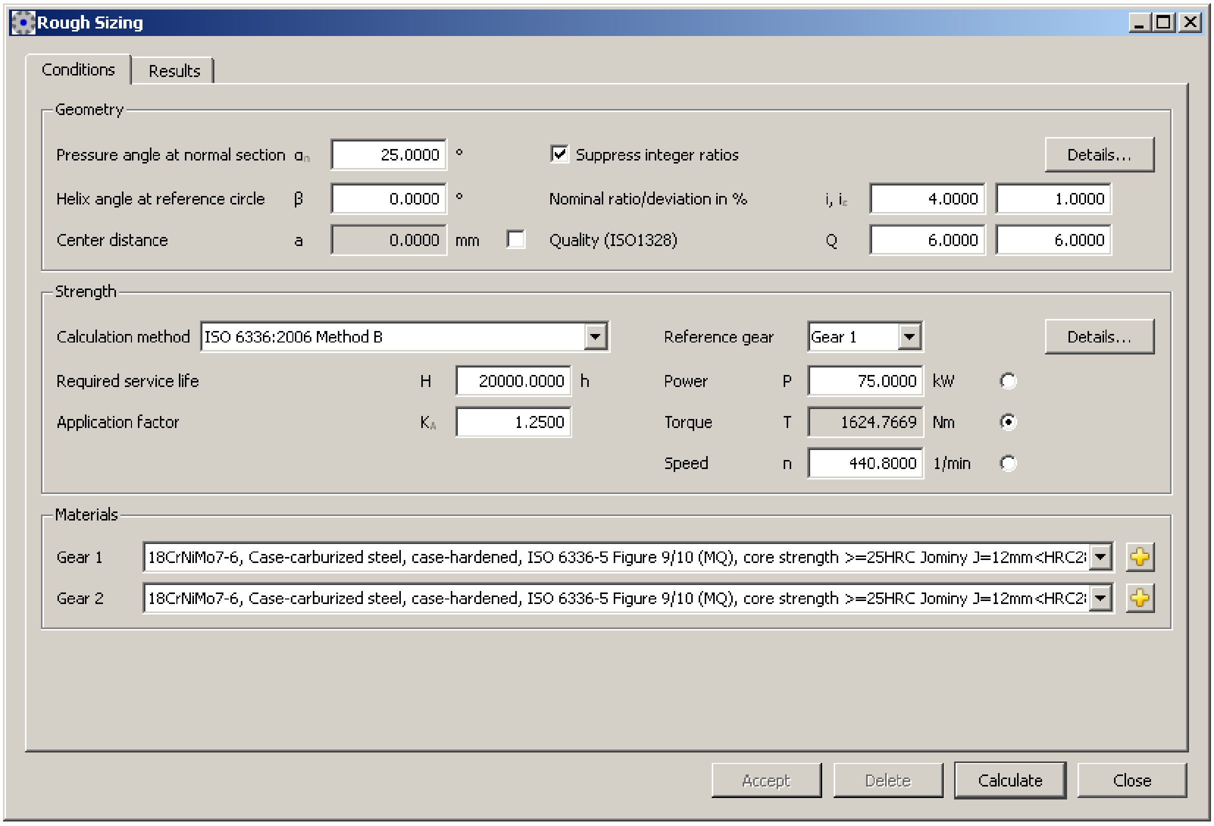


Figure 4-12 Tab for input of data for rough sizing

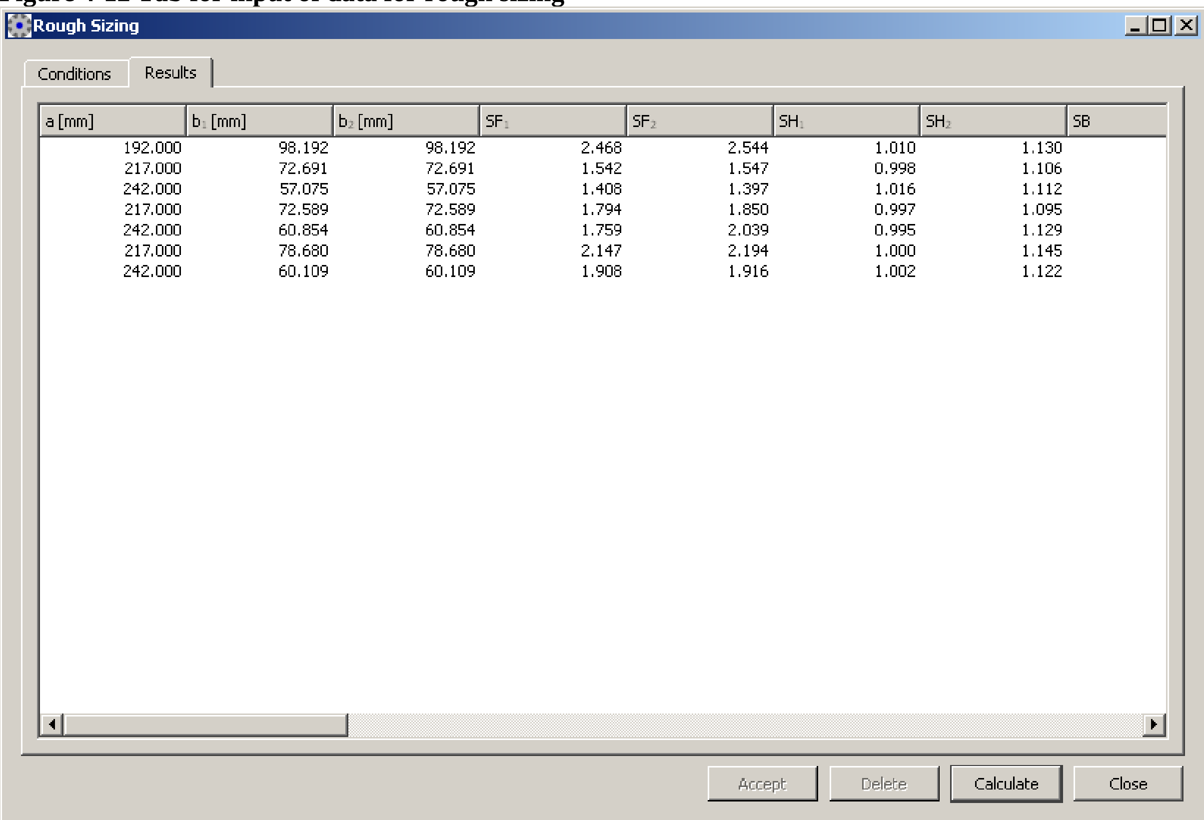
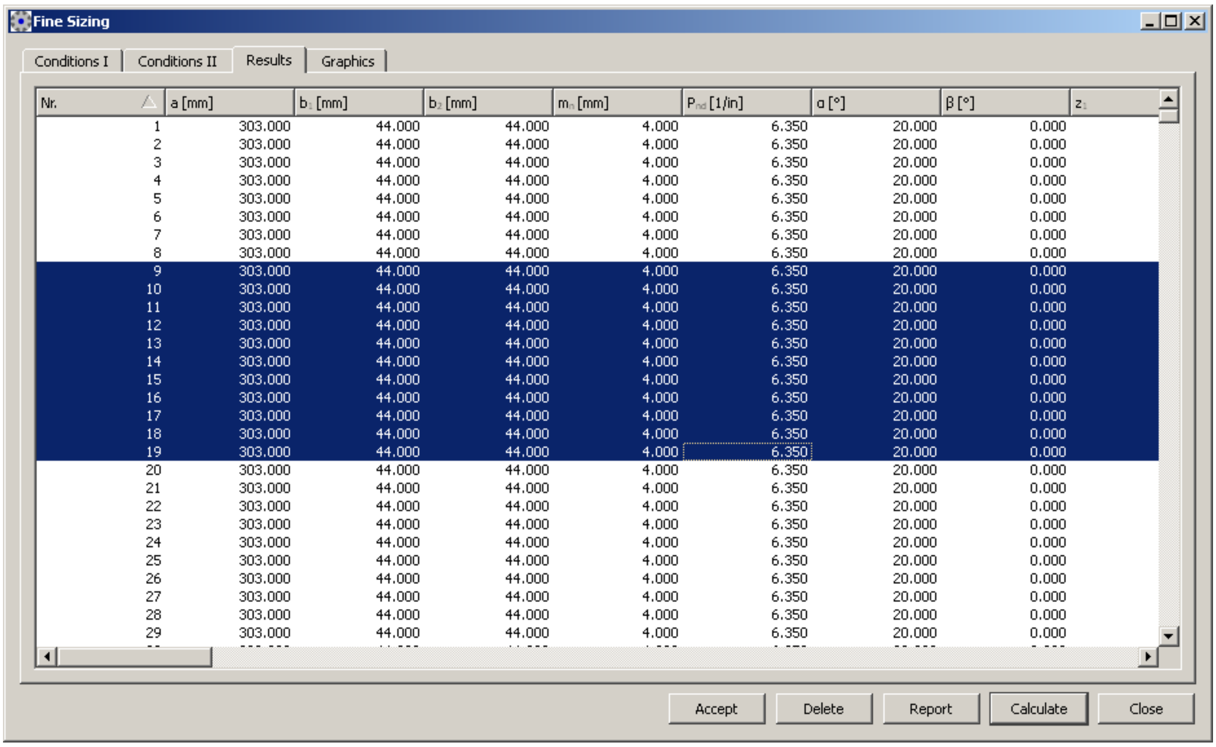


Figure 4-13 Tab for results in rough sizing.

