HEXAGON

Brochure

AX3000® MEP Professional

Professional Software for HVAC and MEP

AX3000 is the result of years of collaboration between development team and engineers who have experience in the plant-engineering sector as well as technical schools and universities specializing in process engineering and energy management. The key benefit of AX3000 is a simple user interface, which can be learned with great end-user success. AX3000 is flexible and can be adopted easily. With continuous development you can be sure the investment in time will be worthwhile.

Modules

- Ventilation and Air-Conditioning
- Heating (Plumbing Heating and Cooling)
- Sanitation (Plumbing Cold/Hot/Wastewater)
- Electrical Engineering

Basic Philosophy

Using the *Easyline* system, you can use a simple 3D-line and connect it to intelligent blocks. This piping/ductwork can be automatically sized. The 3D geometry can then be automatically generated for the system.

You can also model directly in 3D and get the calculation. The system is flexible, and you can use both methods of modeling in a mixed workflow.

Simple User Interface

The modular construction of AX3000 offers extensive, specialized solutions for HVAC and MEP systems.

You only need to become familiar with the software once because the functionality is continuous between modules.

Optimal data organization

AX3000 uses the functionality from the basic CAD system and is fully compatible with DWG-based drawings and BricsCAD BIM.

Libraries

Libraries in both imperial and metric units are included and can be easily changed.

The database contains:

- Components (blocks)
- Materials (galvanized steel, copper etc.) tables for parametric standard fittings
- Information concerning the specific medium, fitting loss coefficients and material properties
- Libraries can be edited and extended by the user

Specific functions

- Simple calculation of variants (ex: pipes or rectangular fittings)
- Sizing of all main and branch duct-system using
- constant friction or maximum duct velocity
- Specify fixed sizes for pipe and duct
- Lock in specialized fittings and specific routing
- Calculation results are added as attributes
- Analyze the system (velocity, etc.)
- Detailed 2D labeling output linked to 3D model

BIM

- The BIM model can optionally be used to create room books
- Visualizations and 3D representation of information and room properties
- Heating and cooling load calculations and simulations

AX3000® Ventilation

Lines, blocks, and material tables form the basis of systems created in AX3000. Three-dimensional systems can automatically be created from the inputs; variants can simply be created based on different parameters. “Equal Friction Loss” is commonly used as a calculation method, regarding maximum velocity. This calculation is based on the Darcy-Weisbach equation, considering the roughness of the material and tables for loss coefficients.

Easyline Systems are divided into supply and exhaust air by the starting points. Duct design fundamentals include the flowrate of the outlets, components, fittings, and materials. Dimensioning can be accomplished by entering the cross section, volume flow or R-value. By defining the design conditions; the system is dimensioned, calculated and drawn in 3D. All data relevant for the system calculation is saved immediately and is recallable and changeable at any time.

Central-construction

3D modelling of complex systems and specific details to complete planning and design of Ventilation systems.

Materials and Tables

- Materials for rectangular or round ducts are stored in the database
- Materials can be added and extended

Ventilation planning

- Intelligent drawing elements (3D line concept)
- Easy connection of ventilation outlets
- Project planning with calculation of variants
- Manipulation and copy using common CAD commands
- Automatic access to the component database

Ventilation construction

- System construction via center line or outer contour
- Automatic intermediate length calculation
- Automatic position-, lengths- & dimension-labelling

Bills of Material

- User-configurable bills of material can be created in Excel or PDF
- Various reports provide accurate information such as manufacturing and fitting lists

Drawings & Labeling

- Users can easily create 2D drawings from the 3D model
- A convenient and flexible labeling function is available
- Imperial and metric units can be changed at will

