Application
ZM1 calculates dimensions and strength of chain gears according to Niemann/Winter and in accordance with DIN 8187/88. Roller chains can be selected from the data base provided.

Dimensioning
ZM1 searches the data base and suggests an appropriate chain based on ratio relationship, power and drive speed. ZM1 determines the next integer number of links for the chain and calculates the exact dimensions based on the approximate center distance.

Re-Calculation
The required chain is selected from the data base. ZM1 calculates the dimensions for chain and chain wheels from the number of teeth of the pinion and gear wheel, and also the approximate center distance.

Strength Calculation
ZM1 calculates the static and dynamic breakage safety margin as well as the safety against permissible surface pressure. ZM1 determines the standard value of the joint surface pressure for roller chains in accordance with DIN 8187/88. The life expectancy (Lv) of the chain is calculated (according to Niemann) from the joint surface pressure.

Roller Chains
ZM1 calculates single, double or triple roller chains. The data base supplied with the program contains the necessary dimensions and strength values for all sizes in accordance with DIN 8187 (European design type) and DIN 8188 (American design type).

Efficiency
Loss of power and efficiency are calculated from joint friction and dimensions.
Lubrication
ZM1 determines the recommended type of lubrication from speed-pitch chart according to Niemann. The calculated operating point is marked in the diagram.

Text Printout
The calculation results and input data can be printed on any Windows printer. Alternatively, ZM1 can generate a HTML or TXT file, or directly load the results with MS-Excel.

Quick View
Quick views show calculation results with drawings and diagrams altogether on one screen.

True-Scale Drawings
Drawings of sprocket and chain wheels can be displayed on screen, printed out or exported as true-scale drawings to CAD via DXF or IGES interfaces.

Production Drawings
ZM1 generates a complete manufacturing drawing of the chain sprocket and chain wheel, with drawings and tables for the chain drive, and ISO 7200 data field. Drawing info and modifications can be entered in the program. The drawings may be printed directly, or loaded into CAD via DXF or IGES interface.

CAD Interface
Drawings and diagrams can be exported to CAD via the DXF or IGES interfaces.

HEXAGON Help System
As with all HEXAGON programs ZM1 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
ZM1 can be switched between metric units (mm, N, MPa) and imperial units (inch, lbf, psi).

System Requirements
ZM1 is available as 32-bit app or as 64-bit app for 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.