4.6 Fine sizing

In the fine sizing function, many hundreds of gear solutions may be created. They may be now be filtered as follows

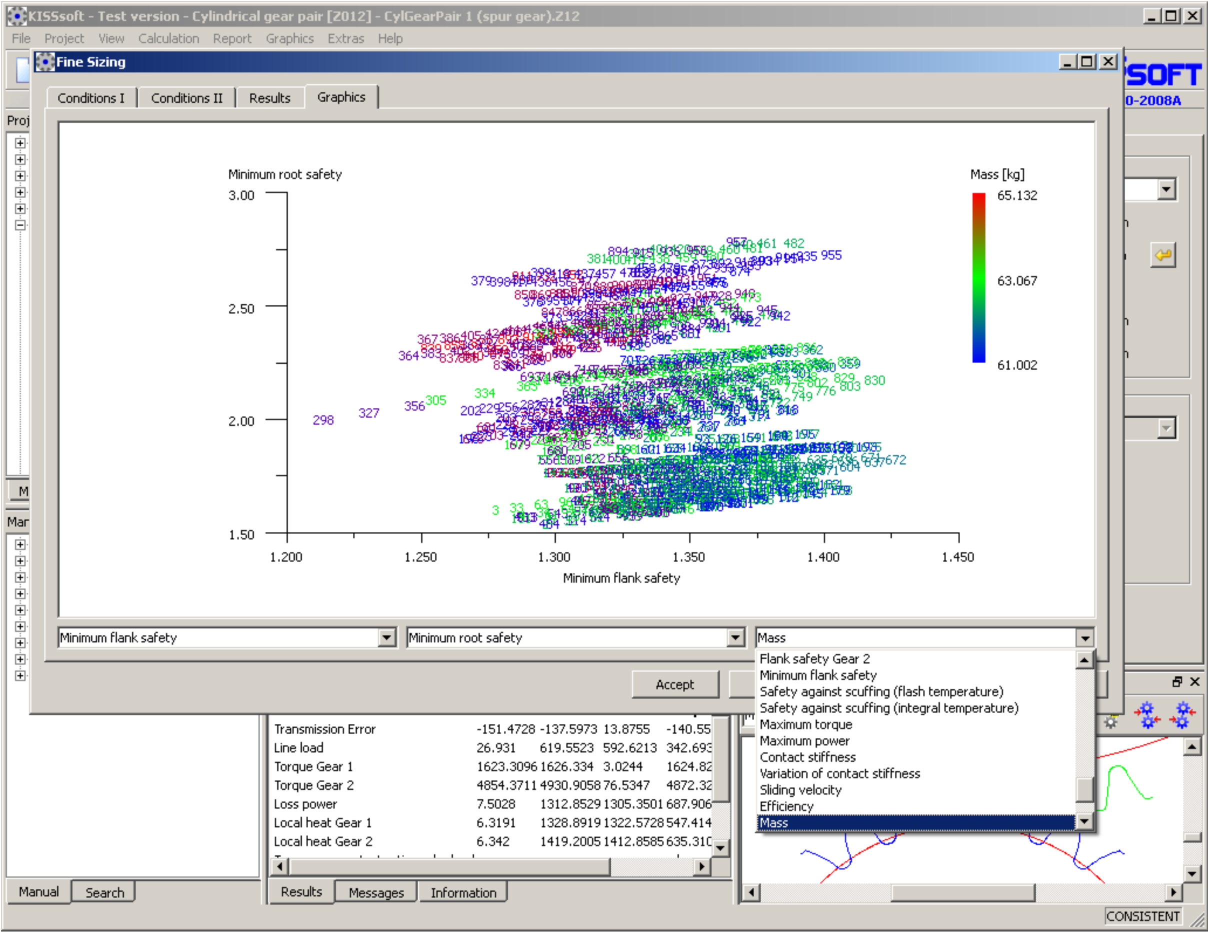
1. Sort the solutions as per a criterion (click into the header of a column)
2. Select all solutions that are above or below a threshold and press “Delete”
3. Sort by another criterion and repeat the procedure.

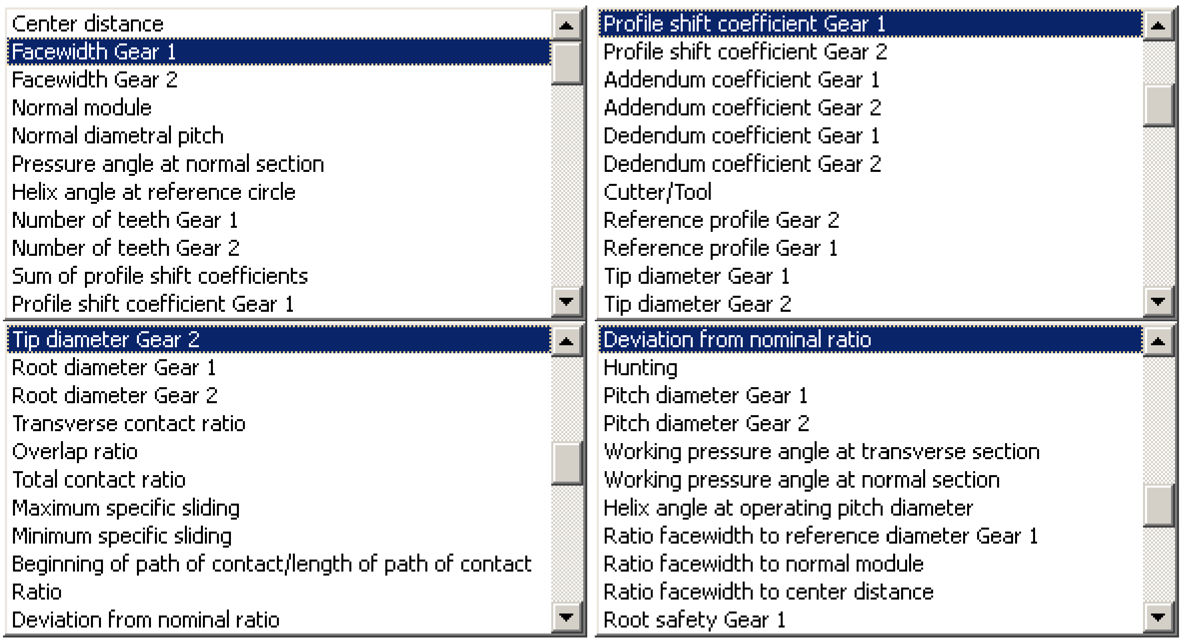


Nr.	a [mm]	b_1 [mm]	b_2 [mm]	m_n [mm]	P_{nd} [1/in]	α [°]	β [°]	z_1
1	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
2	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
3	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
4	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
5	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
6	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
7	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
8	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
9	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
10	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
11	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
12	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
13	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
14	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
15	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
16	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
17	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
18	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
19	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
20	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
21	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
22	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
23	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
24	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
25	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
26	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
27	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
28	303.000	44.000	44.000	4.000	6.350	20.000	0.000	
29	303.000	44.000	44.000	4.000	6.350	20.000	0.000	

Figure 4-14 Fine sizing results with the option of choosing multiple solutions and then delete them

In the graphics, many more options are available for display now:


