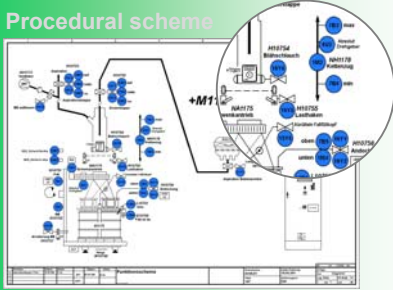




3D Mechatronic Modeller

3D Control cabinet assembly with routing.
3D Device Engineering validation with cable harness assembly.
3D Plant and machine cabling with routing.

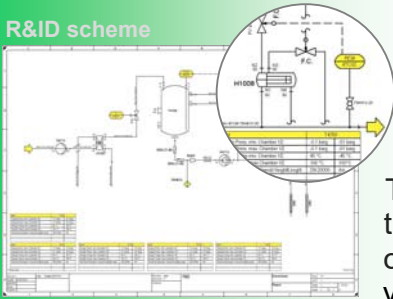
Procedural scheme






Media break free, integrated planning and configuration with  & . The faster route from the circuit diagram to the virtual 3D model for automated production.

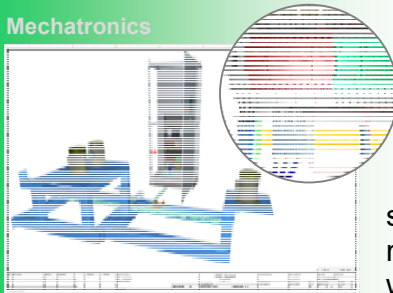
So you will remain also competitive tomorrow!

R&ID scheme






Rationalize your control cabinet design and control cabinet construction now with  & ! Who can tell beforehand whether 500 pages of circuit diagram fit into one or two cabinets and which accessories are actually needed? Use  to validate quickly. Commissioning dates and production costs become more predictable. The expert no longer wastes his competencies, by empirically determining the device placement and wiring a control cabinet according to the design of the circuit diagram! Integrate this competence into the planning, and then you win twice!

Mechatronics

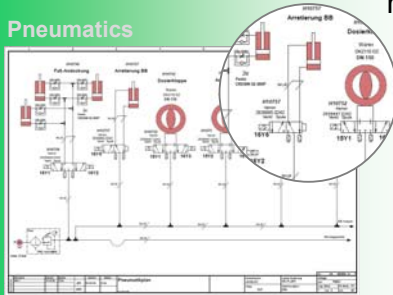


 &  the modern solution for innovative Companies.

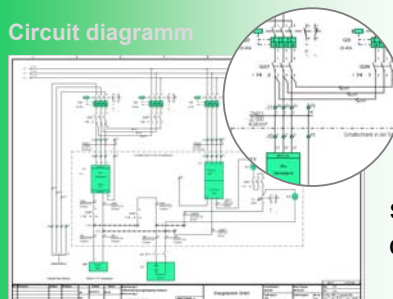
 uniquely connects the 3D mechanical design world with electrical Engineering to a mechatronic virtual product and in addition to many validations makes all essential manufacturing data possible. You see your virtual product in front of you, there is no here and again, here the reality speaks make use of this professional solution! For this purpose, all we-known 3D CAD formats are supported by an important 3D manufacturer component such as Control Cabinets, Symbols, etc. for assembly and cabinet assembly. If a Symbol is missing, this can be easily created using  on-board tools. These Objects are managed in  Symbol and Macro-libraries. Once made they are permanently usable.



What is need to perform a virtual Modelling?

Pneumatics



Circuit diagramm



The circuit diagram created with corresponding device article data in  is checked with the Circuit-Cleaner! This allows you to continue seamlessly and build your Model. Thee 3D Control Cabinet in the native format or as a step file from the manufacturer these are generally offered by the manufacturers. The 3D Hardware symbols of part servers of the manufacturers e.g. CADENAS Trace-Parts etc. or even created with  and already you are there...

The **Espace**® system modules.

