

ZAR5

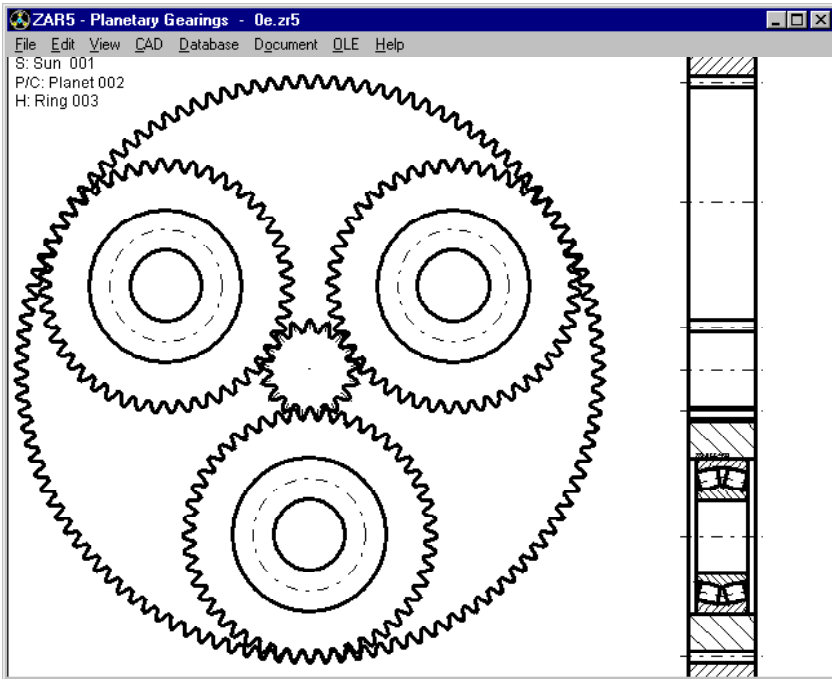


www.hexagon.de

Planetary Gear Design

Software for Windows

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Load spectrum:

	S	P	H
N sun	1267		
N pl	766		
KA F	1,19		
KA H	1,17		

Technical Data:

	S	P	H
alpha °	20,000		
beta °	0,000		
mn mm	5,500		
qa	3		
a mm	103,167		
i	7,766		
Input	S		
Output	O		

ISO 53 / DIN 867 Profile Data:

	S	P	H
eps. d1	1,471	1,773	
eps. d2	0,000	0,000	
eps. b	1,471	1,773	
fw	46690	61414	
fw H	0	0	
fw W	21698	17400	
ISO F	1,00	1,00	
ISO H	1,00	1,00	

ISO 6336 / DIN 3990 Strength Data:

	S	P	H
sigma _{lim} MPa	1300	1300	1300
sigma _{FE} MPa	620	620	620
SF-S-P	0,87	0,82	
SF-P-H		2,20	2,20
SF-S-P	1,68	0,94	
SF-P-H		1,10	1,11

22316 Contact Data:

P/W	66,241
F/P	101294
nPC	140,294
L1D	77,280
L1Dh	h
L1Dv	104,2
L1Dh1	h
L1Dh2	h
L1Dh3	h

Error messages:

- Warning: SF-F1 (SF-S-0,87)!
- Warning: SF-F1 (SF-P-SF-0,82)!
- Warning: SF-F1 (SF-P-SF-0,94)!

Calculation Base

ZAR5 calculates geometry and strength of planet gears of spur or helical involute cylindrical gear wheels. ZAR5 calculates gear pairs sun with planet and planet with ring gear. Dimensions are calculated according to DIN 3960, permissible errors according to ISO 1328 or DIN 3961, tooth thickness tolerances according to DIN 3967, and load capacity according to ISO 6336 or DIN 3990. Calculation method is configurable.

Pre-Dimension

Enter just input/output speed and power, ZAR5 suggests planet gear dimensions.

Input Dimensions

Pressure angle, helix angle, normal module or diametral pitch, number of teeth, face width, center distance, profile shift coefficients can be edited and optimized in dimensions dialogue window.

Reference Profile (Cutting Tool)

As reference profile you can select the standard profile according to ISO 53 / DIN 867, or you can specify a special profile by input of tooth height coefficients (addendum, dedendum) and fillet radius. Optional you can define rack profiles with tip edge breakage (chamfer) and/or protuberance.

Calculated Dimensions

ZAR5 calculates dimensions of gear wheels, tooth dimensions and contact ratio. By input of gear quality and tolerance zone or tolerances, ZAR5 calculates tooth thickness, clearance, backlash, over-pin-dimensions, span width and permissible deviations. Diagrams display specific sliding along the tooth contact line.

Strength Calculation

The load-bearing capacity with respect to tooth root fatigue fracture and pitting can be calculated for gear pairs sun-planet and planet-ring gear in conformance with either ISO 6336 or DIN 3990. If not fatigue-strength safe, ZAR5 calculates life expectation until tooth breakage and pitting.

