

HYDRA



Hydra – software to design water distribution systems

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Hydra is a computer program for designing water distribution systems within AutoCAD. Hydra covers all the design phases from preliminary to detailed, including the modelling of water distribution systems. Hydra is a modern, flexible and practical tool which may be customised to suit particular design demands.



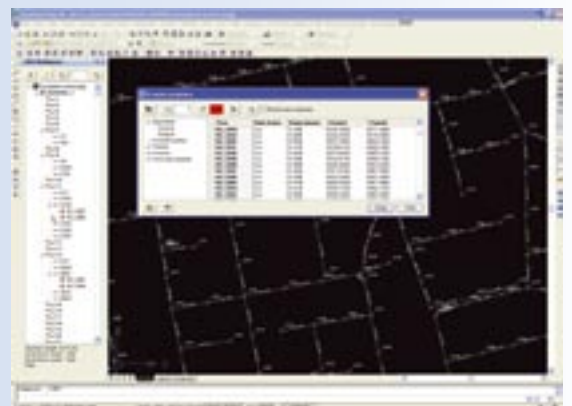
Hydra consists of the following modules and extensions:

Layout – definition of the network consisting of pipes and nodes, calculation of terrain elevations, hydraulic calculation and data processing,

Longitudinal sections – drawing of longitudinal sections in arbitrary distortional scale, level line, water distribution equipment, and cross section definitions, and calculation of the fill,

Hydra SB – node assembly drawings with complete specification,

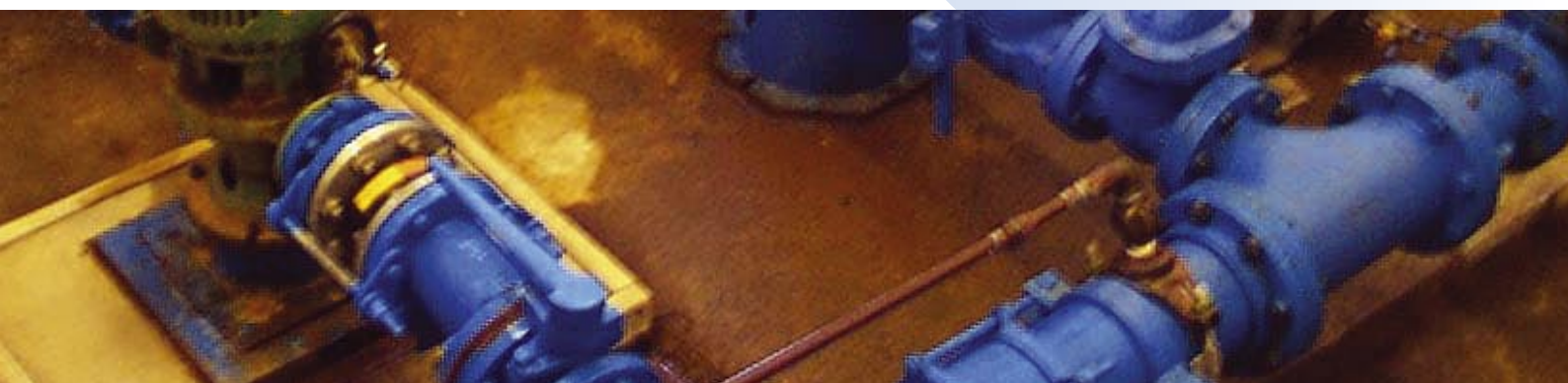
Data Extension – connection to external databases and specific GIS tools.



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Main software characteristics:

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Network definition – an interactive definition using geodetic maps or scanned images, conversion from AutoCAD point or line elements including automatic creation of the network topology.

Network editing – arbitrary addition, removal and repositioning of the pipes and nodes including automatic recalculation of all the dependent parameters and labels.

Calculation of terrain elevation – various manners of calculation of the terrain elevations including direct definition, interpolation, and the use of digital terrain models (DTM). The software includes the DTM program Terraform.

Data definition – a logical definition of all the data (diameters, slopes, hydraulic data, . . .), individually or by group, including automatic checks on the data integrity.

Data review – individual or group review of the data in a tabular form which can be easily modified, connected to the elements in the drawing, and transferred to Excel. Hierarchical review of all the topology elements. Easy thematic mapping based on arbitrary data.

Annotation – an intelligent and flexible annotation of all the pipe and node data, capability to define user labels, flow direction labels, and stations.

Longitudinal sections – automatic drawing of the longitudinal sections with arbitrary distortional scale and adaptable tables.

Level line definition – interactive definition of the level line in different ways, including a variety of editing and modification tools.

Equipment – an automatic and interactive definition of water distribution equipment – washout chambers, air release chambers, hydrants, . . .

Excavation – an unlimited number of definitions of the trapezoidal cross section including a detailed calculation of all the quantities, drawing of the cross sections, and calculation of the excavation with all the intermediate results included

Infrastructure intersections – the capability to analyse the intersections of the designed pipe with the existing infrastructure

Break-up of longitudinal sections – an automatic adaptation of the longitudinal sections with large differences in elevation to any paper format

Data updating – any modification in the layout or the longitudinal sections is automatically updated and applied to all drawings

Node types – the capability to define various node types – plain nodes, tanks, reservoirs, pumps, valves

Hydraulic calculation – calculation of flows, velocities and losses in the pipes, calculation of pressures and head elevation in the nodes, including the capability to draw the energy lines in the longitudinal sections.

The calculation is based on Epanet.

Assembly drawings – the capability to draw the assembly schemes by various manufacturers with intelligent element connections, editing capabilities, and the capability to make individual and global specifications, annotations, dimensioning and to review the results

GIS functionality – possible read-and-write connection to various external databases and documents

