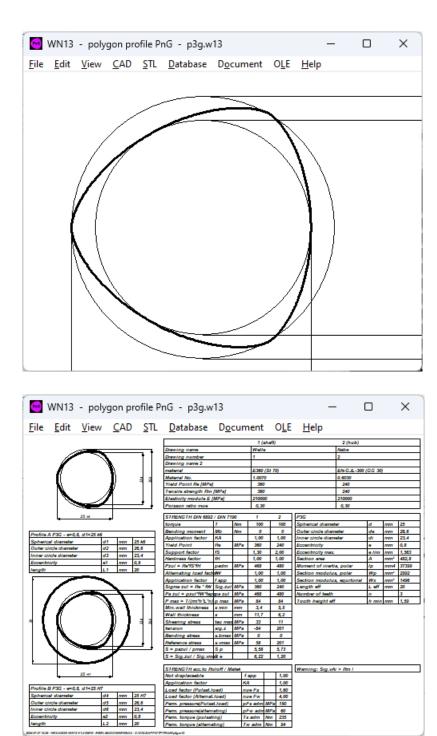
W N 1 3



Software for Polygon Profiles PnG (incl. P3G)

for Windows

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PnG Calculation

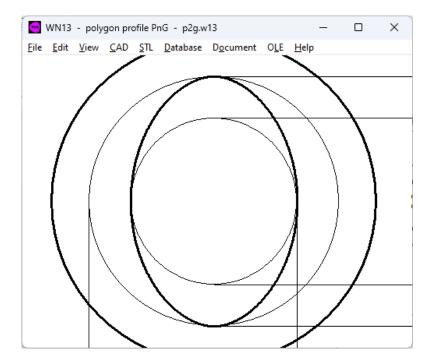
WN13 calculates dimensions and tolerances for PnG polygon trochoide profiles according to DIN 32711. additionally, you can define each size by input of nominal diameter, eccentricity and number of teeth (P2G, P3G, P4G, P5G, P6G). P3G sizes according to DIN 32711 (size 14 mm to 180 mm) can be selected from database. The database may be extended by the user.

WN13	×
number of teeth n 2 1 spherical diameter d (d1/d4) 25 mm eccentricity e (e1/e2) 2.5 mm < max	P3G
ISO tolerance d hub H7 < ISO tolerance d shaft k6 < unloaded displaceable hub	
Seam length I eff 25 mm < length shalt I1 25 mm <	mm < ? mm <
OK Cancel Help Text Aux. Image mm <> inch Ca	alc

Pre-Dimensioning

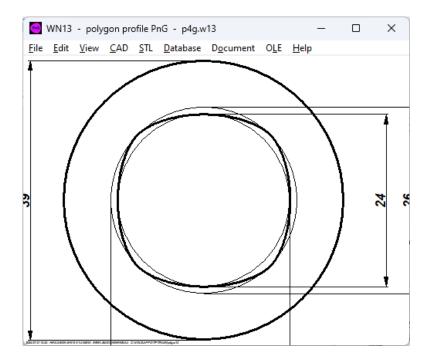
Enter torque, select material and application: WN13 calculates minimum size required for a PnG shaft-hub joint.

WN13	- ×
torque T 100 Nm	
bending moment Mb 0 Nm	
application coefficient KA 1 KA ?	
load alternating coeff. fW 1 K	
application application shaft-hub joint not displaceable 	
🔿 unloaded displaceable hub	
OK Cancel ? Nm <> lbfin	Calc



