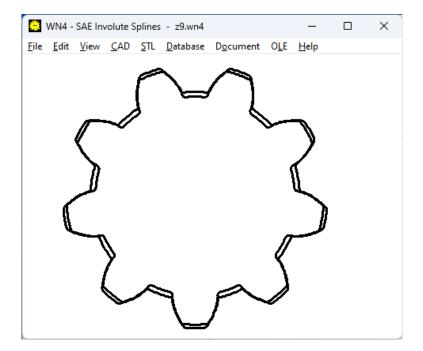
WN4



Software for Involute Splines according to ANSI B92.1

for Windows

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Calculation Base

WN4 software calculates dimensions, tolerances, measurement and stresses for SAE Involute Splines according to ANSI B92.1 and ANSI B92.1b. WN4 uses imperial units; metric units are supported as well. The program was designed to calculate spline fit types "Flat Root Side Fit" and "Fillet Root Side Fit" as well as "Major Diameter Side Fit". Pressure angle can be 30°, 37,5° or 45°. Normal Circular Pitch can be selected between "2.5 / 5" and "128 / 256".

Clearance, **Tolerance**

According to ANSI B92.1, WN4 calculates admissible deviation and tolerance. Additionally, you can select the appropriate spline fit class, if you choose calculation according to ANSI B92.1b. When entering centerline runout, WN4 calculates required clearance.

WN4 Dimensions						Х
	Pressure angle alpha	30 ~	•			
Spline Pitch	Spline Pitch P	16 / 32	× 1.	/in		
O	Diametral Pitch P	16	1/in	(m= 0,062	5 in)	
	Fit type Fillet I	Root Side F	Fit		~	
	Number of teeth N	9 🌩	d = 0,56	i25 in		
mm <> inch	Facewidth shaft bi	0,2000	in	<		
	Facewidth hub bo	0,2000	in	< <		
	effective facewidth b	0,2000	in	<		
Hub	Outside diameter OD	1,0000	in	<		
Shaf	t inside diameter Din	0,0000	in	<	?	
ОК С	Cancel ?	λux. Image	mm	<-> inch	Calc	

WN4	×							
Quality Standard ANSI B92.1 - 1996 ANSI B92.1b - 1996								
Centerline runout (diametral) of external part COe 0,0005 in Centerline runout (diametral) of internal part COi 0,001 in								
Spline Tolerance Class 4 (f=0.71) 5 (f=1.00) 6 (f=1.40) 7 (f=2.00)	Fit Class d (es = 0,00204'') e (es = 0,00129'') f (es = 0,000647'') h (es = 0)							
Number of points for involute polycurve 20 💉 < D = 0,563'' OK Cancel ? Calc								

WN4 Material Data			×
Spline Flexible Spline 🗸			
Material Carburized, Rc58 \sim	Shaft Torque , T	10000	lbfin
Revolutions 100.00 Millions 🗸	Maximum allowable shear stress, Sas	50000	psi
Torque cycles 100,000 V	Maximum allowable compressive stress, Sac	15000	psi
Torque cycles Uni directional 🗸	Wear life factor, Lw	1.0	
Power Source Light ~	Fatigue life factor, Lf	0.5	
Load intermittent Uniform ~	-	1.2	
Misalignment 0.002 in./in. 🗸			
Misalignment face width 1 in.	Misalignment factor, Km	1.0	
OK Cancel He	hp Text mm <> inch	Ca	lc

WN4 No. of teeth measured, Ball and pin diameters							
	External	Internal Spline					
No. of teeth measured k	5	·3 <					
Ball and pin diameters DM	0,24000	0.21598 in <					
tooth gap1	I + DM 1	tooth gap2 + DM 2					
OK Cancel ?	mm <> in	Calc					

							sae1b.w		-	-		>
File	Edi	t Vie	w	CAD	STL	D	atabase	Doc	ume	ent	OLE	Help
HEXA	GOI	WN4	- SA	E Invol	ute Spl	ine	5 V6.2					
		M 1:2			1							
		Internal Involute Spline Data 000002 SPLINE TO ANSI B92.1b - CLASS 6H Fillet Root Side Fit Number of teeth 25 Spline pitch 8/16 Pressure angle 30 deg										
	l		Base diameter 2,706329 ref Pritch diameter 3,125000 ref									
	L		Major diameter 3,375 max Form diameter 3,275									
	1		Minor diameter 3,000 / 3,009									
	1		Circular space width									
	1		Min effective 0,1963									
	L		Max actual 0,2012 Measurement between pins									
Ha.			Min actual 2,8118									
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			Pin Diameter 0,2160									
			Filler	r Radius				0,043				
		Property line		Territal offers			Controller		(increased)			
					-					Caseron		
Support of the function of the con- traction of the function of the con- traction of the con- traction of the contraction of the con-							Dasar miliper			L'INC.		
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85555										An C	2024-04-10	Ang Page ant
	CIV		Nurlar	4			·					2021-01-10-16.0

Measurement

Defined by dimensions and tolerance class, WN4 calculates span width and dimensions over/between pins (min, max, mean value). Number of teeth measured, and pin diameter may be changed.

Strength Calculation

WN4 calculates compressive stress, spline teeth shear stress, hoop stress, bending stress, torsional shear stress and equivalent stress according to "Design Guide for Involute Splines", SAE 1994. The program generates error messages, if allowable material values are overridden. Material values, application factors and wear life factors can be selected from tables, or you can enter the values directly.

Production Drawing

Drawing tables with dimensions and tolerances according to ANSI B92.1 are generated by WN4, together with a draft of shaft or hub, and ISO 7200 drawing header. Drawings may be printed on any Windows printer, or exported to CAD as DXF or IGES file.

Tooth Contact

Drawings with teeth, tooth gap, tooth contact, and tool profile are displayed on screen.

CAD Interface

True-scale drawings of involute splines and tool geometry can be exported to CAD as DXF or IGES file, as well as a table with the spline data according to ANSI B92.1.

User Interface

The dialogue windows of WN4 allow even the less experienced PC user to find his way around the program quickly. WN4 provides users with a help text wherever they are in the program. When the demo mode is selected, WN4 runs through a demo program in which an example calculation is performed. WN4 contains auxiliary pictures with geometrical signs and formulas used by the program.

System Requirements

WN4 is available as 32-bit app or as 64-bit app for Windows 11, Windows 10, Windows 7.

Scope of Delivery

Program 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.

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