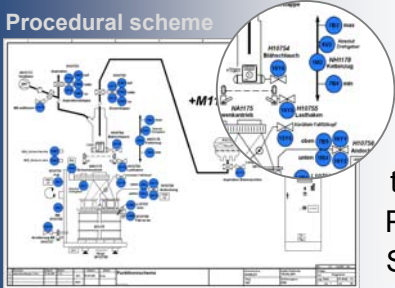


ESplan® CAE/CAD Electrical Engineering

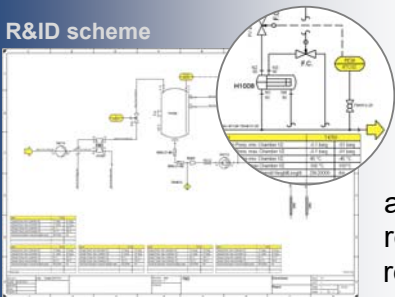
Software for the documentation production of Circuit diagrams, Control plans, Fluid and Process Engineering. In Automated functions, Material requirements, Production and Production data are determined...

Procedural scheme



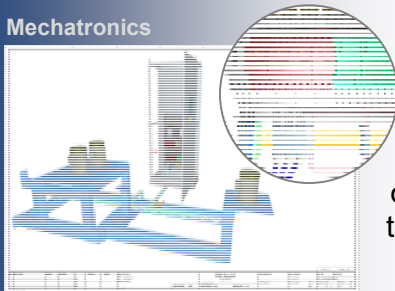
With the CAE/CAD Software Solution **ESplan®** you efficiently plan and create the technical documentation of industrial switchgear and control systems. The powerful, Conceptually developed software program allows the integrated and comprehensive electrical engineering in the field of Process Engineering, Fluid, Electrical-, measuring-, control technology, Switching and Mechatronics.

R&ID scheme



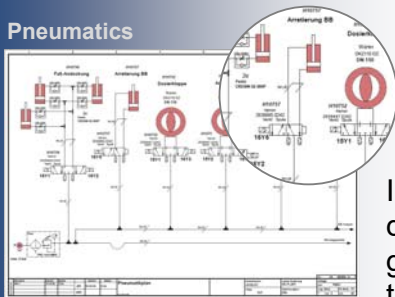
The goal of high savings by optimizing workflows from planning to production requires special performance features. The concept of **ESplan®** is to ensure efficient performance with an open and technically versatile system, both planning in individual workstations as well as implemented in large global system structures. This combination, which also fulfils the requirements of the thorough planning of all specialist areas, requires special highlights and unique features. The optimized workflow results in considerable savings thanks to fast and efficient workflows.

Mechatronics



Through this project manager, **ESplan®** offers the possibility to create and manage a holistic project structure for different departments. The revision management which is designed to meet the most stringent requirements, covers the entire product lifecycle and if necessary allows comparisons between old and new. The maintenance and administration of the projects is thus possible with minimal effort. **ESplan®** is therefore the central planning platform.

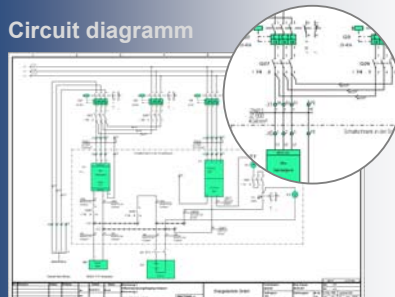
Pneumatics



The joint use of **ESplan®** and **ESpace®**, the 3D Cable- and Line-Routers & Mechatronics modeller Software represents the optimum of the power yield up to the digital prototype.

In a highly automated form Documentation, Production and Production data as well as data transfers to CNC and Cable assembly systems are generated. Validations and cost control are thus already in place and save the construction of a physical prototype.

