G E O 7

Geneva Mechanism
Inner Maltese Drive
Design Software

for Windows

www.hexagon.de
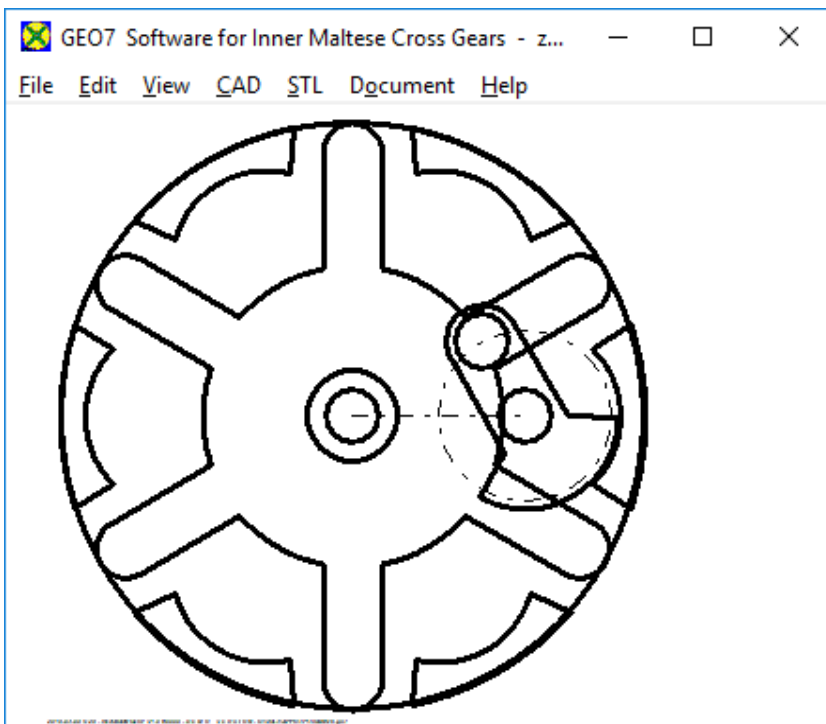
Calculation and Design of Geneva mechanism
GEO7 calculates dimensions, operation angle, velocity and acceleration of inner Maltese cross gears. GEO7 generates drawings of inner Maltese cross wheel and driving crank as DXF or IGES files to be used with your CAD software. The component parts can be generated as STL files, then printed on a 3D printer and assembled as functioning model of an inner Geneva mechanism.

