Z A R X P

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Involute Gear Profile

### Dimensions and Graphic

for Windows
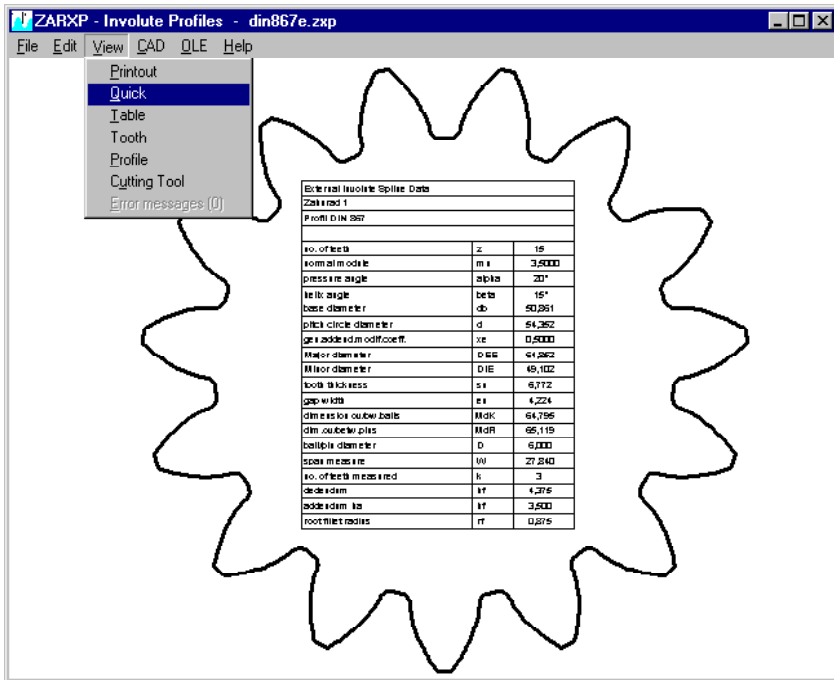
Application
ZARXP software calculates dimensions and geometrical profile of involute gears and involute splines (external/internal). Input data are pressure angle, helix angle, number of teeth, normal module or normal pitch and profile shift. For unknown profile shift, you can enter dimensions over/between pins or balls, span width or tooth thickness instead. ZARXP can be used to create spare parts from measured data of a gear wheel. Tooth profile drawing can be used for profile projector, wire-cutting system or 3D printer.

Calculation
ZARXP calculates dimensions and profile drawing of a gear wheel according to DIN 3960. Pofile drawing can be displayed on screen, printed to any Windows printer, loaded as true-scale drawing in CAD.
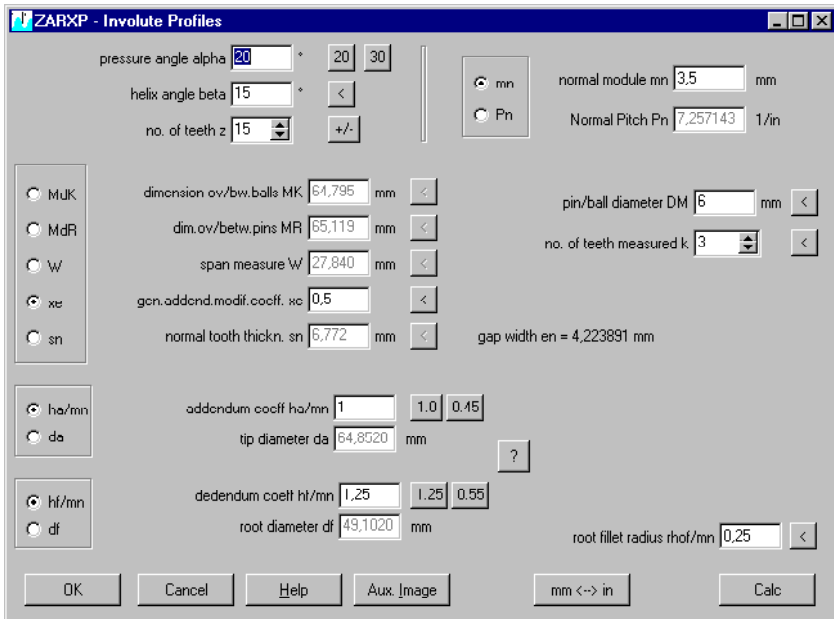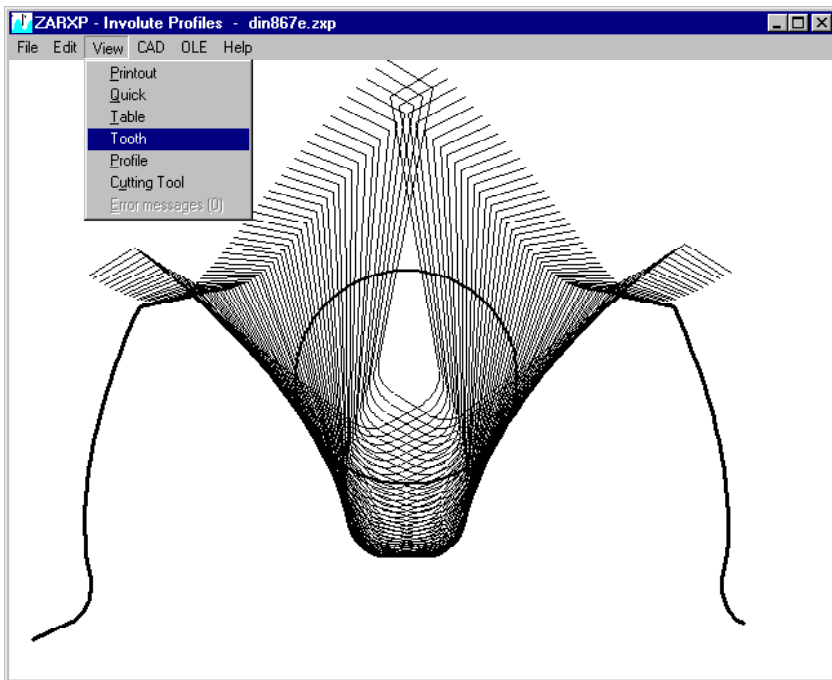
Measured Dimensions
ZARXP calculates span width, tooth thickness, dimension over/between pins or balls. Pin or ball diameter can be modified in ZARXP.
Measured dimensions can also be input data, and ZARXP calculates profile shift coefficient.