Circuit diagramm



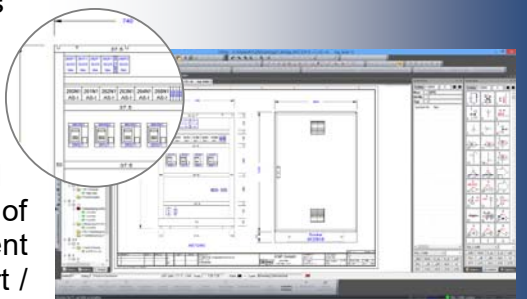
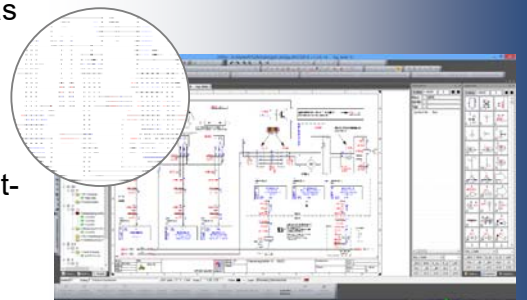
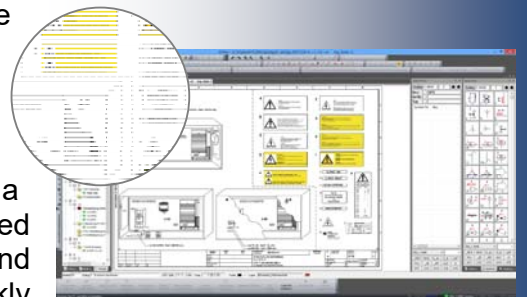
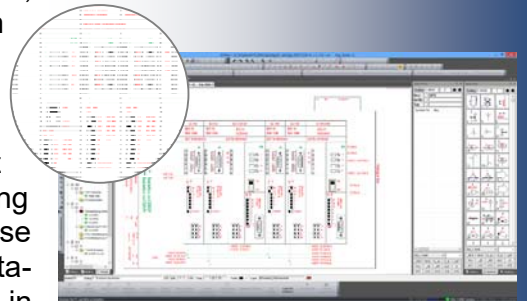
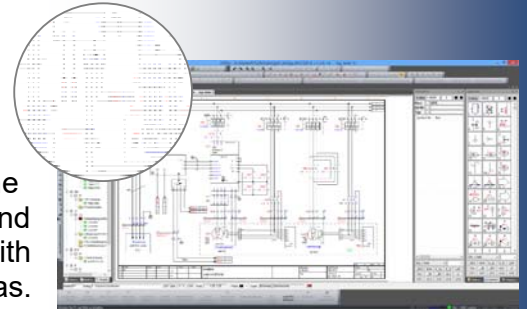
ESplan® is a CAE and CAD program at the same time. Combined with a standard 2.5D core and optional 3D graphics **ESplan®** uses a CAE process combination. The object idea connects the graphics and the database object-oriented. By means of parallel rather than serial work processes (Multithreads) in "Realtime", standard generation runs are optimized for evaluations. Terminal plan & Co. are not to be created separately at ESplan, but are ready immediately.

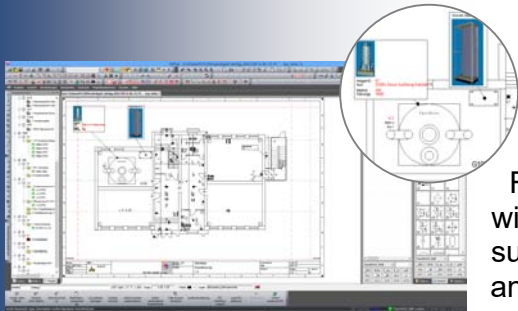
Intelligent objects allow inheritance for copies of Symbols, Macros, Entire pages or Projects. Automatic cross-references and test routines ensure the logical contexts of the control processes. The cross-project navigation provides information about the use of the components at any time, allows the immediate page change to connected pages of the planning, and forms. Freely configurable, cross-sectional project structures with the possibility of controlled object linking into higher-level areas. Electrical Engineering can be structured according to Plant, Location, Field and Device position. Intelligent Macro function modules with interfaces (automatic module linking).

Reverse – Engineering in **ESplan®** allows for any changes at any point in the plan with a real – time update of all remaining connected data and drawing pages. Whether in form the database or the Icon all references and cross-references are data-consistent. Automatic article data matching in the project and in resources depending on the connected data source (for example ERP database as well as SAP).

For easy operation, **ESplan®** supports the user with the pass-over functionality. While moving with the mouse pointer over a CAE graphic object on the screen the system displays associated commands and functions via the right mouse button. Modules and symbols are recognized automatically and can be edited quickly with the appropriate system functions. With standards such as ADO, ODBC, Office Interface a programmable log scripts language and other functional processes, **ESplan®** is capable of communication in an existing system environment and externally controllable. The integration into networks and workflows of ERP, CRM, PDM / PLM etc. is simple and cost-effective.

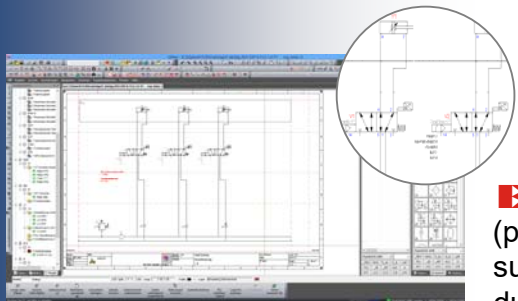
ESplan® is multilingual. The foreign language module translates projects form different languages. Global requirements are provided by the unicode capable solution also in Chinese, Japanese, Cyrillic, arabic or further character sets (> 110 basic Windows TrueTypeFont character sets). Data exchange with other CAD systems is ensured by the worldwide standard DWG/DXF. With the management of layers, the recognition of blocks (also block in block), the Unicode capability of different fonts such as TTF and SHX and many other features, the import / export of CAD data is a real pleasure.