😁 WN13 - polygon profile	PnG - p	3g.w1	3			-			\times
ile <u>E</u> dit <u>V</u> iew <u>C</u> AD <u>S</u> TL	<u>D</u> atab	ase	D <u>o</u> cur	ment	O <u>L</u> E	<u>H</u> elp			
STRENG TH DIN 6892 / DIN 7190			1	2	Pro	file A P3G - e=0,8, d1=25	M		
lorque	τ	Nm	100	100	Spl	terical diameter	d1	mm	25 A6
Bending moment	Mb	Nm	0	0		ler circle diameter	d2	mm	25,6
Application factor	KA		1.00	1.00	. –	er circle diameter	d3 e1	mm	23,4
Yield Point	Re	MPa	360	240	Eccentricity		41 L1	mm	20
Tensile strength	Rm	MPa	360	240	1 =				
Support factor	rs	-	1.30	2.00		file B P3G - e=0,8, d1=25			
Hardness factor	1H	1	1.00	1.00		Spherical diameter Outer circle diameter	d4 d5	mm	25 HT 25.6
Pzul = Re*IS*IH	padm	MPa	468	480		er circle diameter	d6	mm	23,4
Sioma zul = Re * fW	Siazul	MPa	360	240	Ecc	entricity	e2	mm	6,8
Pa zul = pzul * fW * fapp	pa zul	MPa	468	480	/emp	z th	L2	mm	20
P max = T / (rm * h * L * n)	p max	MPa	84	84	-				
H = d2min - d6max	b	mm	1.59	1.59	-				
Dm = df, $rm = dm / 2$	dm	mm	25.0	25.0	-				_
$DA_{2} = dB_{2}$	DAa	mm		39.0	1		1	<u>۱</u>	11
QA = dm / DAa	QA			0.641			- N	1	
SigmatAi = pmax * (1+QA3 / (1-QA3	Sia.tAi	MPa		201	-		_ J.		1
SigmarAi = -omax	Sia.rAi	MPa		-84	1			1	
SigmavAi = SQRT(sig.t ^e + sig.t ^e - sig.t ^e sig.t)	Sig.vAi	MPa		253	1				11
QA max = SORT((Re2-pmax) / (Re2+pmax))	QA max			0.694	1		-/		_
DAa min = dm / QAmax	dAamin	mm		36.0	1				
S min = (dAa min - dmax) / 2	s min	mm		5.50	1	21.07			
S = (dB2 - d5) / 2	s	mm		6,20	1				
Wt > pi/16 * dmin*3	Wo	mm ²	2992		1				
Wb > pi/32 * dmin^3	Wx	mm?	1496		1 📼	Read to B.			
Tau max = T / Wt	teu max	MPa	33			ming: Sig.vAi ≥ Rm I			
Sigma z max = sigma tAi	sig.z	MPa	-84	201	1				
Sigma b max = Mb / Wb	sig.bmax	MPa	0	0	1				
Sigma v = sigma z max + sigma b max	sig.vmax	MPa	58	201	1				
S = pazul / pmax	Sρ	<u> </u>	5.58	5.73	1				
S = Sig.zul / Sig.vmax	Se	+	6.22	1.20	-				

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Strength Calculation

WN13 calculates compressive stress, torsional stress, bending stress, and equivalent stress according DIN 6892 (pressure) and DIN 7190 (stress spectrum). WN13 considers material, application factors and life expectation coefficients.

Material Database

Materials for shaft and hub can be selected from the integrated material database.

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IDENT	MATERIAL	MAT_NR	NB	BM	RE	E_MODUL
1.0070	E360 (St 70)	1.0070	1	690	360	210000
1.0112	P2355	1.0112	1	360	235	210000
1.0114	S235J0	1.0114	1	360	235	210000
1.0116	S235J2G3	1.0116	1	360	235	210000
1.0117	S235J2	1.0117	1	360	235	210000
1.0130	P265S	1.0130	1	400	265	210000
1.0143	S275J0	1.0143	1	430	275	210000
1.0144	S275J2G3 (St 44-3)	1.0144	1	430	275	210000
1.0145	Fe 430 D 2	1.0145	1	430	275	210000
1.0149	S275JOH (RoSt44-2)	1.0149	1	430	275	210000
1.0226	DX 51 D (St 02 Z)	1.0226	1	300	150	210000
1.0301	C10	1.0301	7	650	390	210000
1.0305	P235G1TH (St 35.8)	1.0305	3	350	230	210000
1.0312	DC05	1.0312	1	300	160	210000
1.0330	DC01 (St 2; St 12)	1.0330	1	330	280	210000
1.0332	DD11 (StW 22)	1.0332	1	300	250	210000
1.0333	DC03G1 (USt3;USt13	1.0333	1	300	250	210000
1.0334	DD12G1 (UStW 23)	1.0334	1	390	300	210000
1.0335	DD13 (StW 24)	1.0335	1	300	250	210000
1.0338	DC04 (St4; St14)	1.0338	1	310	180	210000

Production Drawing

PnG dimension table together with PnG profile in an ISO 7200 drawing header may be printed directly, or exported to CAD via DXF-/IGES interface. Drawing name, date, users and modifications are described in WN13. CAD Interface WN13 generates a true scale PnG profile as DXF or IGES file to be used in CAD or CNC system. Resolution and tolerances can be configured.

STL Interface

WN13 generates a true scale 3D model of shaft and hub to be produced on any 3D printer.

User Interface

The dialogue windows of WN13 allow even the less experienced PC user to find his way around the program quickly. WN13 provides users with help text and auxiliary images. When the demo mode is selected, WN13 runs through a demo program in which an example calculation is performed.

System Requirements

WN13 is available as 32-bit app or as 64-bit app for Windows 11, Windows 10, Windows 7.

Scope of Delivery

WN13 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.