

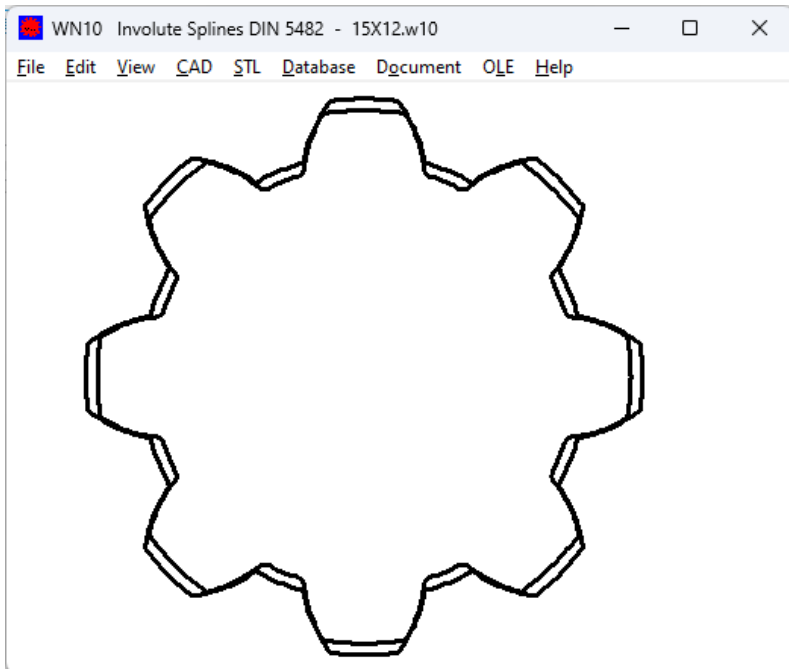
WN10



Involute Splines according to DIN 5482

for Windows

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Calculation of Involute Splines to DIN 5482

WN10 software calculates dimensions and strength of an involute spline joint according to DIN 5482 (Release 1950). WN10 also calculates self-defined non-standard splines: you can enter tooth tip diameters and tooth root diameters of external and internal spline, and WN10 calculates tooth height coefficients. WN10 calculates strength of the joint according to Niemann (2005). WN10 provides generation of true-scale tooth profile drawings with CAD interfaces DXF and IGES.

Dimensions

You can select DIN 5482 sizes from database, or input all dimension data.

Profile Database

Database includes DIN 5482 standard dimensions of internal and external spline. Database may be extended and modified by the user.

Zahnweite 000000
Zahnabste 000000

External involute spline 000000

Tip diameter d3	14,5
Root diameter d4	11,5
Module m	1,5
Pressure angle alpha	30
No. of teeth z	8
Basic rack	15x12 DIN 5482
Profile shift x'm	+0,500
Tooth depth h	1,473
Normal tooth thick. av	3,091
Tooth thickness tolerance field	DIN 5480 - 3h
Span measure (A=2) Wmax	7,028
Span measure (A=2) Wmin	7,908
Span measure (A=2) Wnom	7,571
Complement part	000000

Internal involute spline 000000

Root diameter d1	15
Tip diameter d2	12
Module m	1,5
Pressure angle alpha	30
No. of teeth z	8
Basic rack	15x12 DIN 5482
Profile shift x'm	-0,500
Tooth depth h	1,473
Normal space width av	3,091
Gap width tolerance field	DIN 5480 - 10H
Measurement M1 (DIN 5) nom	0,083
Measurement M1 (DIN 5) max	0,159
Measurement M1 (DIN 5) min	0,273
Complement part	000000

tolerance tooth thick. / tooth gap
A / B 15 x 12 DIN 5482 - 10H / 3h (DIN 5480)

load	1	2
Normal torque	TN	Nm 35,42
Maximum torque	Tmax	Nm 286,3
Application factor	KA	1,00
Equivalent torque	Teq	Nm 35,42
Face width	b	mm 18,00
Alternating load factor	KF	1,00
Load distribution factor	KHbeta	1,00
Equivalent surface pressure	sigma	MPa 251
Max. all surface pressure	sigma_max	MPa 429

STRENGTH

material	1	2
Yield Point	Rm	1050 / 1250
SAE Compressive stress	Sc	280 / 280
SAE Hoop stress	Sh	40 / 0
SAE Bending stress	Sb	37 / 32
SAE Torsional shear stress	St	2124 / 0
SAE Equivalent stress	Se	385 / 32
Safety factor/hoop stress	S_max	0,61 / 0,83
Safety factor/torsion stress	S_max	2,01 / 0,73

