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KHb settings from KISSsys

1 Description

1.1 Situation

It is not possible to set “KHb” (Face load coefficient) value automatically in details at the moment between KISSsoft modules. “KHb” can be calculated in details in shaft module, but the value needs to be manually transferred to the gear calculation and standard based value needs to be overwritten. In gear calculation some simple dimensions for the shaft and gear position can be anyway added to make the calculation according to the standard. These values can be operated from the KISSsys and shaft length and diameter can be taken from the shaft geometry. This allows user to do the calculation of the “KHb” with “real” values. Standard has some limitations for the gear arrangement and therefore this method can be only used in simple cases and therefore more detailed calculation is recommended to be done in shaft module.

2 Model setup

2.1 TranslationTable

To be able to modify “l”, “s” and “dsh” values for “KHb” calculation, “Own Input” needs to be flagged in gear calculation.

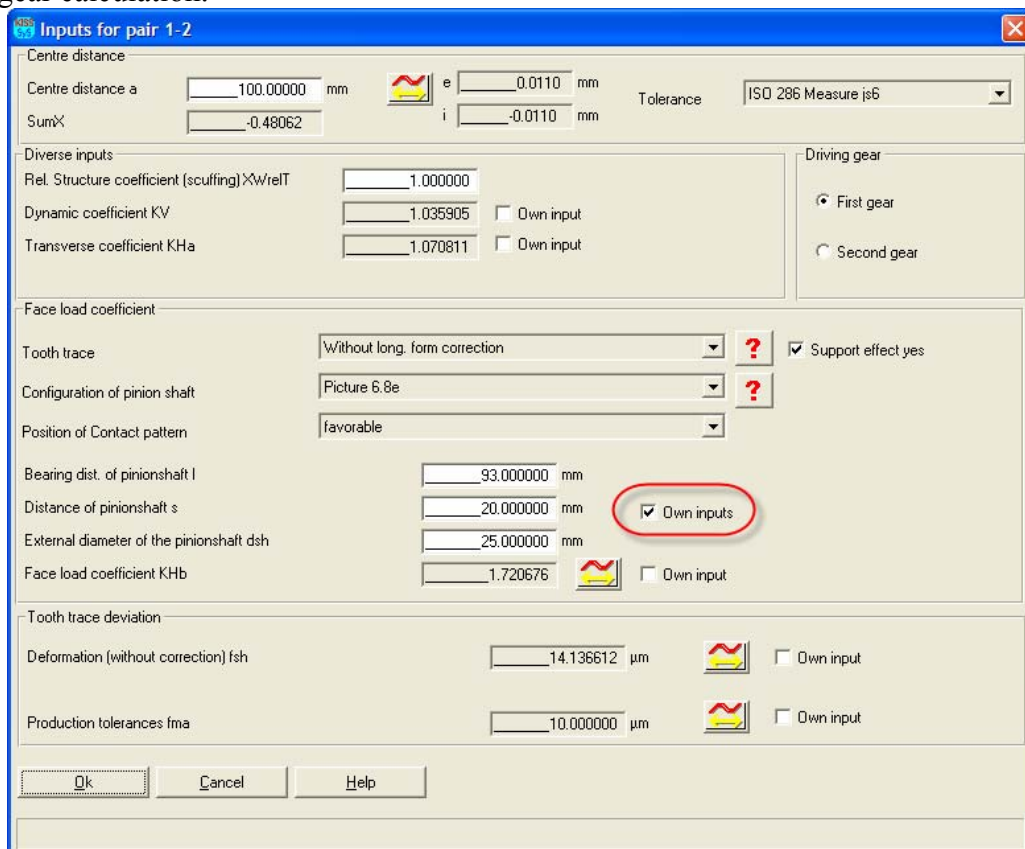


Figure 2.1-1 Flag "Own inputs" to change values

Then new variable type “array” and named “TranslationTable” needs to be created for the calculation.

