W N X K
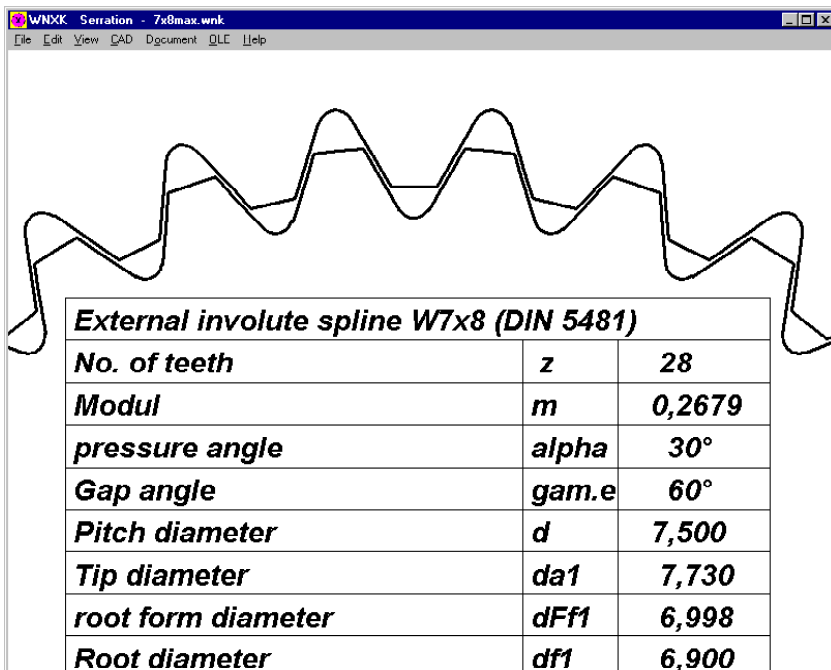

www.hexagon.de

Serration Spline Design

Software for Windows

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External involute spline W7x8 (DIN 5481)

No. of teeth	z	28
Modul	m	0,2679
pressure angle	alpha	30°
Gap angle	gam.e	60°
Pitch diameter	d	7,500
Tip diameter	da1	7,730
root form diameter	dFf1	6,998
Root diameter	df1	6,900

Application

WNXK calculates dimensions of any serration spline. You have the choice to input dimensions of external spline and internal spline, then calculate clearance and backlash. Or enter dimensions of external spline or internal spline together with clearance and backlash to get counterpart dimensions.

And you have the choice to input tooth thickness or tooth gap width or profile shift coefficient or dimension over/between pins.

WNXK can calculate dimensions of serration splines (without tolerances) according to any standard, if the most essential dimensions are known or measured. WNXK also calculates serration splines according to DIN 5481, and you can calculate dimensions and generate profile drawings of gauge. Serration splines according to unknown standards and non-standard serrations can be designed, calculated and generated by means of WNXK.
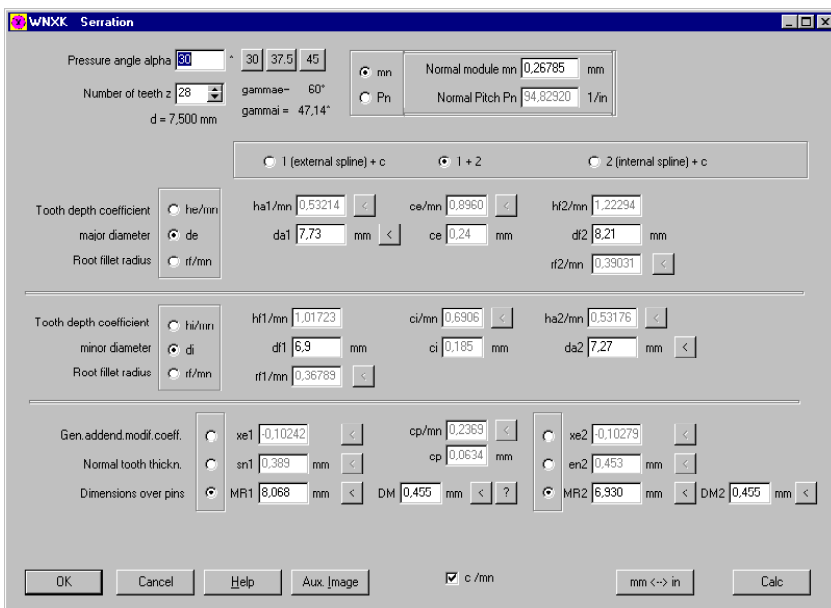
Tooth Profile