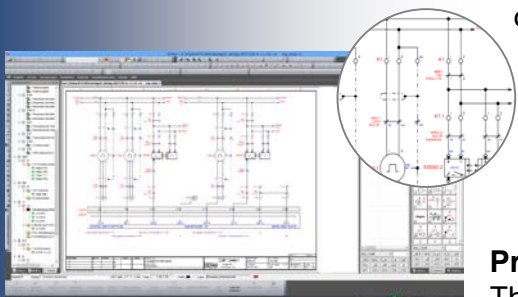
Software application area:

A comprehensive platform in the areas of Process engineering, Electrical engineering, Mechanics, Mechatronics, Hydraulics and Pneumatics. Diagrams in the process planning, flow charts, R & I, P & ID, function plans, data transfers (instrumentation data with Software) can be transferred to symbol containers for subsequent use. Functional group are the links between process and process chain. Linking with Electrical, Fluid and mechatronics are standard. Plant engineering structures with device and operating data are available for semi-automatic or fully automated further use.



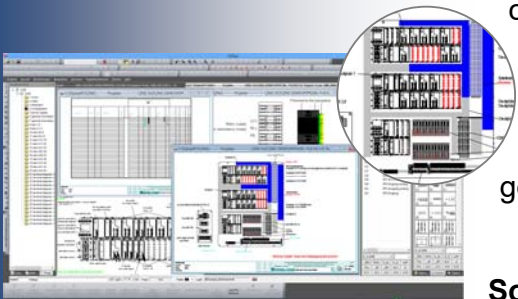
Software System Technology:

ESplan® and **Espace**® use the MultiThread technology (parallelized function processes). This means that not all subsequent serial generation and evaluation runs are required during planning. The object model of **ESplan**® and **Espace**® also offers a multi-dimensional Plan date processing functionality in the drawing, database and form-level, which we also call reverse engineering. Object-oriented **ESplan**® CAE 64 Bit Kernel. MultiThread Technology for current flow planning with well-known evaluations.



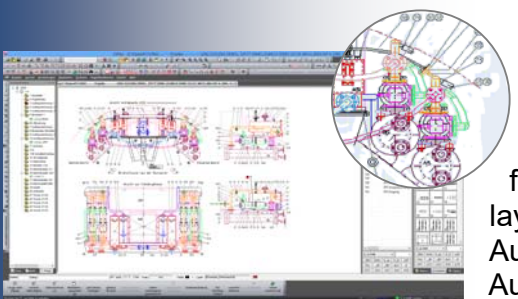
Project structure and management:

Through this project manager, **ESplan**® offers the possibility to create and manage a holistic project structure for different departments. **ESplan**® is thus the central planning platform. With the standard product **ESplan**® and **Espace**® Documentation, Production and Production data as well as their data transfers to CNC and cable assembly systems can be generated and used in highly automated from.



Software Mechanics:

The core system of **ESplan**® is a 2,5D AutoCAD® similar CAD Core with interface to AutoCAD® data format DWG/DXF in/out. It allows parametric constructions in selectable units and scales. The dimensioning system works associatively and layer techniques are fully supported. The coordinate system supports freely selectable project sheet sizes. In data import via DWG, layers, blocks, fonts and attributes are recognized and managed. AutoCAD® Imports are managed in Model and Paper space mode. AutoCAD® 3D Files can be loaded with different camera viewing views. The DWG data export is UNICODE so the exported plan can also be displayed in non-latin languages.