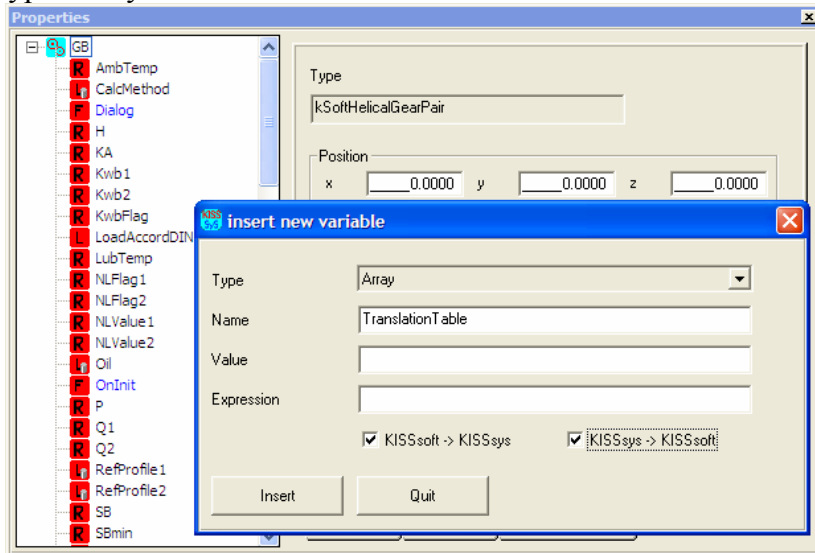


Figure 2.1-2 Creating a “TranslationTable”

New variables to translate can be found from the protocol template.

