General, Shaft-Hub Connections, Bolts, Springs

KUM International, October 23, 2019 Markus Schärer





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General

- Database maintainance
- Current bearing data to all new releases of the manufacturers TIMKEN, SKF, Schaeffler (INA, FAG) and Koyo
- Planed are to add more bearing data of the manufacturers NTN, ORS, NKE, ...

SCHAEFFLER



- Change geometry data if new standards come out
- Actualize oil data or add new one's
- Current changes are:
- Lubrication data from the manufacturer Klüber actualized. •
- Some new oils from the manufacturer Shell (Shell Omala S2, S4, S5 for high speed gears)



Shell Omala





General

Result overviews

 All result overviews are now defined in report template files (*rpt, excluded W010 and W051), now all results should have the same layout.

Results (basic calculation)			
Large half axis of area of pressure (mm)	[a]	0.177	
Half pressure width (mm)	[b]	0.177	
Hertzian pressure (N/mm²)	[PH]	-1528.335	
Maximum shear stress body 1 (N/mm²)	[T _{hmax1}]	473.814	
Maximum shear stress body 2 (N/mm²)	[T _{hmax2}]	473.814	
Distance at maximum shear stress body 1 (mm)	[z1]	0.085	
Distance at maximum shear stress body 2 (mm)	[z2]	0.085	
Results (basic calculation) Results (special calcu	lation) Messages Informa	ation	



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General

Script Editor

- Small automation tasks
- New and easier way to define rules • (pre and post events)
- Access to all module methods and variables
- Does not replace the COM ullet

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base tool	1/*	^
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Registration Tool	5 */	
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	specific weight\n"	
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em or units	14 number bestByWeight	
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igs	17 number iteration step = 1	
	18 // initialise normal module	
	19 ZS.Geo.mn = 1.5	
	20 while(ZS.Geo.mn < 4)	
	21 // reset facewidth to 10 mm 22 ZP[0] b = 10	
	23 ZR[1], b = 10	
	24 // increment facewidth until 20 mm	
	25 while(ZR[0].b < 20)	
	26 // let KISSsoft calculate the parameters	
	27 Calculate() 28 iteration step = iteration step + 1	
	29	
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	Next instruction Next Dreakpoint Stop point	Empty conso

Extras Help

Generate SKF Regi Script Ed



Automotive

Couplings

Until now was only possible to calculate a coupling as closing system and a brake as opening system. You can choose between an opening or closing system.



Bolts

- Minimum safety sliding added in the result overview rebuilt the result overview
- Clearer definition for the tightening torque in the tab 'Conditions'

Maximum tightening torque	M _A (F _M)	31.6874	Nm
Minimum tightening torque	M _A (F _M /a)	28.1930	Nm

- Swapped the axis from the graphic 'pretension force' (VDI 2230 guideline (2015))
- Input fields for length of engagement set automatically the default values, if the flag isn't set.



Calculate minimum length of engagement					
Length of engagement	m _{ges}	0.0000 mm	✓		
Minimum external diameter, bolt	d _{min}	0.0000 mm			
Maximal flank diameter inner thread	D _{2max}	0.0000 mm			
Minimum flank diameter bolt thread	d _{2min}	0.0000 mm			
Maximum core diameter inner thread	D _{1max}	0.0000 mm			
		ОК	Cancel		



Splines M02c, Z09a

DIN 5481 (straight line flank) actualized (Version 2019), Version 2005 with the corrigendum 2009

Updated to the current standard DIN 5480-2:2015

Shaft- Hub- connections (M02a-M02e, Z09a)

Support factor fs are now possible to input in the modulspecific settings. In the DIN 6892 is a range for this factor, KISSsoft use as default the minimal value.



Feather key M02a

New flag that is possible to arrange 2 keys symmetric in the graphic, until now was only possible with a shift of 120 degrees.





Cylindrical and conical interference fit

Updated to the new standard DIN 7190-1 (2017) for cylindrical interference fit and DIN 7190-2 (2017) for conical interference fit.

Important change, which have directly influence to the interference fit allowance:

-> the smooth factor changed from 0.8 to 0.4.

Safety against sliding SR >, Safety against fracture SiRm < and Safety against yield point SiRp < than until 2017 release



Springs

Disk springs F040

New standards added: DIN 2092 -> DIN EN 16984:2017 Calculation DIN 2093 -> DIN EN 16983:2017 Quality Specifications - Dimensions Content from the standards are the same.



Springs

Conical Compression springs

- According literature 'Metallfedern' following DIN 13906-1:2013 for compression springs
- Big difference to cylindrical compression springs is the force travel diagram, the line in this graphic is progressive (for compression springs is this line linear)

cylindrical compression spring
conical compression spring







Springs

- In KISSsoft is possible to calculate conical compression springs with constant wire diameter and constant pitch
- The relaxation and the goodman diagram is calculated like the cylindrical compression spring calculation (according material data)
- Advantage: Axial space smaller than for cylindrical compression spring



Thank you for your attention!

Sharing Knowledge

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