Reference Profile (Tool Profile)
You can input addendum and dedendum coefficients and calculate major diameter and minor diameter. Or enter major diameter and minor diameter and ZARXP calculates addendum and dedendum.
Reference profile can be displayed as drawing. Special rack profiles like protuberance profile or tip breakage chamfer are not supported by ZARXP.

External Involute Spline Data		
Involute Gear Wheel 1		
Profile ISO 53		
no. of teeth	z	15
normal module	mn	3,5000
pressure angle	alpha	20°
helix angle	beta	15°
base diameter	db	50,861
pitch circle diameter	d	54,352
gen.addend.modif.coeff.	xe	0,5000
Major diameter	DEE	64,852
Minor diameter	DIE	49,102
tooth thickness	sn	6,772
gap width	en	4,224
dimension ow/bw.balls	MdK	64,795
dim. ow/betw.pins	MdR	65,119
ball/pin diameter	D	6,000
span measure	W	27,840
no. of teeth measured	k	3
dedendum	ht	4,375
addendum ha	hf	3,500
root fillet radius	rf	0,875

$mn = 3,5$ mm
$hfP0 = 1 * mn = 3,5$ mm
$haP0 = 1,25 * mn = 4,375$ mm
$hP0 = 2,25 * mn = 7,875$ mm
$raP0 = 0,25 * mn = 0,875$ mm

Tolerances
Tolerances are not considered by ZARXP. To get limit values, you could run multiple calculations with min/max/mean tolerances. Or better use ZAR1W or ZAR1+ software.

Text Printout
Input data and calculation results can be printed to screen or Windows printer, saved as TXT file or HTML file, or loaded in MS-Excel.

Tooth Profile
Drawings of gear profile, tooth gap, and reference profile can be printed on screen or Windows printer or exported to CAD.

Drawing Table
A table with gear data can be printed, or exported to be used in CAD.

CAD Interface
A true-scale drawing of the calculated gear profile can be used in CAD or CNC. Resolution of involute and tooth root fillet can be configured in ZARXP. ZARXP generates true-scale drawings and tables as DXF or IGES file.

Graphic Printout
Drawings and tables can be printed with each Windows printer. Scale and origin can be configured.
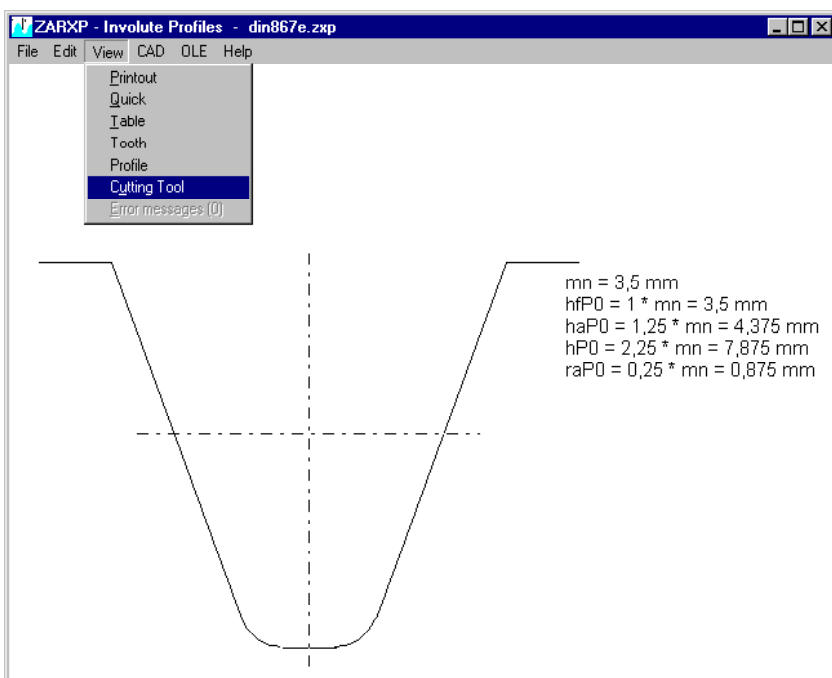
HEXAGON Help System
As with all HEXAGON programs ZARXP can provide you with a help text and auxiliary picture for each input. Help texts and auxiliary pictures can be modified and appended by the user as required. When error messages appear you can have a description and remedy suggestion displayed.

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

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

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

Guarantee
HEXAGON gives a 24 month guarantee on full functionality of the software. We provide help and support by email and hotline without extra charge. HEXAGON Software is continuously improved and updated. Registered users are regularly kept informed of updates and new editions.