KISSsoft - Test version - Cylindrical gear pair [2012] - CylGearPair 1 (spur gear).Z12
File Project View Calculation Report Graphics Extras Help
Fine Sizing
Conditions I
Conditions II
Results
Graphics
Minimum root safety
3.00
2.50
2.00
1.50
1.200
1.250
1.300
1.350
1.400
1.450
Minimum flank safety
Mass [kg]
65.132
63.067
61.002
Minimum flank safety
Minimum root safety
Mass
Flank safety Gear 2
Minimum flank safety
Safety against scuffing (flash temperature)
Safety against scuffing (integral temperature)
Maximum torque
Maximum power
Contact stiffness
Variation of contact stiffness
Sliding velocity
Efficiency
Mass
Accept
Transmission Error -151.4728 -137.5973 13.8755 -140.55
Line load 26.931 619.5523 592.6213 342.693
Torque Gear 1 1623.3096 1626.334 3.0244 1624.82
Torque Gear 2 4854.3711 4930.9058 76.5347 4872.32
Loss power 7.5028 1312.8529 1305.3501 687.906
Local heat Gear 1 6.3191 1328.8919 1322.5728 547.414
Local heat Gear 2 6.342 1419.2005 1412.8585 635.31
Manual
Search
Results
Messages
Information
CONSISTENT
SOFT
0-2008A


Center distance
Facewidth Gear 1
Facewidth Gear 2
Normal module
Normal diametral pitch
Pressure angle at normal section
Helix angle at reference circle
Number of teeth Gear 1
Number of teeth Gear 2
Sum of profile shift coefficients
Profile shift coefficient Gear 1
Profile shift coefficient Gear 1
Profile shift coefficient Gear 2
Addendum coefficient Gear 1
Addendum coefficient Gear 2
Dedendum coefficient Gear 1
Dedendum coefficient Gear 2
Cutter/Tool
Reference profile Gear 2
Reference profile Gear 1
Tip diameter Gear 1
Tip diameter Gear 2
Tip diameter Gear 2
Root diameter Gear 1
Root diameter Gear 2
Transverse contact ratio
Overlap ratio
Total contact ratio
Maximum specific sliding
Minimum specific sliding
Beginning of path of contact/length of path of contact
Ratio
Deviation from nominal ratio
Deviation from nominal ratio
Hunting
Pitch diameter Gear 1
Pitch diameter Gear 2
Working pressure angle at transverse section
Working pressure angle at normal section
Helix angle at operating pitch diameter
Ratio facewidth to reference diameter Gear 1
Ratio facewidth to normal module
Ratio facewidth to center distance
Root safety Gear 1

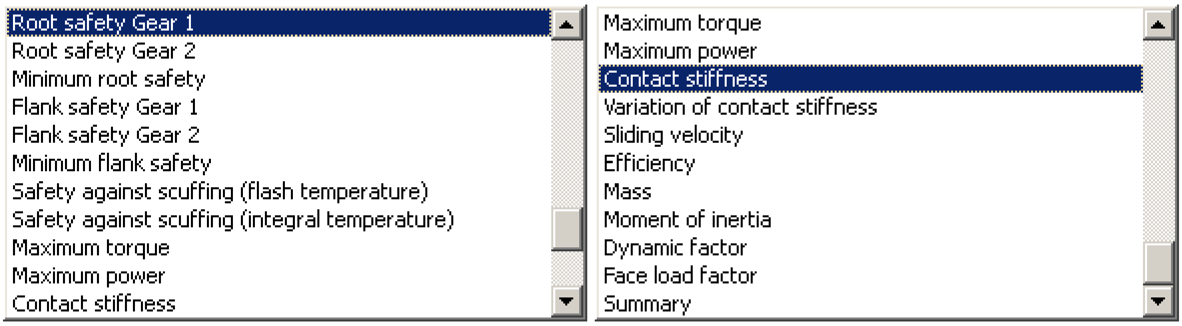


Figure 4-15 A great range more options are now available for display in the fine sizing graphics

4.7 Load distribution calculation

It is now possible, taking into account the lead corrections and shaft misalignment, to calculate a load distribution in the gear calculation. The resulting flank and root stresses are shown at the left end, right end and centre of the gear face width. This allows for an assessment of the lead corrections.

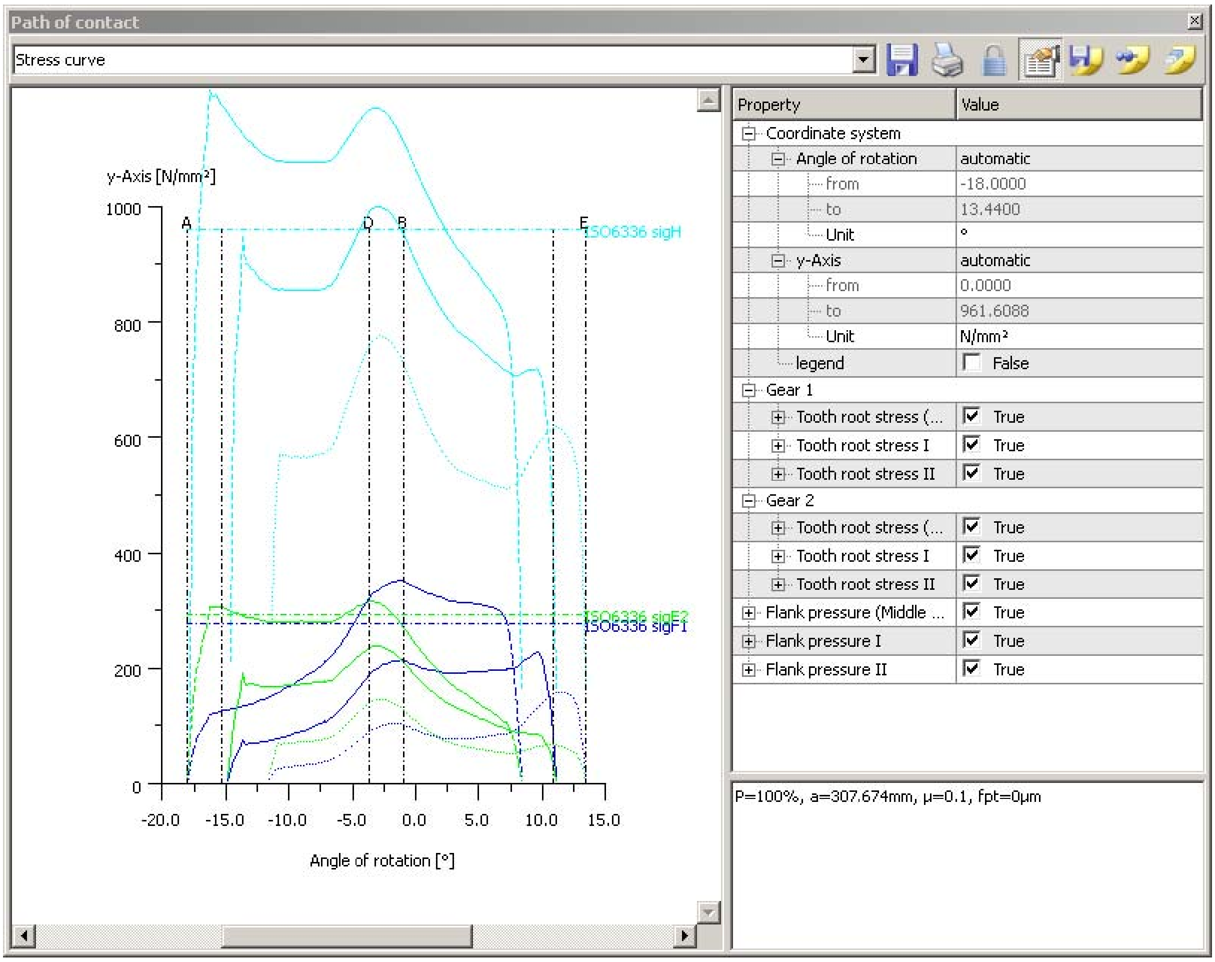


Figure 4-16 Contact and root stress along the face width, shown at left end, right end and centre of gear

Furthermore, along the face width, the highest line force is displayed as a function of lead corrections, shaft misalignment and load applied:

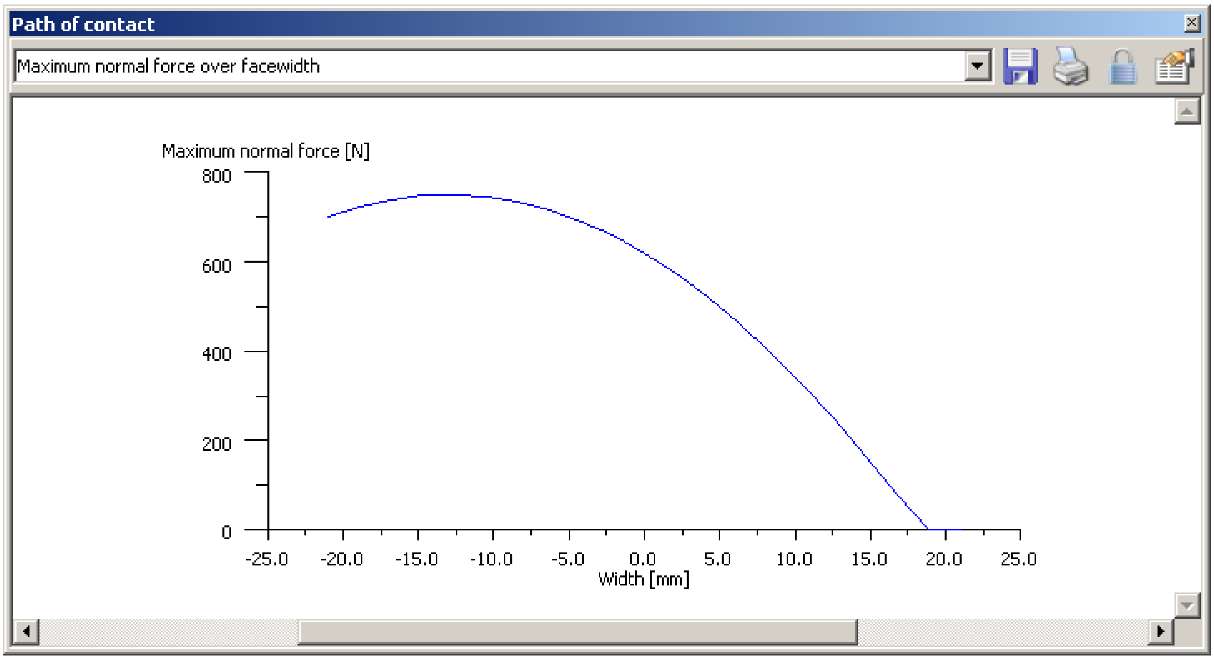


Figure 4-17 Line load distribution along the face width

4.8 Transmission error calculation

In the calculation of the path of contact / transmission error calculation, longitudinal gear corrections are now included. Also, a misalignement of the shaft axis and the direction of torque flow is considered in the path of contact calculation.

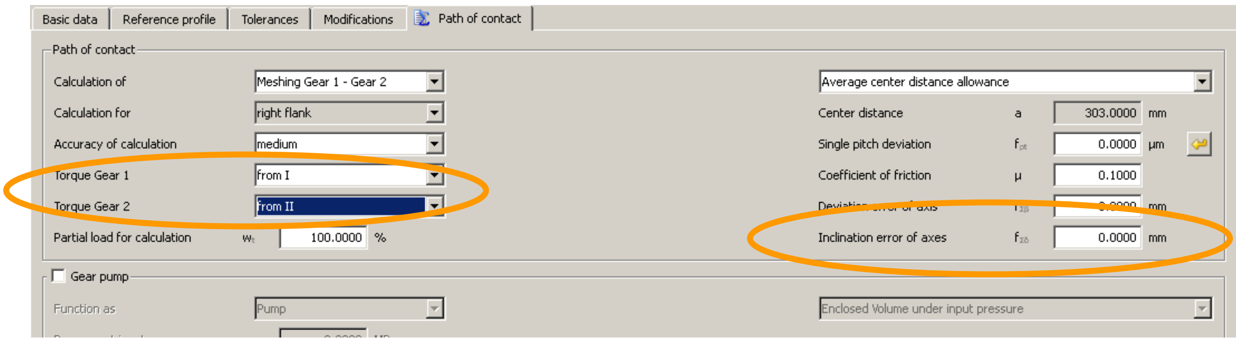


Figure 4-18 Path of contact / transmission error calculation now taking into account longitudinal corrections, shaft misalignement and torque directions

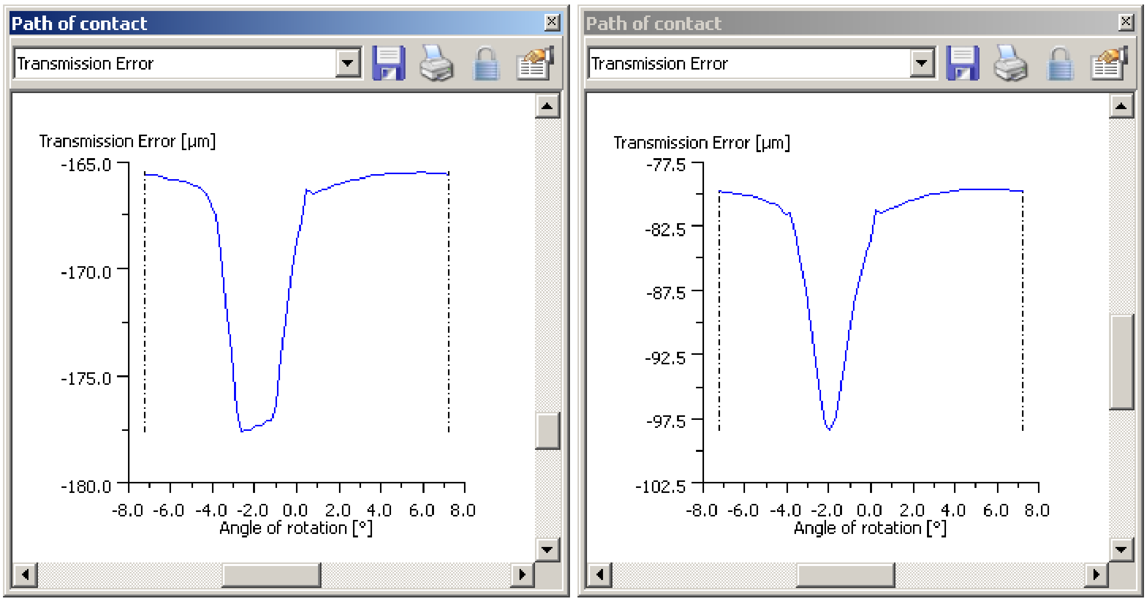


Figure 4-19 Transmission error, assuming parallel shafts (left), transmission error with 100um shaft inclination (right)

5 Worm gearing

5.1 Strength rating

As the new E DIN 3996:2005 is not yet approved, DIN 3996: 1998 is now included as additional strength rating method.