Evaluations

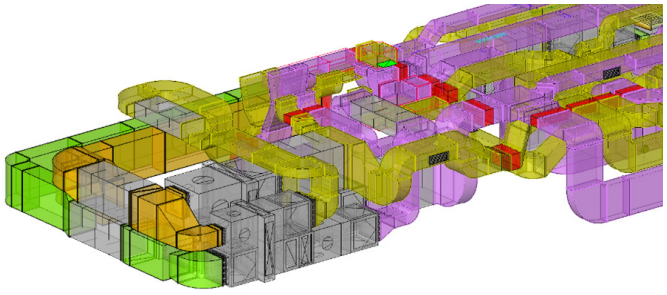
- Calculation of duct sizes based on the design methodology
- Optimize fittings
- Pressure loss calculation
- Balancing
- Calculation results added as attributes
- Graphical analyses of the system (velocity, diameter, temperature, etc.)
- Detailed labelling
- 2D output linked to 3D model

Application Areas

Building Services for Non-Residential and Residential Buildings, Food and Beverage, Hospitals, Industrial Buildings, Administration Buildings, etc.

Technical Specifications

- BricsCAD®-compatible
- AutoCAD®-compatible



AX3000© Heating

The heating system can easily be drawn using the *Easyline* system to define centerlines for supply and return piping. The start point defines the system parameters for material and system temperature. Fan coils, radiators or floor heating systems are typical load points. Equal friction loss for sizing utilizes calculations based on the Darcy-Weisbach equation, considering the roughness of the material and tables for loss coefficients. The result of the *Easyline* method is a fully planned 3D piping system, including pipes, fittings, components, valve settings and pressure loss calculations.

Capabilities

- Automatic placement of radiators based on BIM- room books
- Definition of free defined load points
- Definition of connection types and valves
- Automatic load point connection in different layout variants
- Simple tools to manipulate and coordinate system design
- Automatic pipe dimensioning utilizing constant friction or velocity as the design criteria
- Change of the fluid properties like density and viscosity
- Automatic assignment of required fittings
- Easy to use labeling functions

Distributor- / Central-construction

- 3D-pipe construction
- Calculation of the distributor diameter
- combination of components
- Placement of armature-groups to a predefined height
- Manufacturer database

Evaluations

- Valve setting lists
- Pressure loss calculation
- Calculation of the water quantities in the piping and the radiators

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- User-configurable bills of material can be created in Excel or PDF
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Application Areas

Building Services for Non-Residential and Residential Buildings, Food and Beverage, Hospitals, Industrial Buildings, Administration Buildings, etc.

Technical Specifications

- BricsCAD®-compatible
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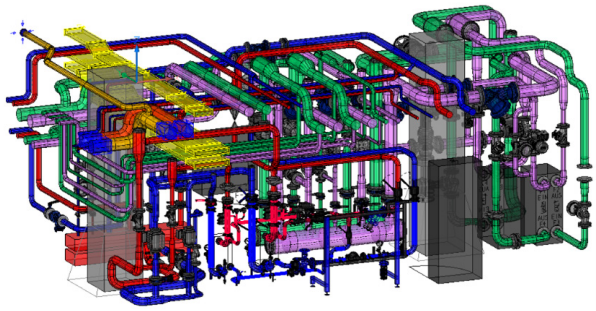

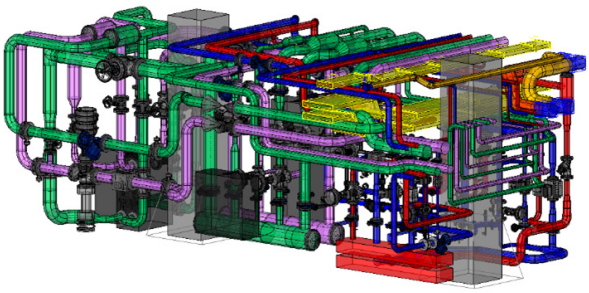

AX3000© Sanitation

The AX3000 Sanitation module includes everything needed to design potable water, wastewater, and fire sprinkler piping systems. Every load point has connectors to connect the system. Typical load points are sinks, toilets, showers, washing machines, etc. The *Easyline* method helps size and route the system using hydraulic calculations based on Darcy-Weisbach and Prandtl-Colebrook equations. The result is a fully planned 3D piping system, including pipes, fittings, components, valve settings and pressure loss calculations.