Name	KISSsoft name
l	ZP[0].KHdat.l
s	ZP[0].KHdat.S
dsh	ZP[0].KHdat.dsh

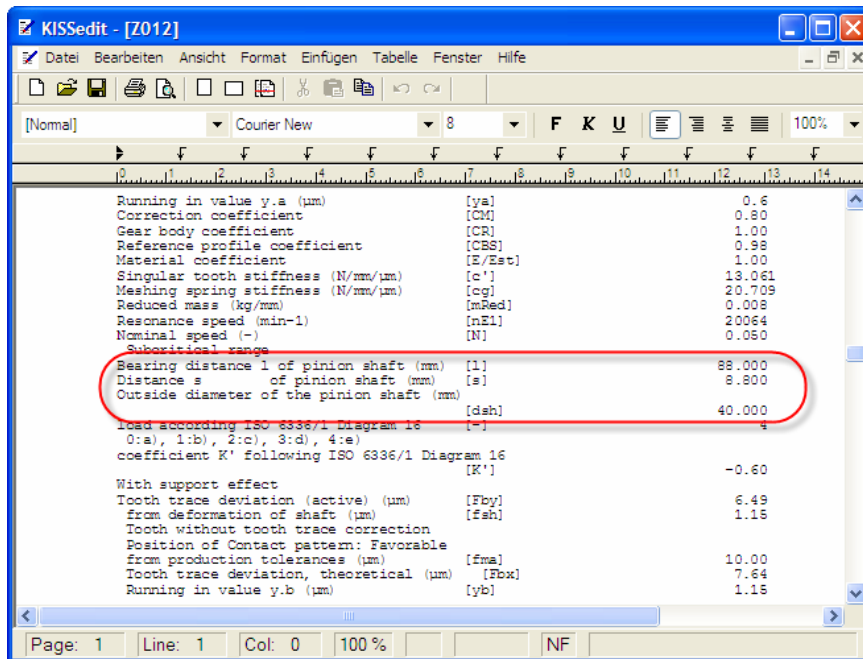


Figure 2.1-3 Variables that are to be changed

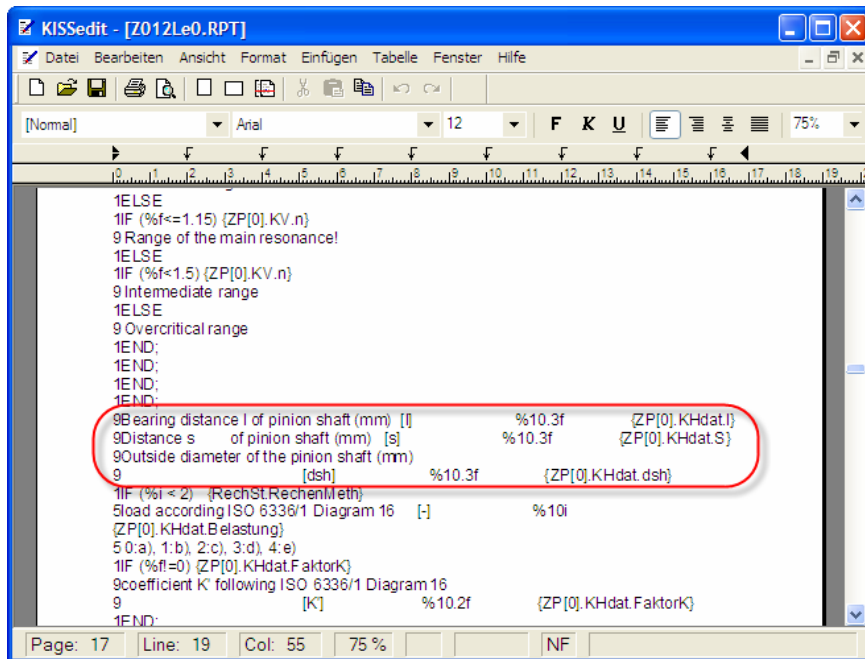
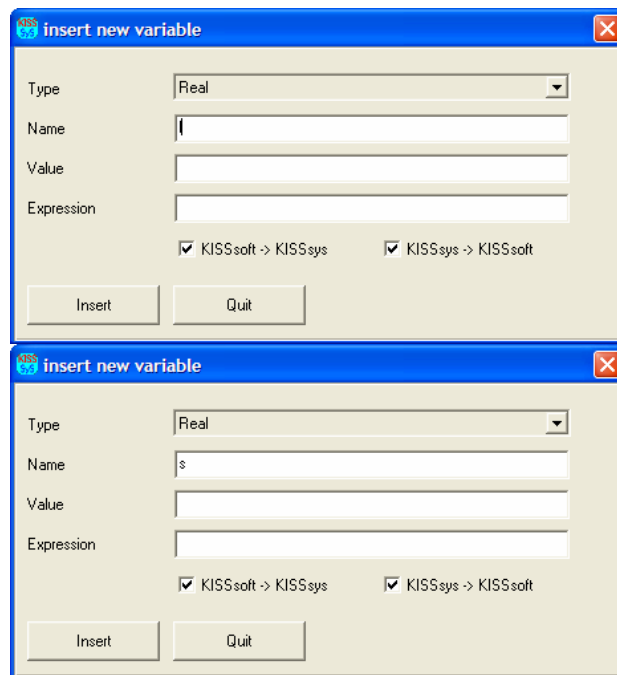


Figure 2.1-4 Variable names from KISSsoft protocol template

See more detailed information on the use of the “TranslationTable” in the instruction “ins-007-02-TranslationTable.pdf”.

2.2 Add variables

Add new variables in the calculation.



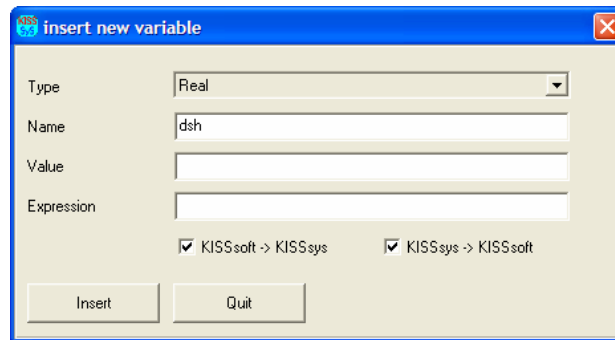


Figure 2.2-1 Adding new variables I,s and dsh

2.3 TranslationTable definition

When variable names and new variables in KISSsys are known, those can be added in the TranslationTable use following method for each new variable separated with comma.
 [“new variable in KISSsys”,”Variable name from KISSsoft”]

