

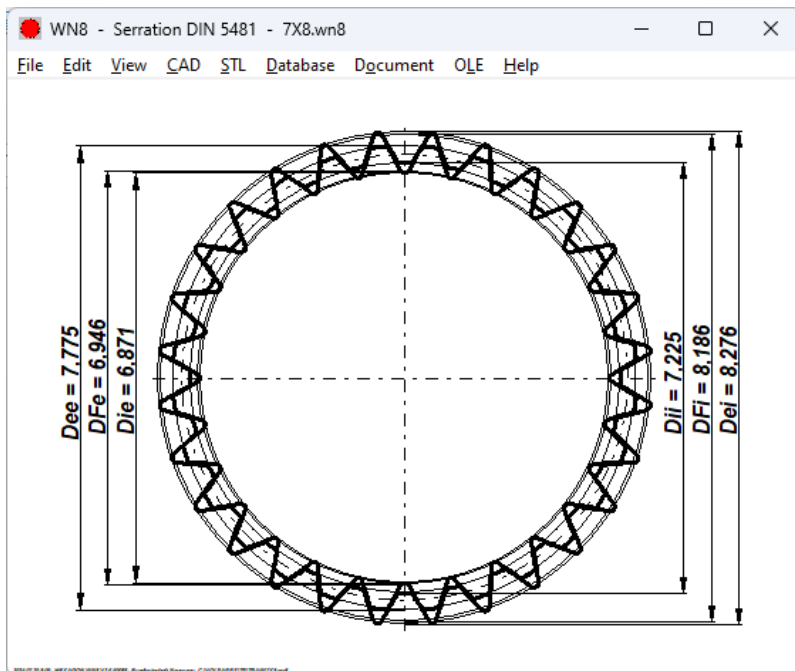
WN8



Software for Serrations according to DIN 5481

for Windows

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Calculation of Serration Splines to DIN 5481

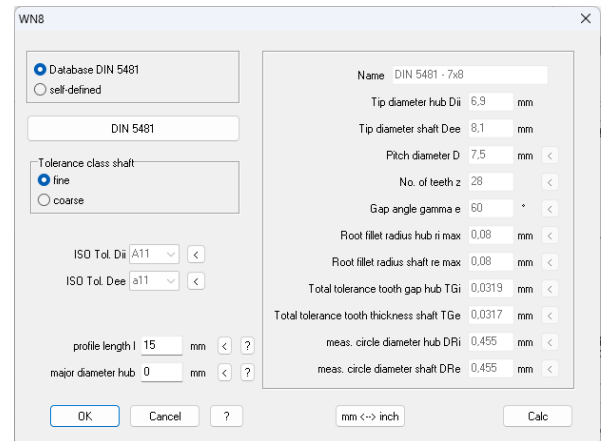
WN8 calculates dimensions, tolerances and load bearing capacity of serrations with straight flanks according to DIN 5481. A true-scale drawing of the spline is generated by WN8 and may be exported as CAD file. Dimensions and material data are loaded from the integrated material database.

Pre-Dimension

In Pre-Dimension, WN8 calculates a suitable spline size for the required transferable torque.

Dimensions

Standard sizes to DIN 5481 may be selected from integrated database. Or you can enter the dimensions for self-defined serration splines.



Tolerances

WN8 calculates tolerances for tolerance class fine or coarse according to DIN 5481.

Quick View

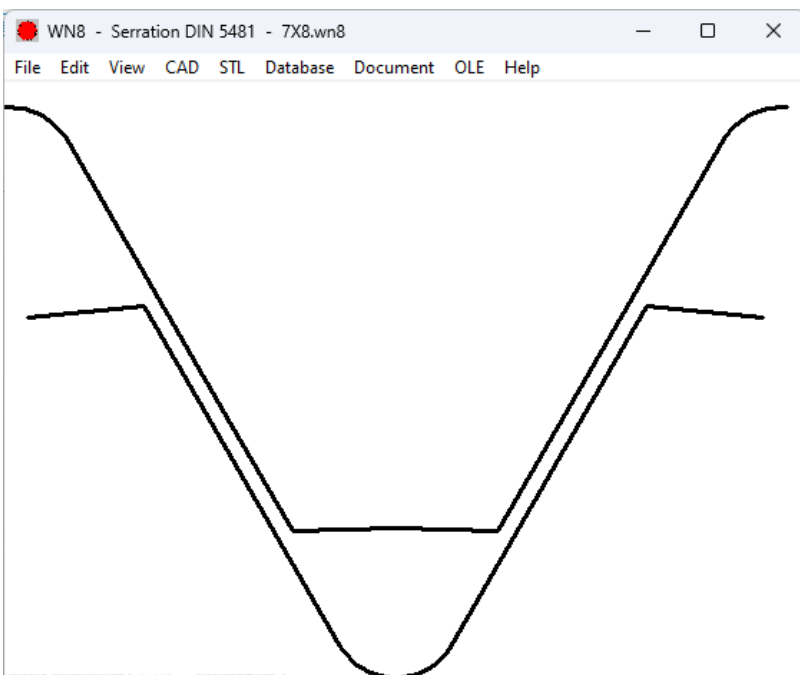
Quick View shows profile drawing and tables with dimensions and results together on one screen.

Profile Database

Profile database includes all sizes of DIN 5481. Database may be extended by the user.

Units

WN8 may be switched between metric units (mm, N, MPa) and imperial units (in, lbf, psi).