Dimensions
Number of slots in the inner Maltese cross may be 4, but also any number between 3 and 100.
Size of the Geneva mechanism can be defined either by external diameter of the Maltese cross or by center distance. Then enter width of slots and driving bolt diameter. Dimensions of arc segments used as locking device are calculated by GEO7, just enter minimum wall thickness at slots and clearance between arc segments of Maltese cross and driving wheel.
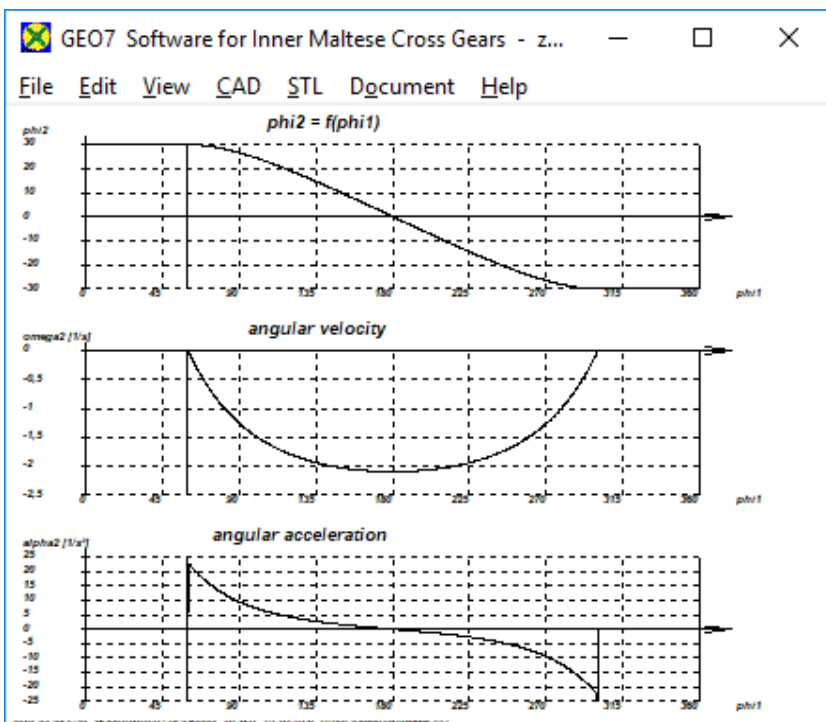
number of slot	z		6
center distance	a	mm	12,700
external diameter Maltese wheel	de2	mm	43,000
radius Maltese wheel max	r2max	mm	21,500
radius Maltese wheel min	r2min	mm	10,999
crank length drive	r1	mm	6,35
crank length/center distance	lambda		0,5
arc angle drive	phi01	°	± 120
arc angle driven element	phi02	°	± 30
operating angle drive	phi1act	°	240
catch position drive	phi1idle	°	120
step angle driven element	phi2step	°	60
diameter bolt	dR	mm	4,1
slot width	bR	mm	4,3
bore diameter driving wheel	dB1	mm	4,1
bore diameter Maltese wheel	dB2	mm	4,1
height Maltese wheel	h2m	mm	3
height ground body	h2g	mm	4
height lock	h2s	mm	4
height driving wheel	h1	mm	4
revolutions drive	n1	1/min	60
cycle drive	T1	s	1
operation hours/period	Tact	s	0,667
idle hours/period	Tidle	s	0,333
angular velocity drive	omega1	1/s	6,283
angular velocity driven element	maw2max	1/s	0
angular velocity driven element	miw2min	1/s	−2,094
angular acceleration	alphamax	1/s2	22,79
angular acceleration	alphamin	1/s2	−22,79
angular velocity rel.max.	w2/w1	1	0,333
angular acceleration rel.max.	a2/w1	1	0,577
gear ratio min.	i min	1	3
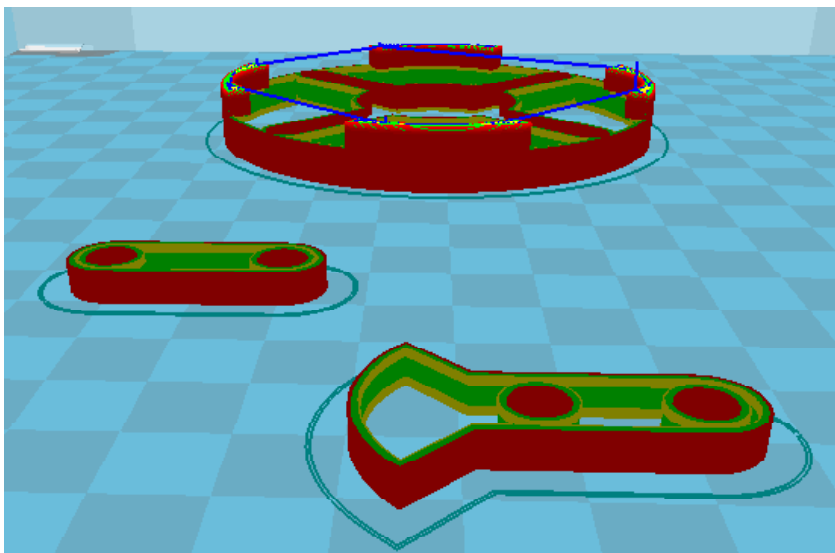
Diagrams
Angle of rotation of the Maltese cross as function of the driving wheel as well as velocity and acceleration over one revolution can be shown as diagram.

Animation
Rotation on inner Maltese wheel and driving crank can be simulated on screen as animation.

Text Output
Input data and calculation results may be printed, saved as text file or HTML file, or exported to MS Excel via OLE interface.

Graphics Output
Drawings and diagrams can be printed on any Windows printer, or exported to CAD.

CAD Interface
Drawing of inner Maltese wheel, driving crank, diagrams and tables can be exported as DXF- or IGES files, and opened in CAD. Layers, colours and text font can be configured in GEO7.

STL Interface
Inner Maltese wheel, driving crank, bearing plate and spacer sleeve can be generated as STL file and produced with 3D printer. This way you can assemble a Geneva mechanism with the printed parts, just to be completed with metal bolt and shafts.

HEXAGON Help System
GEO7 provides help text and auxiliary images. Warnings and error messages occur if exceeding a limit. For every error message you can have a description and remedy suggestion.

Units
Units can be switched between metric (mm) and imperial (inches).

Export Formats
DXF, IGES, STL, HTML, TXT, Excel, GO7.

Import Formats
TXT, Excel, GO7.

System Requirements
GEO7 is available as 32-bit app or as 64-bit app for Windows 10, 8, 7.

Scope of Delivery
Program with example applications and help images, user manual (pdf), license agreement for an indefinite period of time

Guarantee
HEXAGON gives a 24 month guarantee on full functionality of the software. We provide help and support by email and hotline without extra charge. GEO7 is constantly being improved and updated. Registered users will be informed about news, and can get new versions at a reasonable update price.