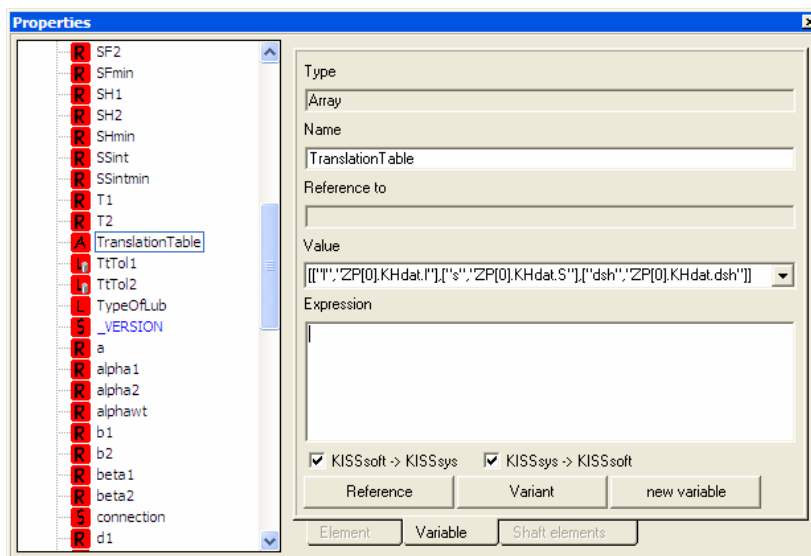


Figure 2.3-1 “TranslationTable” definition

2.4 Expressions for the variables

Expression to the new variables can be then created to make them changeable automatically according to geometry. Note! In the example only case “A” defined of pinion shaft configurations.

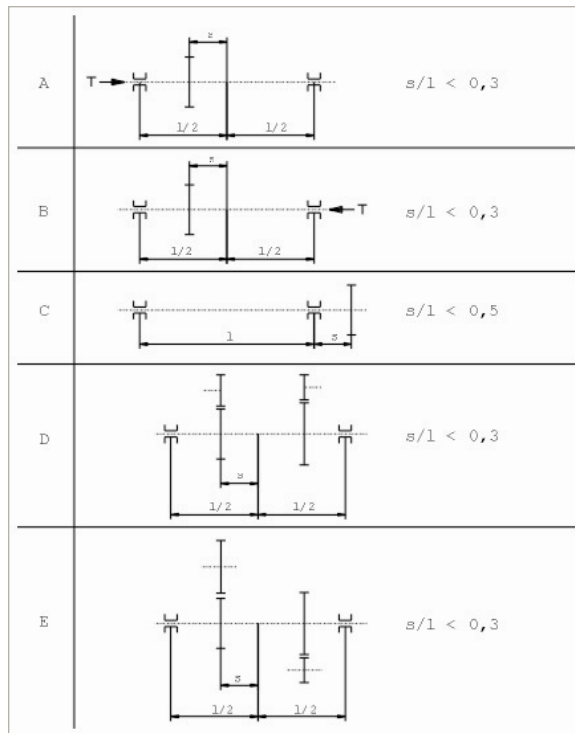


Figure 2.4-1 Pinion shaft configuration cases

Variable “l” (bearing distance/2) is half of the pinion shaft bearing distance.

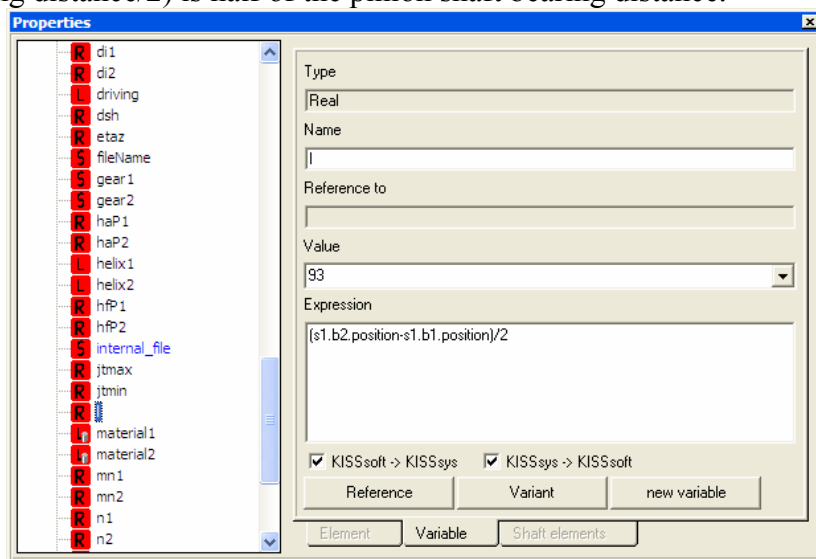


Figure 2.4-2 expression for the length “l”