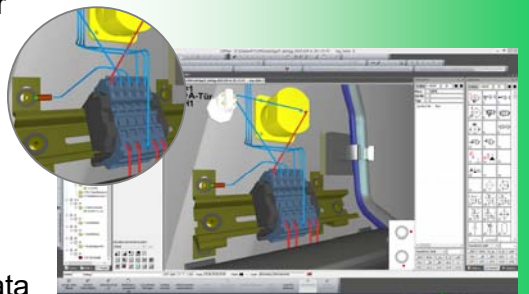
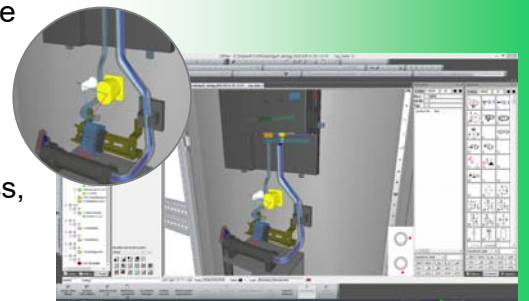
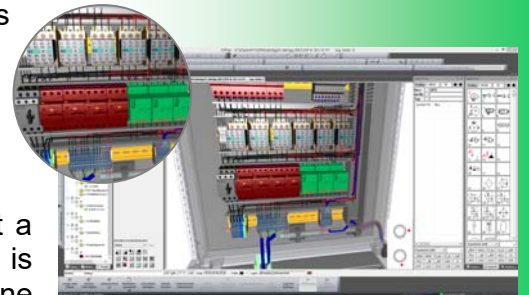
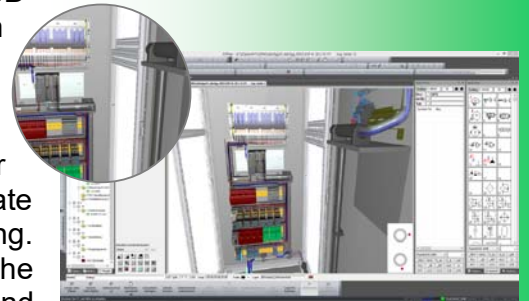
Let's start with the routers, yes it's right, **Espace**® offers three router techniques for three different applications! The heart of **Espace**® are the device tag controller the router and the routing designer.

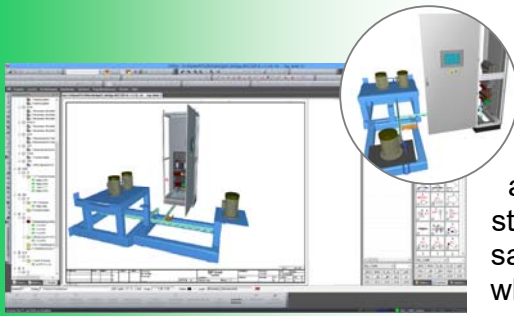
Using the control cabinet as an example, **Espace**® offers a **3D Street-Mesh Router**, which is precisely tailored to these tasks in order to route the switch cabinet intelligently and fully automatic routing routes from source via cable ducts or room are as to the destination. This router works intelligently. It is able to calculate all possibilities of the cable route management in a timely or cost-controlled manner and to inform you that the appropriate routing levels and the set runtime costs can be used for 3D routing. All routed lines are displayed with real cross-sections in 3D in the cable channels or guides. In this way and absolutely accurate and suitable cable, routing is achieved with our unpleasant surprises occurring during the subsequent laying. No one-line displays are generated with **Espace**®! The **Espace**® Routing-Debugger provides quick help if the router cannot route one more lines.

Using the example of a machine cabling it is quickly clear that a different cable-laying concept must be produced here. This is about routing cables to Motors, Sensors, etc. in a 3D machine model. With the help of a **Cablerouter-Router** as well as the **Espace**® **Cablerouting-Designer** the most complex cable routing systems can be generated or constructed quickly. **Espace**® offers perfect robe and spline techniques and their processing. These techniques as we offer them do not appear in any classical 3D CAD system. In the routing and routing process, all line data are calculated by the systems.

If the design goal is to engineer virtual devices with boards or boards and to cable them mechanically one quickly reaches cable trees. **Espace**® offers a further **routing and routing concept** In particular **Espace**® offers a new way of designing high-precision cable harnesses for the mechanical construction of a cable construction mechanic (nail board).

The **Espace**® device tag Controller accesses the shared data base of **ESplan**® device data and connection data and controls all the fixtures in the model. The device tag Controller is the central control centre for many actions in **Espace**®.





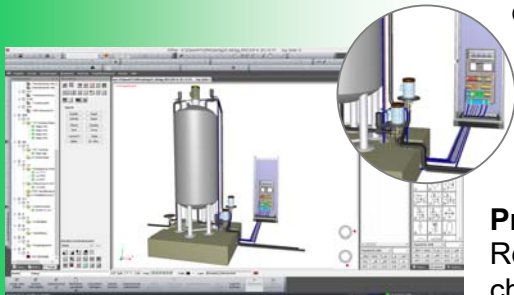
ESpace® works with the help of a very fast automatic component assembly process based on a freely designable and workable placement profile. In this process, you achieve the highest placement comfort with top performance. In addition, this process offers the possibility of quickly obtaining standardization in the construction of skilifts without having to sacrifice individual design. As a rule, max. 6-10 assembly profiles, which are used with various different plandatas as mounting plate assemblies. In addition device installation. This is much easier than the classic method. In this way, complete models can be saved as Macros with fixed device positions for future use.