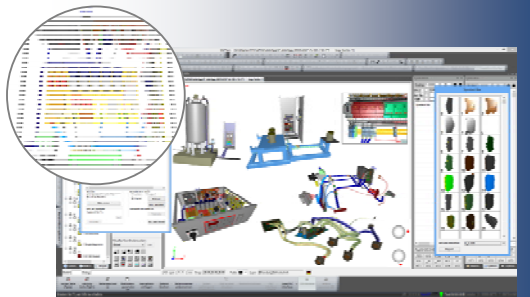
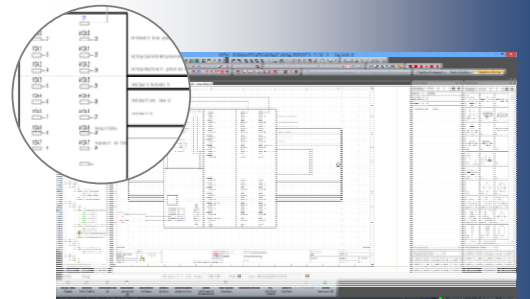
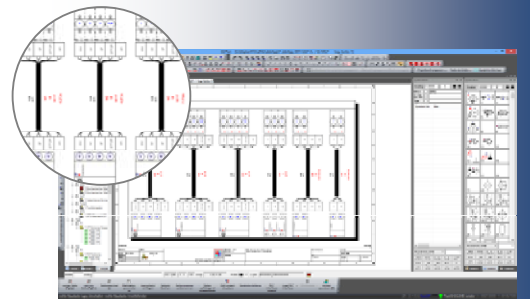
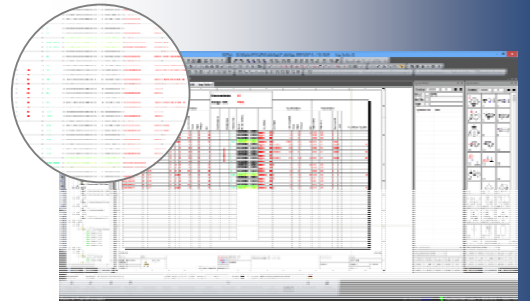
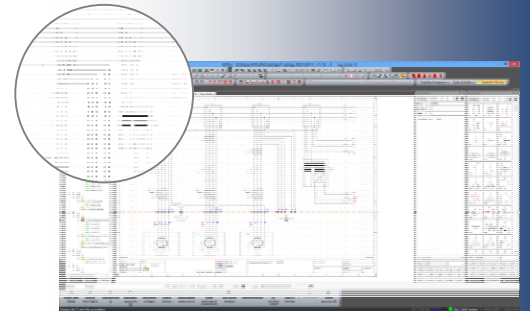


AutoCAD® is a registered trademark of Autodesk.

Functional extraction .

Functions:

- 2,5D CAD - full-fledged 2.5D CAD (self-developed over 30 years of experience)
- Data security – 100% upwards compatible since the first version
- DWG / DXF - Exchange (Layers, Areas, Administration, Icons, etc.)
- Process Engineering – flow diagrams, R & I, Functional plans, etc..
- Process control technology - PLT NE150 Interface Based on the <AutomationML/>
- Fluid – Hydraulics and Pneumatics
- Process automation designer - complex Project structures, Switching data generator
- Hardware-oriented - one-wire Cable connections
- Multi-wiring - Complicated wiring of multiple wire connections
- CircuitCleaner - Project checker for logical, functional project control
- integrated PDM - Linking project accompanying data
- Audit Management – Audit administration with list and image data storage
- Language Management – Translation System in Languages with Lexicon (UNICODE)
- Law management - UPM - Use Police Management, Administration of user rights
- Planning. Resources: Symbols, Macros, Page and Project copies
- Freely definable grid in X, Y and switchable grid, any sheet size
- Project structure editor for the processing of plant / site (project) structures
- Automatic creation of tabular terminal diagrams and DIN Terminal diagrams
- Business list (BOM), Step list, Summary list
- Cable connection plan and Cable plan
- Occupancy control of distributed devices (Contactors, Potentials, Demolitions, etc.)
- Terminal and Block terminal management with graphical Terminal display
- Material-/Article data
- Device box function for the immediate creation of black boxes in the plan
- A/O Box Creation: Creation of further A / O identification on the drawing page
- Free creation of Symbols, Macros and Drawings
- Parametric design in scales and units
- Switch cabinet module 2D
- Planning type via Parts list
- Device tag Explorer Bar with navigator and search filter via A / O device tag
- NVG Symbol technology for interdisciplinary planning
- Measuring point / function list with evaluation via BOX definition
- Life Cycle Revisions management DB EN 15016
- Device / Label management with export
- ODBC ADO Interface (Connection databases, ERP, PPS, PLM etc.)
- PLC - Interface (Im-/Export E/A Texts)
- PLC - Symbol generator, Assembly Manager and Function list
- PLC - Management for the numbering of PLC bytes, Module-independent
- DWG Export to AutoCAD® 10 to 2013 with Project-specific Page description
- 2,5 D CAD Core (Similar to AUTOCAD®) with dimensioning
- ESP-Fonts, Windows-TrueType, ESP-Vector- Fonts, AUTOCAD® SHX Fonts
- Predefined and free sheet size selection, Horizontal and Vertical
- ISO construction support in Signs and grid functions
- ...



System requirements:

- | | |
|--------------------|---|
| Operating Systems: | Windows Vista, 7/8/10, (32/64 Bit) |
| Hardware: | Commercially available PC, Mouse, Keyboard |
| Screen: | at least 2 GB of Memory
> 2,6 GB Hard disk during installation
> 500 GB Working hard disk |
| Processor: | at Pentium IV / 2,6 GHz or compatible |

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