hub

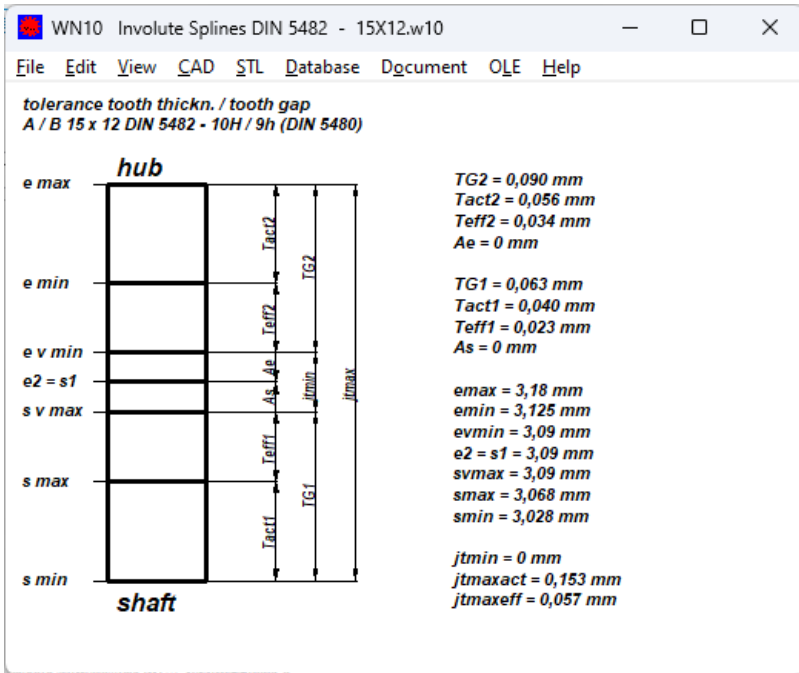
shaft

Error messages

- Warning: Din ball (3mm)
- Error - Spline Tooth Shear Stress (2)
- Error - SigmaEq > Rm (1)
- Error - Torsional Shear Stress (1)
- Error - SigmaEq (0,73 hub)

Dimensions acc.to DIN 5482 Involute Splines acc.to DIN 5482

NOM	D1	D2	D3	D4	D5	Z	M	X_M	R
15x12	15	12	14,5	11,5	12,8	8	1,6	0,5	
17x14	17	14	16,5	13,5	14,4	9	1,6	0,7	
18x15	18	15	17,5	14,5	16	10	1,6	0,4	
20x17	20	17	19,5	16,5	19,2	12	1,6	-0,2	
22x19	22	19	21,5	18,5	20,0	13	1,6	0	
25x22	25	22	24,5	21,2	22,4	14	1,6	0,55	
28x25	28	25	27,5	24,5	26,2	15	1,75	0,302	
30x27	30	27	29,5	26,3	28	16	1,75	0,327	
32x30	32	28	31,5	27,6	29,8	17	1,75	0,102	
35x31	35	31	34,5	30,5	31,5	18	1,75	0,676	
38x34	38	34	37,5	33,5	36,1	19	1,9	0	
40x36	40	36	39,5	35,5	38	20	1,9	0,649	
42x38	42	38	41,5	37,5	39,9	21	1,9	0,099	
45x41	45	41	44,5	40,6	44	22	2	-0,191	
48x44	48	44	47,5	43,2	46	23	2	0,119	
50x45	50	45	49,5	44,6	48	24	2	-0,191	
52x47	52	47	51,5	46,5	50	25	2	-0,231	
55x50	55	50	54,5	49	52	26	2	0,019	
58x53	58	53	57,5	53	54	27	2	0,510	
60x55	60	55	59,5	54,5	56	28	2	0,768	
62x57	62	57	61,5	56,5	60,9	29	2,1	-0,494	
65x60	65	60	64,3	59,5	63	30	2,1	0,015	
68x62	68	62	67,3	61,5	65,1	31	2,1	-0,034	
70x64	70	64	69,3	63,5	67,2	32	2,1	-0,084	
72x66	72	66	71,3	65,5	69,3	33	2,1	-0,134	
75x69	75	69	74,3	68,5	71,4	34	2,1	0,315	
78x72	78	72	77,3	71,5	73,5	35	2,1	0,765	
80x74	80	74	79,3	73,5	75,6	36	2,1	0,715	
82x76	82	76	81,3	75,5	83,2	37	2,25	-2,425	
85x79	85	79	84,3	78,5	85,6	38	2,25	-2,05	
88x82	88	82	87,3	81,5	87,8	39	2,25	-1,673	
90x84	90	84	89,3	83,5	90	40	2,25	-1,799	
92x86	92	86	91,3	85,5	92,2	41	2,25	-1,923	
95x89	95	89	94,3	88,5	94,5	42	2,25	-1,549	
98x92	98	92	97,3	91,5	96,8	43	2,25	-1,175	
100x94	100	94	99,3	93,5	99	44	2,25	-1,299	



Tolerances

From tolerance series and tolerance zone, WN10 calculates measuring dimensions and backlash or interference. You can configure tolerance system according to DIN 5482-3:1973, or according to DIN 5480-1:2006

Measurement

The program calculates span width and dimension over/between pins (min, max & nom. values) for dimensions and selected tolerance fields. Whereby no. of teeth meas. and pin diameter can be altered.

Material Database

Material properties can be selected from the integrated database (> 900 records)

Strength Calculation

WN10 calculates transferable torque or safety against permissible flank pressure according to Niemann/ Winter/Höhn (2005).

Drawing Tables

Table drawings with dimensions may be printed or exported to CAD.

Tooth Profile Drawings

True-scale drawings of tooth profile, tooth contact, reference profile may be exported to CAD or printed on screen.

Production Drawing

WN10 generates production drawings of external spline and internal spline with ISO 7200 data field.

CAD Interface

True-scale tooth drawings, production drawing and drawing tables can be generated as DXF or IGES file, and imported by any CAD software.

User Interface

The dialogue windows of WN10 allow even the less experienced PC user to find his way around the program quickly. WN10 provides users with a help text wherever they are in the program. When the demo mode is selected, WN10 runs through a demo program in which an example calculation is performed.

System Requirements

WN10 is available as 32-bit app or as 64-bit app for Windows 11, Windows 10, Windows 7.

Scope of Delivery

WN10 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.