WNXK generates a true-scale drawing of the serration profile of both, internal and external serration spline. The profile drawing can be used for profile projector, wire eroding machine, 3D printer, etc.
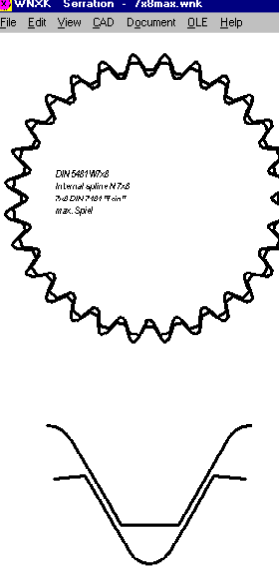
Calculation

WNXK software calculates dimensions and profile of external spline (shaft) and internal spline (hub). WNXK offers various input options:
- external spline and internal spline or either of them together with clearance and backlash
- major diameter and minor diameter or tooth height coefficients (addendum and dedendum)
- profile shift coefficient or tooth thickness or dimensions over/between balls
- clearance and backlash in mm or inches, or as factor of module c/m
- module or pitch

External involute spline W7x8 (DIN 5481)

No. of teeth	z	28
Modul	m	0,2679
pressure angle	alpha	30°
Gap angle	gam.a	60°
Pitch diameter	d	7,500
Tip diameter	da1	7,730
root form diameter	dFf1	6,998
Root diameter	dff1	6,900
Root fillet radius	rhof1	0,098
tooth thickness	sn1	0,389
measurement (DM=0,455)	MR1	8,068

Internal involute spline N 7x8 (Internal spline)

No. of teeth	z	28
Modul	m	0,2679
pressure angle	alpha	30°
Gap angle	gam.i	47,14°
Pitch diameter	d	7,500
Root diameter	df2	8,210
root form diameter	dFf2	8,085
Tip diameter	da2	7,270
Root fillet radius	rhof2	0,104
tooth gap	en2	0,453
measurement (DM=0,455)	MR2	6,930

DIMENSIONS

normal circular pitch	pn	mm	0,841
Normal Pitch	Pn	1/in	94,020
backlash	op	mm	0,063
torsional backlash	jn	°	0,017

DIMENSIONS

			e	i
Pitch diameter	d	mm	7,500	7,500
base diameter	db	mm	6,495	6,495
clearance	c c/i	mm	0,240	0,186
backlash	cp	mm	0,063	0,063
profile shift coeff	x		-0,10242	-0,10279
profile shift	x*m		-0,027	-0,028
tooth depth	h	mm	0,415	0,470

Dimensions tool

			1	2
dedendum coeff tool	hfP0/mn		0,532	0,532
addendum coeff tool	haP0/mn		1,017	1,223
fillet radius tool	rhoaP0/mn		0,368	0,389
dedendum of tool	hfP0	mm	0,143	0,142
addendum of tool	haP0	mm	0,272	0,328
fillet radius tool	rhoaP0	mm	0,098	0,104

Internal involute spline N 7x8 (DIN 5481)

No. of teeth	z	-28
Modul	m	0,268
pressure angle	alpha	30°
Gap angle	gamma i	47,14°
Pitch diameter	d	7,500
Root fillet radius	rhof2 (Ri)	0,104
root form diameter	dFf2 (DFi)	8,085
Tip diameter	da2 (Dii)	7,270
tooth gap	en (E)	0,453
meas. circle diameter	Dm (DRi)	0,455
dimension over balls	MRi	6,930
Pitch	P	0,841
tooth depth	h	0,470
Complement. part		W7x8

Measurement
WNXK calculates dimensions over/between pins, where pin diameter be modified. Or you can input measured dimensions instead of addendum modification coefficient. Dimensions not selected for input are immediately calculated and displayed in the dialogue window.