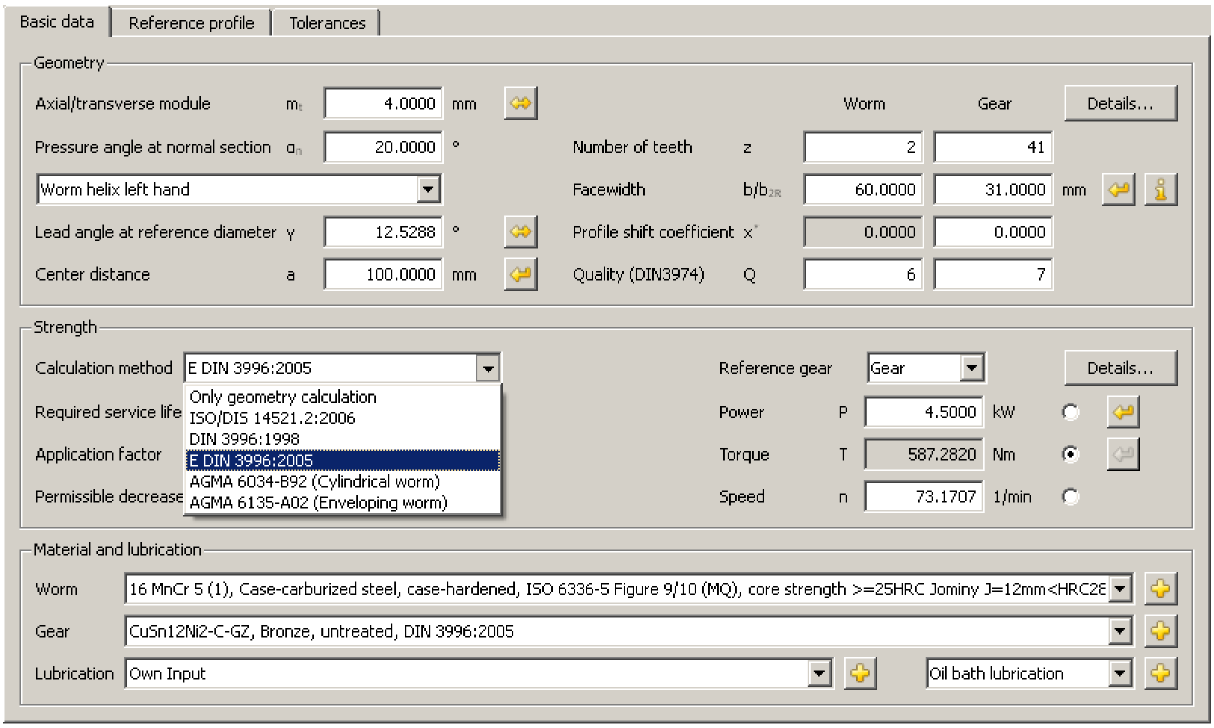


Figure 5-1 Strength rating methods for worm gearing

6 Bevel gearing

6.1 GUI

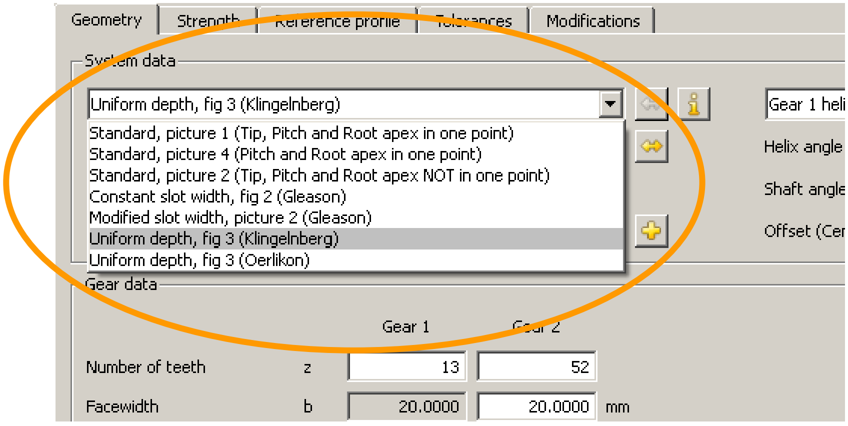


Figure 6-1 Additional types of bevel gear geometry

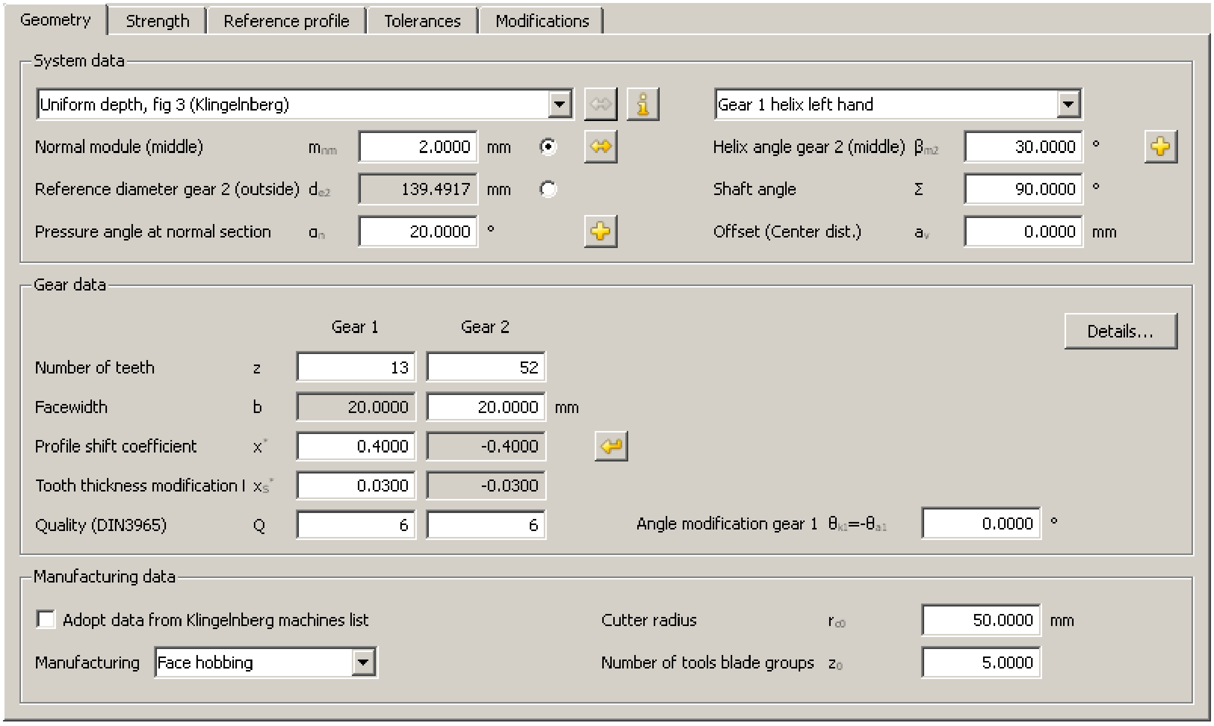


Figure 6-2 New tab "Geometry" in bevel gear calculation

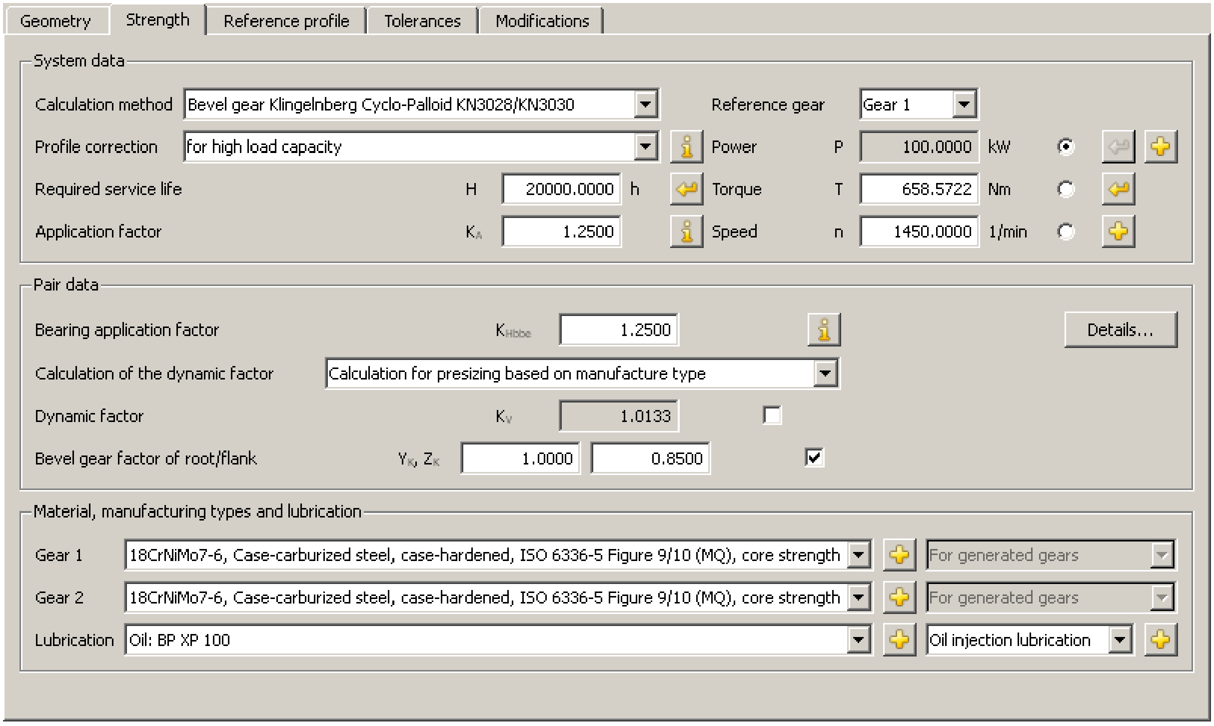


Figure 6-3 New tab "Strength" in bevel gear calculation

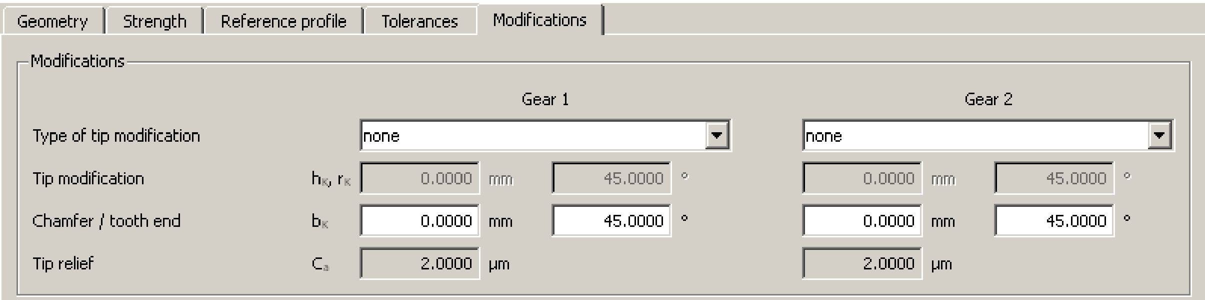


Figure 6-4 New tab "Modifications" in bevel gear calculation

6.2 ISO23509

6.3 Gleason

6.4 ISO10300

Strength rating along ISO10300, method C has been added:

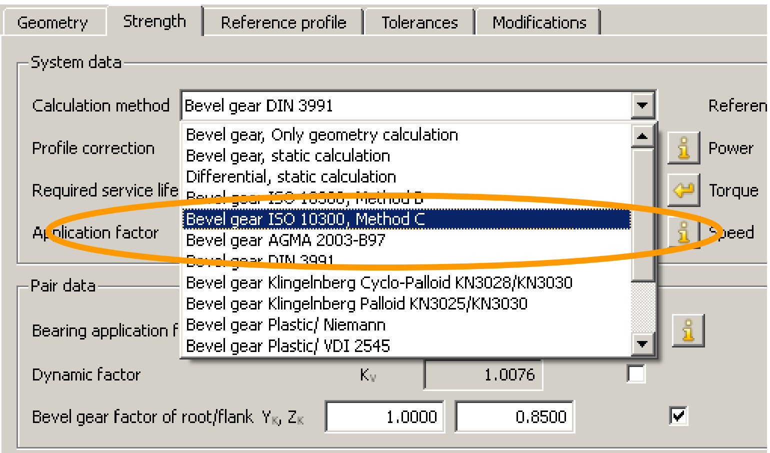


Figure 6-5 Bevel strength rating along ISO10300, method C

6.5 Klingelnberg

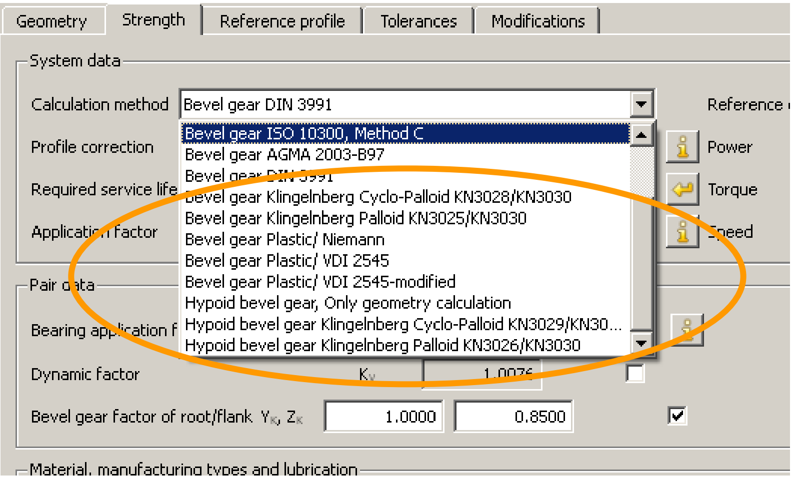


Figure 6-6 Additional strength rating procedures as per Klingelnberg standards

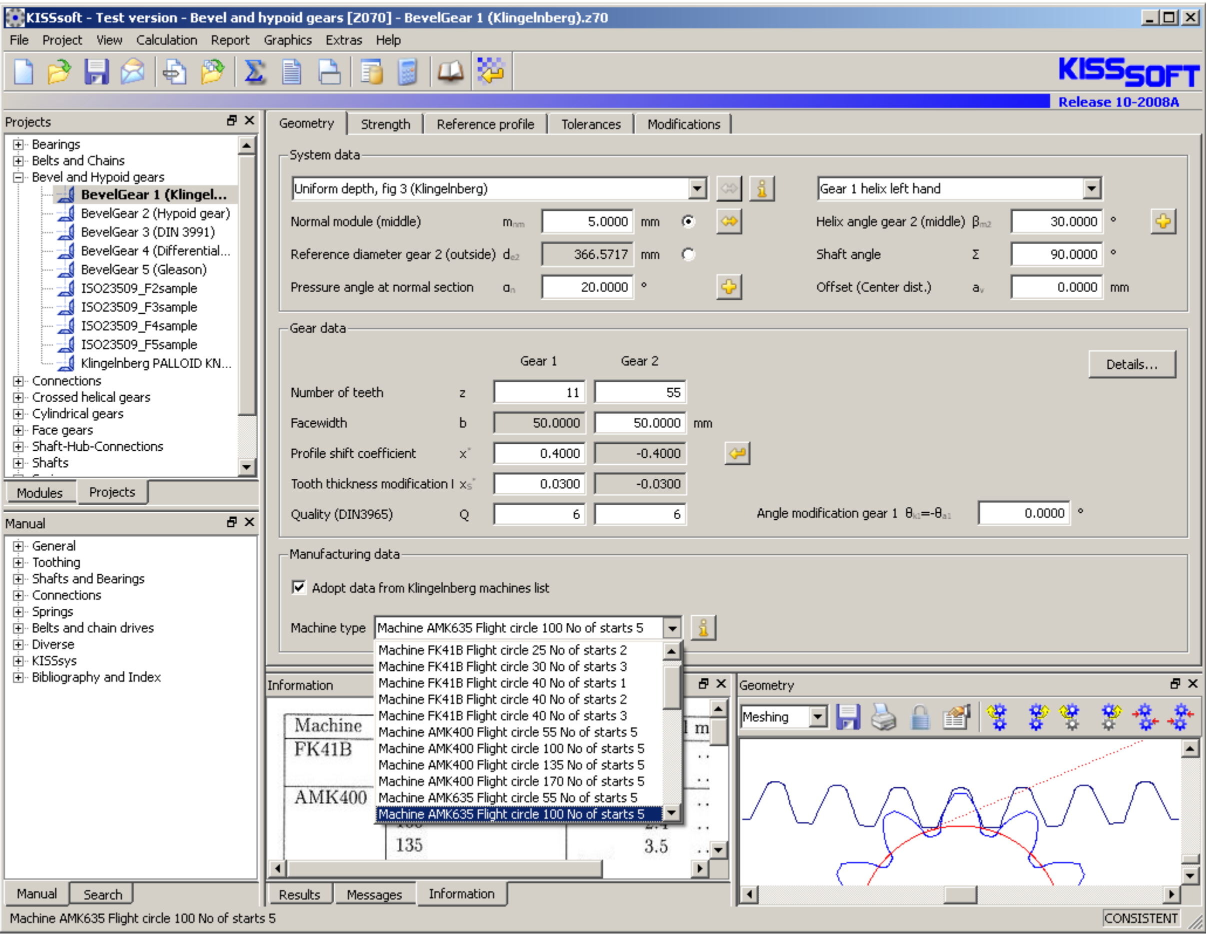


Figure 6-7 New tab layout including selection of Klingelnberg machine type

7 KISSsys

7.1 New GPK models

Single worm stage and single worm stage with 1 to 3 heligal stage models, including automatic presizing, fine sizing of gears, settings, cost estimation, maximum torque calculation, rating, bearing load export and documentation.