Capabilities

- Library of blocks and connectors for Sanitary systems
- Easy placement of sanitary objects or free defined load points
- Automatic load point connection with options for several different connections
- Simple tools to manipulate and coordinate system design
- Automatic pipe dimensioning utilizing constant friction or velocity as the design criteria
- Ability to define fluid properties like density and viscosity
- Automatic assignment of required fittings
- Circulation system calculation
- Easy to use labeling functions

Wastewater / Sewage

- Predefined connection types and functions
- Specialized fittings
- Automatic generation of pipe slope

Distributor- / Central-construction

- 3D-pipe construction
- Calculation of the distributor diameter
- Library of components
- Placement of armature-groups to a predefined height
- Manufacturer database

Bills of Material

- User-configurable bills of material can be created in Excel or PDF
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Drawings & Labeling

- Users can easily create 2D drawings from the 3D model
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Evaluations

- Pressure loss calculation
- Heating loss of the Hot and Cold potable water systems
- Circulation-Valve setting lists

Application Areas

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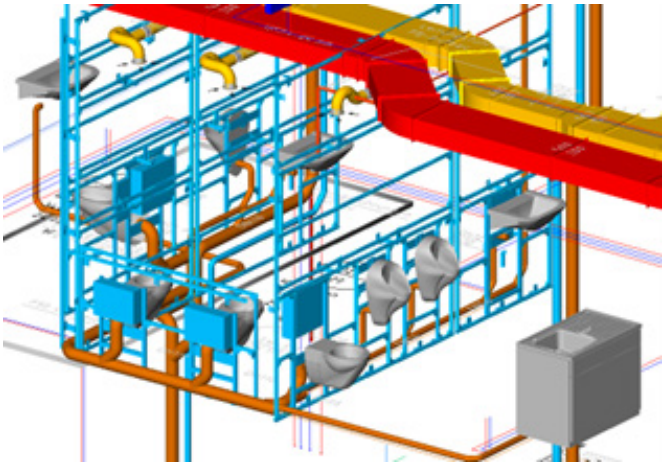

AX3000© Electrical

The AX3000 Electrical module allows easy placement of electrical elements (switches, receptacles, etc.) and their connection via conduits. There are also tools to provide efficient design of cable ladders and trays; based on manufacturer databases, including posts and hangers.

Placement of lamps, switches, sockets

- Predefined blocks and connection types
- Intelligent symbols with 2D and 3D views
- Easy placement of components
- Automatic access to database
- Easy to use labeling functions
- Conduit connections

Cable routing

- Special parametric fittings for cable trays
- Database with manufacturer fittings
- Hangers and posts mounting systems
- 3D modelling

Bills of Material

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Drawings & Labeling

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- is available
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Application Areas

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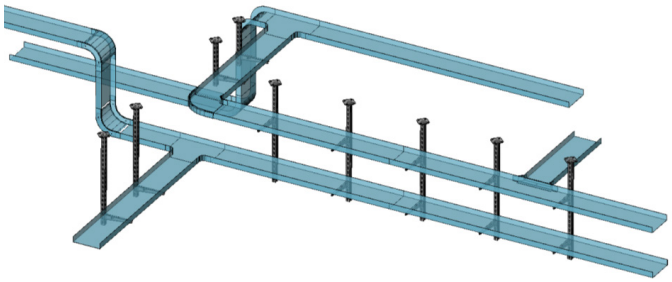

About Hexagon

Hexagon is a global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications.

Hexagon's Asset Lifecycle Intelligence division helps clients design, construct, and operate more profitable, safe, and sustainable industrial facilities. We empower customers to unlock data, accelerate industrial project modernization and digital maturity, increase productivity, and move the sustainability needle.

Our technologies help produce actionable insights that enable better decision-making and intelligence across the asset lifecycle of industrial projects, leading to improvements in safety, quality, efficiency, and productivity, which contribute to Economic and Environmental Sustainability.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 24,000 employees in 50 countries and net sales of approximately 5.5bn USD. Learn more at hexagon.com and follow us @HexagonAB.

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