Variable “s” is gear distance from the centre of the bearings.

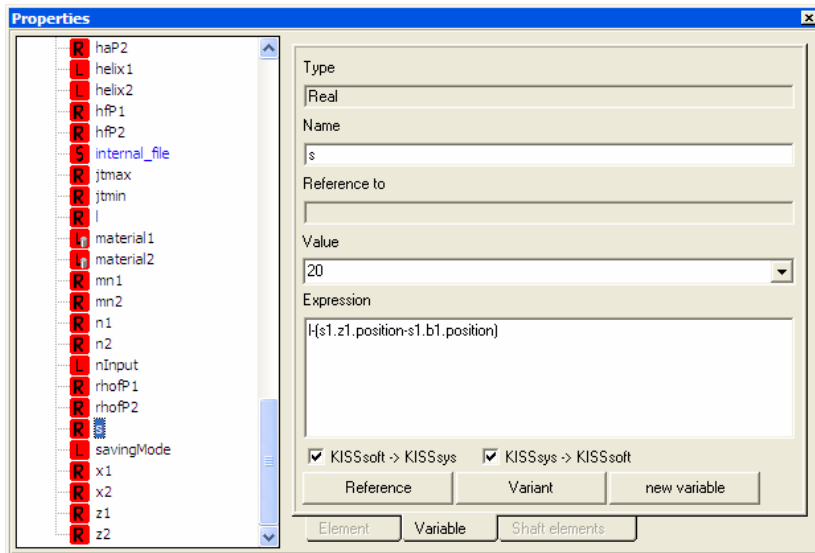


Figure 2.4-3 expression for the “s”

Variable “dsh” is shaft diameter in the place of the pinion.

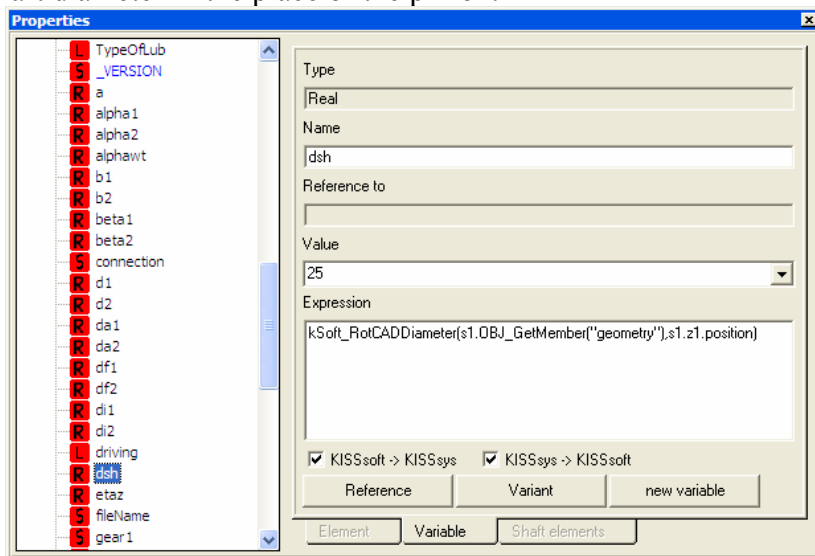


Figure 2.4-4 expression for the “dsh”

When shaft geometry is changed or places of the components are changed new values for the “KHb” calculations are adopted and used in the gear calculation.

See also referenced model “016-KHb-settings-simplified.ks” for the functionality in KISSsys.

Note! This method is very much simplified and to do the “KHb” calculation precicely use module “W10”.