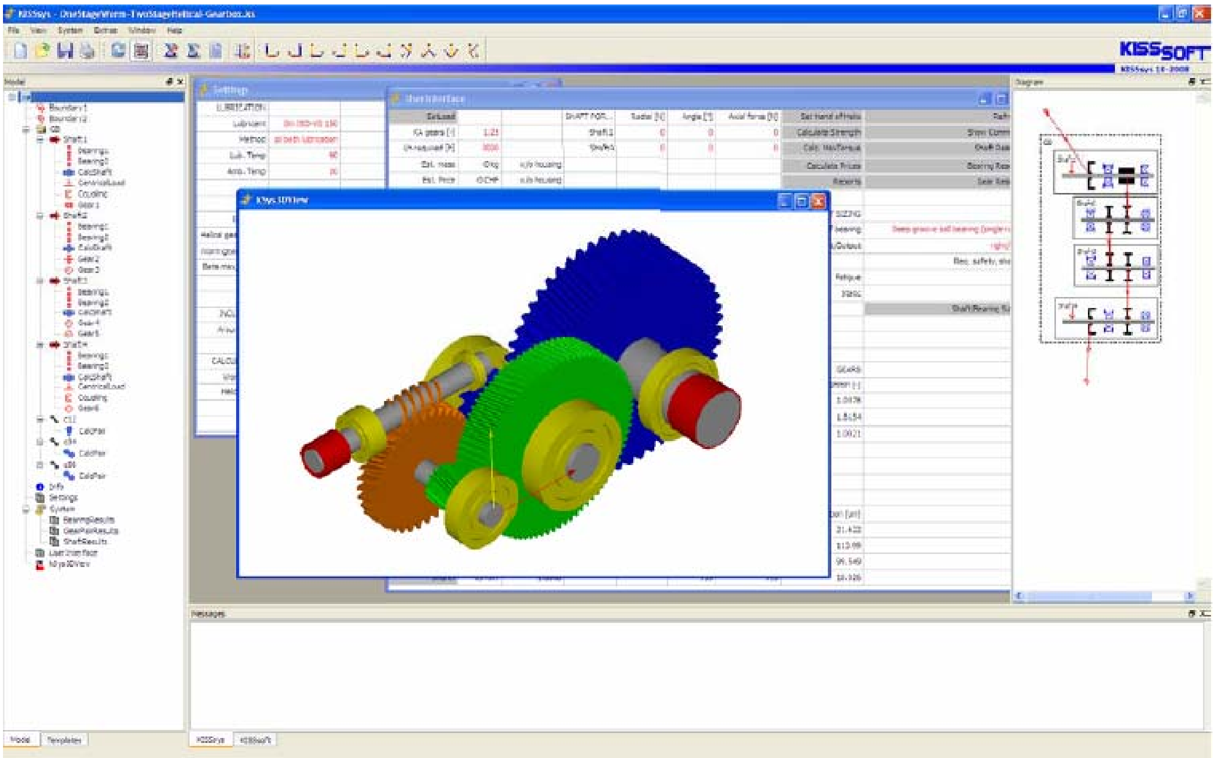


Abbildung 7.1-1 GPK model of worm-helical gearbox

The following models are available:
Single worm/crossed helical stage
Worm stage/crossed helical + 1-3 helical stages

7.2 Software changes

Visualization of the rotation

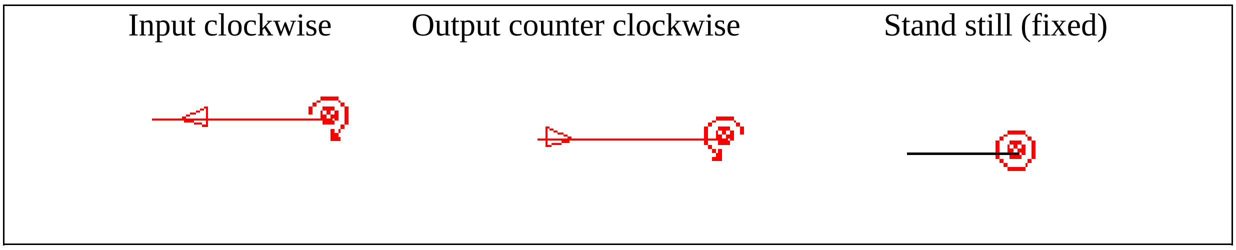


Figure 7-1 Sense of rotation has been added in schematic

Visualization of the Worm gear

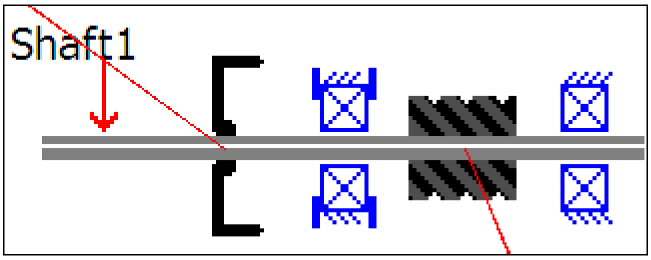


Figure 7-2 Schematic graphic for worm gear has been added

Opening tables, 3DView and Plot
Double click of the icon in the tree will open the corresponding element in the Main interface

Tables
Copy-paste will work again
Selected element from the schematic will be highlighted in 3DView again

Lifetime calculation of the “pilot bearing” (kSysConnectionRollerBearing)
Calculation module “Bearing1” can be directly used to do the calculation for a single pilot bearing defined in the model. Formulas are adapted to find automatically correct speed between to shafts connected (relative speed in the bearing)

New and updated special templates
Speed table template updated
Load spectrum template reprogrammed (new functionalities and easier to use adapt)
See more info from (http://www.kisssoft.ch/english/downloads/KISSsysTemplates.php)

8 Various

8.1 Key analysis

Key geometry as per ANSI B17.1, for square and rectangular keys is now integrated in the database for key geometry.

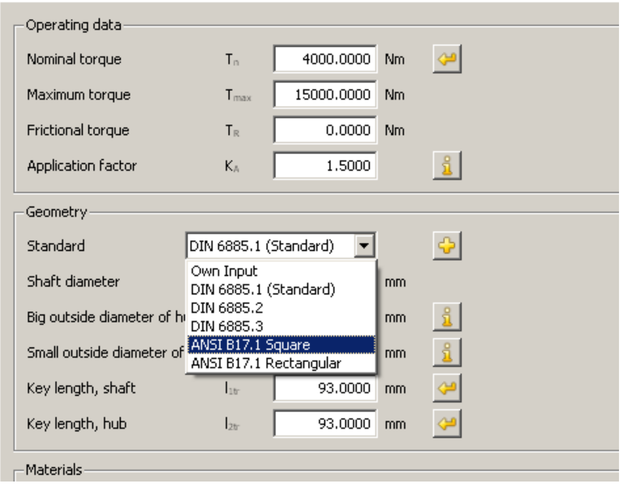


Figure 8-1 Selecting ANSI key geometry

8.2 Contact stress calculation

For the Hertzian contact stress calculation, graphics are now included showing the stress course with the depth of the material:

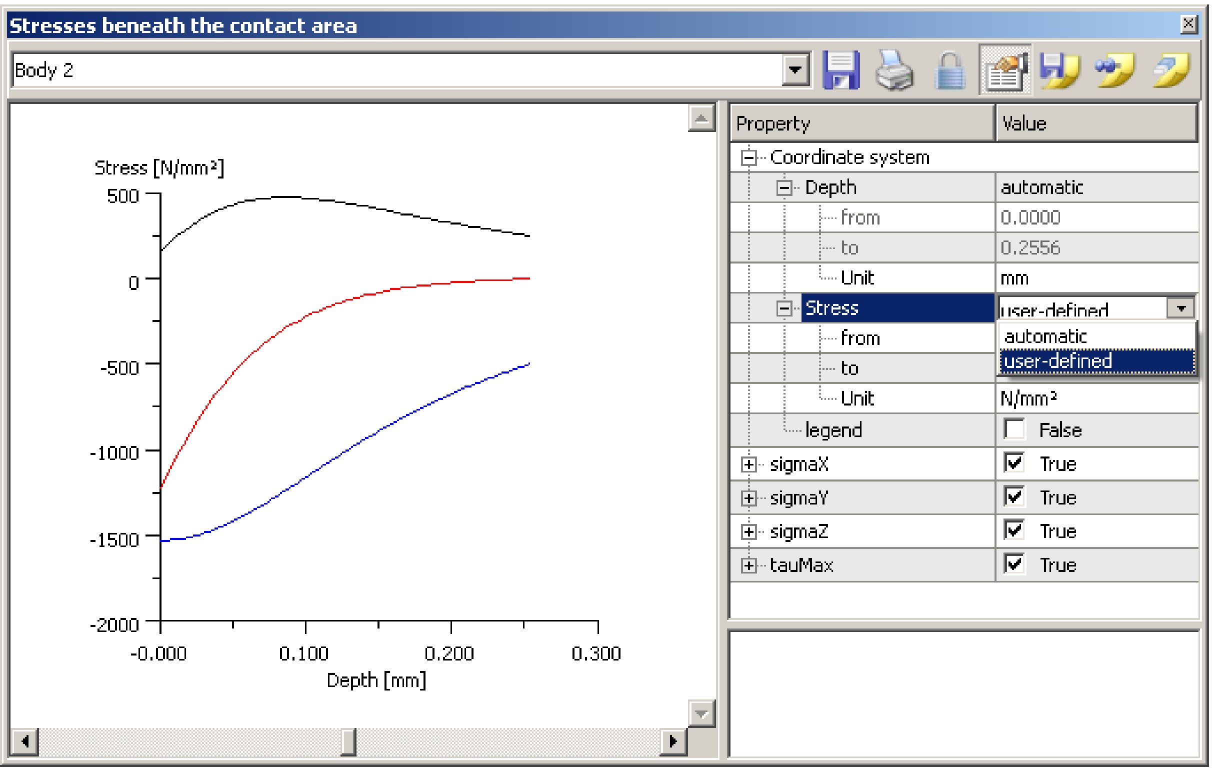
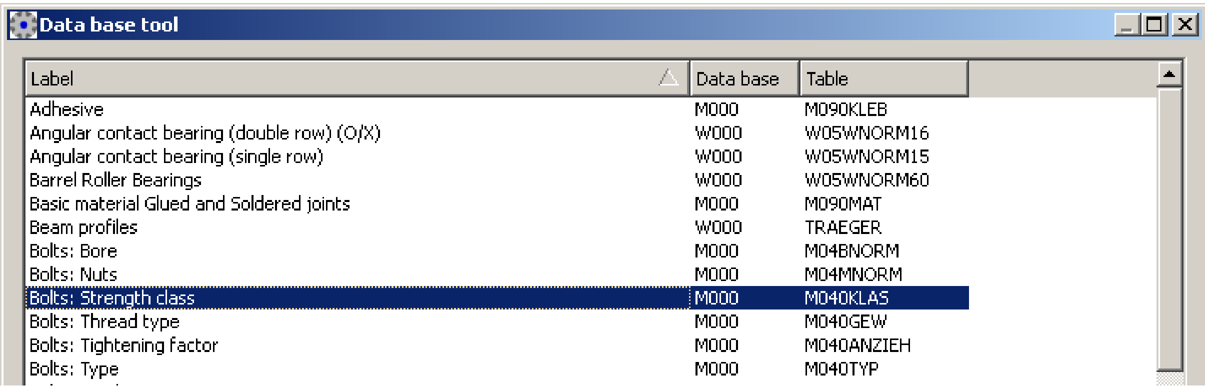


Figure 8-2 Hertzian stresses

8.3 Bolt calculation

In the database, strength classes may now be defined by the user:



Label	Data base	Table
Adhesive	M000	M090KLEB
Angular contact bearing (double row) (O/X)	W000	W05WNORM16
Angular contact bearing (single row)	W000	W05WNORM15
Barrel Roller Bearings	W000	W05WNORM60
Basic material Glued and Soldered joints	M000	M090MAT
Beam profiles	W000	TRAEGER
Bolts: Bore	M000	M04BNORM
Bolts: Nuts	M000	M04MNORM
Bolts: Strength class	M000	M040KLAS
Bolts: Thread type	M000	M040GEW
Bolts: Tightening factor	M000	M040ANZIEH
Bolts: Type	M000	M040TYP

Figure 8-3 New database for bolt strength classes

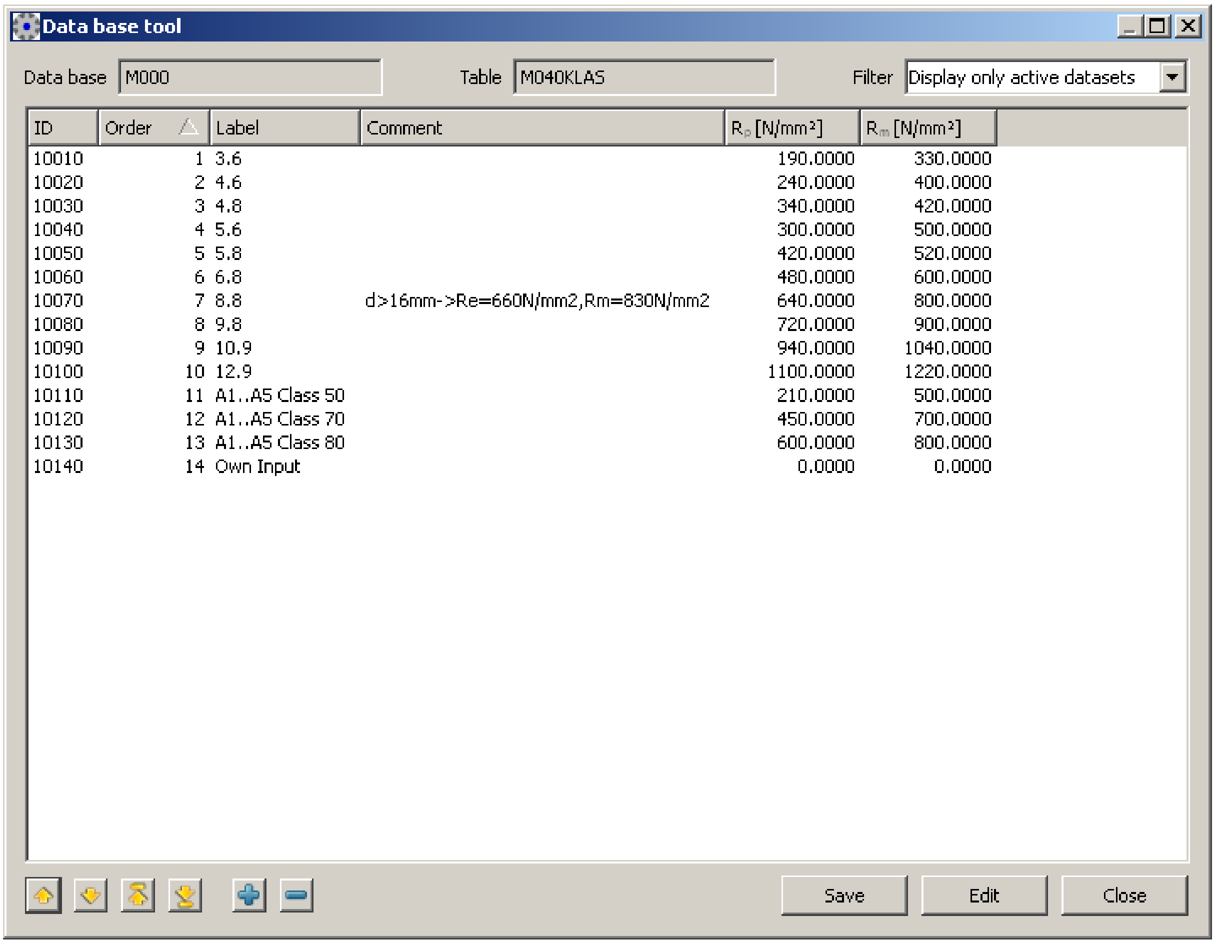


Figure 8-4 Defining own strength classes for bolts

8.4 CAD interfaces

Several details have been changed in the 3D CAD interfaces, see below. For more information on specific CAD interfaces, contact KISSsoft AG through info@KISSsoft.ch

K05k	Interface for Solid Works 2009. The error occurring at the generation of helical spur gears will be fixed in the first patch of SolidWorks 2009.
K05d	Interface for SolidEdge ST
K05n	- Interface for NX6: the „Maintenance Release 6.0.1“ is necessary for helical spur gears - Generation of straight bevel gears acc. DIN 3971 fig. 1 with the NX interface is possible. - The positioning of toothings on relative planes is possible. - The interface for NX3 will not be supported anymore in the next versions.
K05p	Interface to CoCreate Modelling (former SolidDesigner)
PARTgear	Adaption to Version 8.1.08, which also runs under Vista

Figure 8-5 Changes in CAD interfaces