WN8 - Serration DIN 5481 - 7x8

load		TN	Nm	10
Nominal torque	TN			10
Maximum torque	Tmax			30
Application factor	KA			1,00
Equivalent torque	Teq		Nm	10
Profile length	l		mm	15,00
Load alternating coefficient	KW			1,00
Load dismb. coeff.	K lambda			1,13
Equiv. eff. surface pressure	peq		MPa	82
Max. eff. surface pressure	pmax		MPa	159

STRENGTH		1	2
material		15Cr3	GG-20
Yield strength	Re	MPa	400 150
Supp. Factor	fS		1,20 2,00
Hardness factor	fH		1,15 1,00
Perm. surface pressure	padm	MPa	552 300
Load peak frequency factor	fL		1,00 1,00
Safety	fW/padm/peq		8,85 4,81
Safety	fL/padm/pmax		3,47 1,89

Shaft DIN 5481 - 7x8			
No. of teeth	Z		28
module	m	mm	(0,2679)
Gap angle ext.	gam.e	°	60,000
Pitch circle diameter	D	mm	7,50
Tip diameter	Dee	mm	8,10 a11
Root fillet radius	Remax	mm	0,08
Root diameter	Die	mm	6,87
Pitch	P	mm	0,84

Hub DIN 5481 - 7x8			
No. of teeth	Z		28
module	m	mm	(0,2679)
Gap angle inner	gam.i	°	47,143
Pitch circle diameter	D	mm	7,50
Root fillet radius	Rimax	mm	0,08
Tip diameter	Dii	mm	6,90 A11
Root diameter	Dei	mm	8,28
Pitch	P	mm	0,84

material shaft

IDENT	MATERIAL	MAT_NR	NR	RM	RE	E_MODUL	A5
1.7035	41Cr4	1.7035	13	1000	800	210000	
1.7036	28CrS4	1.7036	7	0	0	210000	
1.7037	34CrS4	1.7037	13	900	700	210000	
1.7038	37CrS4	1.7038	13	950	750	210000	
1.7039	41CrS4	1.7039	13	1000	800	210000	
1.7043	38Cr4	1.7043	8	930	735	210000	
1.7045	42Cr4	1.7045	8	980	780	210000	
1.7102	55SiCr6	1.7102	26	1450	1300	210000	
1.7103	67SiCr5	1.7103	26	1500	1350	210000	
1.7106	58SiCr7	1.7106	26	1500	1350	210000	
1.7108	60SiCr7	1.7108	26	1330	1130	210000	
1.7117	52SiCrNi5	1.7117	26	1450	1300	210000	

Material Database

Integrated material database includes material properties for the most common steel materials, and may be modified and extended by the user.

Load Bearing Capacity

Safety against bearable flank pressure is calculated according to Niemann/Winter/Höhn and DIN 6882 from torque, material data, application and load type. Application factors and load coefficients can be determined from WN8 auxiliary images.

Text Printout

Calculation results may be printed, saved as TXT or HTML file, or exported to MS-Excel.

Tables and Drawings

WN8 generates true-scale drawings of shaft and hub profile which may be exported to CAD via DXF or IGES file. Tables with dimensions and tolerances are also generated by WN8.

Production Drawing

WN8 generates a production drawing with tooth profile and dimensions for external spline (shaft) and internal spline (hub). Drawing information and modification index is entered in WN8.

User Interface

The dialogue windows of WN8 allow even the less experienced PC user to find his way around the program quickly. WN8 provides users with a help text wherever they are in the program. When the demo mode is selected, WN8 runs through a demo in which an example calculation is performed. WN8 contains auxiliary pictures with geometrical signs and formulas used by the program.

System Requirements

WN8 is available as 32-bit app or as 64-bit app for Windows 11, Windows 10, Windows 7.

Scope of Delivery

WN8 Software with user manual (pdf), example applications and help images, 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.

WN8 - Serration DIN 5481 - 7x8

WN8 DIN 5481 - 7x8 tolerance tooth thic kn. + tooth gap

hub

shaft

$E_v = S_v = P/2 = 0,421mm$

$TG_i = 0,032mm$

$Tact_i = 0.625 TG = 0,020mm$

$Teff_i = 0.375 TG = 0,012mm$

$TG_e = 0,032mm$

$Tact_e = 0.625 TG = 0,020mm$

$Teff_e = 0.375 TG = 0,012mm$

$E_{max} = 0,453mm$

$E_{min} = 0,433mm$

$S_v = 0,421mm$

$S_{max} = 0,409mm$

$S_{min} = 0,389mm$

WN8 - Serration DIN 5481 - 7x8

Shaft DIN 5481 - 7x8			
No. of teeth	Z		28
module	m	mm	(0,2679)
Gap angle ext.	gam.e	°	60,000
Pitch circle diameter	D	mm	7,50
Tip diameter	Dee	mm	8,10 a11
Root diameter util.	DFe	mm	6,95 max
Root fillet radius	Remax	mm	0,08
Tooth thic kn. max. effective	Sv	mm	0,4207
Tooth thic kn. max. actual Ref.	Smax	mm	0,4089
Tooth thic kn. min. actual	Smin	mm	0,3890
Pin/ball diameter	DRe	mm	0,455
Dimension over balls max. Ref.	MRemax	mm	8,1036
Dimension over balls min.	MRemin	mm	8,0682
Total profile error	Falpha	mm	0,011
Total alignment deviation	Fbeta	mm	0,009
Cumulative pitch tol. tot.	Fp	mm	0,020
Runout tolerance	Fr	mm	0,020