Reference Profile
Addendum and dedendum tooth height coefficients can be entered, or WNXK calculates it from major diameter and minor diameter.

Tolerances
WNXK calculates dimensions without tolerances. This, you have to input average dimensions, not mominal dimensions. If limits should be calculated with WNXK, you have to run two calculations with min and max tolerances. And maybe a 3rd one with mean tolerance.

Quick View
Quick View shows a drawing of internal and external spline together with tables of dimensions and measurement altogether on one screen.

Graphics
Drawings of single tooth and serration spline profile can be shown on screen, printed or generated as DXF or IGES file.

Production Drawing
WNXK generates a production drawing with serration spline dimensions and ISO 7200 data field. Drawing data and modifcations can be edited within WNXK. Production drawing may be printed directly, or exported as DXF or IGES file.

CAD Interface
WNXK generates true-scale drawings as DXF or IGES file, ready to be loaded into any CAD or CNC system. Settings like number of points for the involute or fillet curve may be configured in WNXK.

Units
WNXK software can be switched between metric units (mm) and imperial units (inch).

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

Scope of Delivery
WNXK Software with user manual (pdf), non-expiring license for unlimited time use with update rights.

Software Maintenance
HEXAGON Software is continuously improved and updated. Registered users are regularly kept informed of updates and new editions.
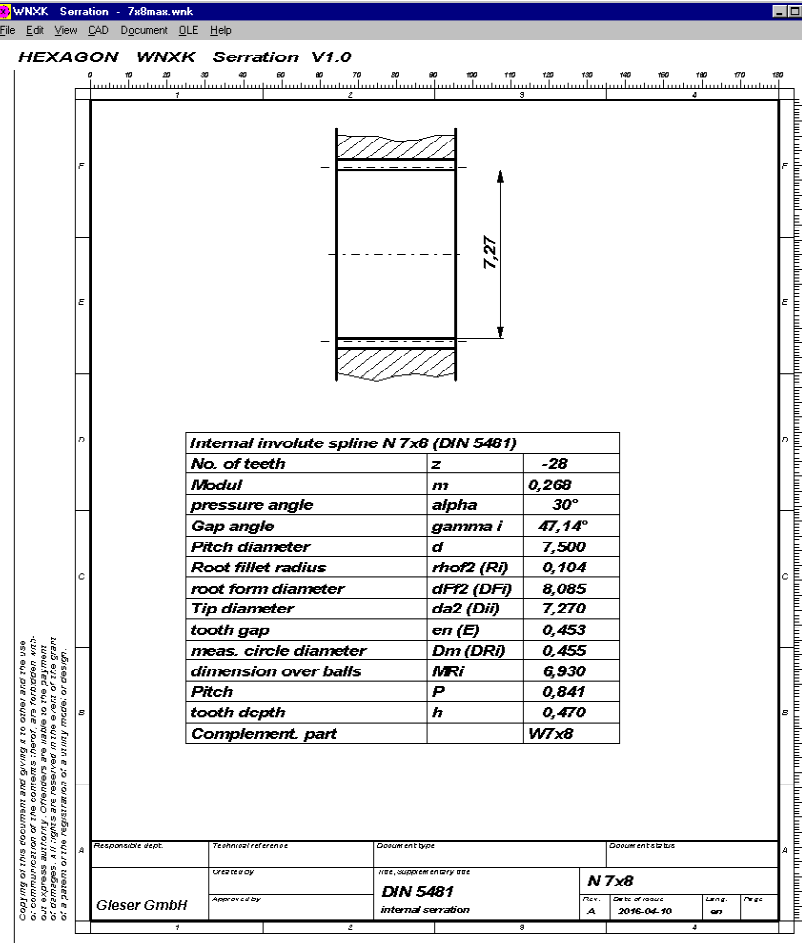
Guarantee
HEXAGON gives a 24 month guarantee on full functionality of the software.