Cable stripping parameters, cable end stop object and CO.

With the aid of a device database, device pin-related parts such as wire end ferrules can be taken from these the article data can be extracted therefrom the insulation lengths for wire expanders as well as cable data export can be provided so that fully automatic cable manufacture can be performed without these expenses.

The device database has an import interface through which mapping of various manufacturer artisans can be integrated for this requirement.

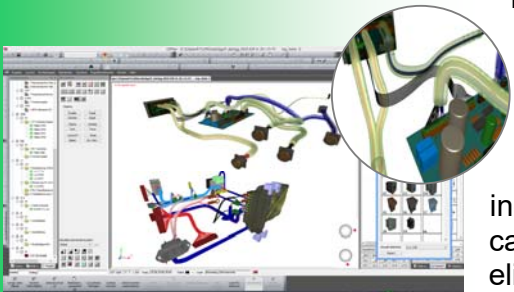


Profitability and added value.

Reducing throughput times and saving costs is the everyday challenge of a manufacturing company. **ESpace®** supports you as a key building block on your way to the solution. **ESplan®** and **ESpace®** is the first comprehensive software solution to work with the workflow in the sense of mechatronics, based on common development and data.



Costs: The cost of acquisition costs and training expenses per workplace license is manageable and cost-effective. Depending on the requirements the training takes between 2 and 5 days to work immediately afterwards. The installation and implementation is possible in a few hours through standard interfaces.

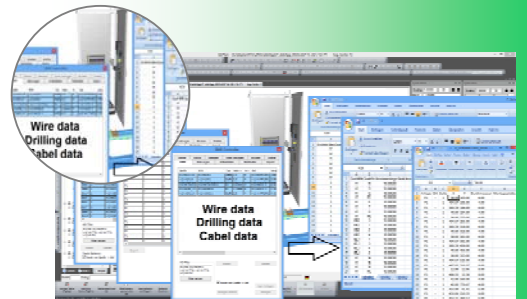
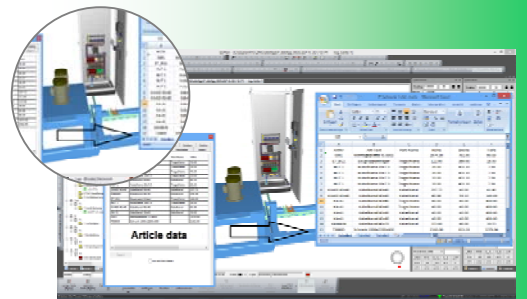
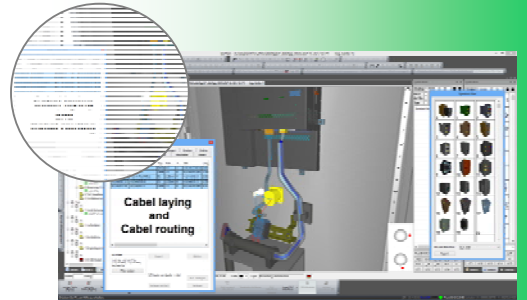
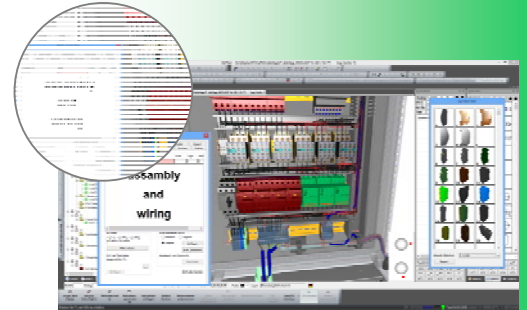


Your benefit: The combination of work processes considerably reduces throughput times and increases the productivity increase. Massive time savings of up to 90% are possible with the cable assembly, cost reduction by validation virtual prototypes, elimination of multiple work, data consistency for error prevention and communication flow without information break through transparency. All in all, savings of up to 30% of the total product development process can be assumed. The amortization is carried out within a few months.

Functional extraction & .

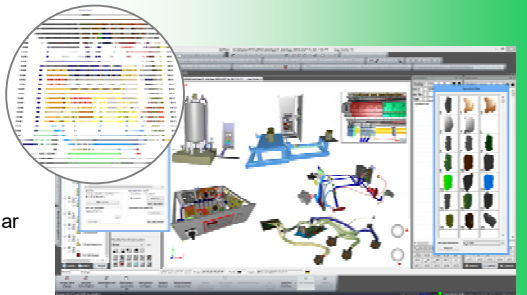
Functions:

- 3D CAD - Full 3D CAD (self-developed over 30 years of experience)
- Switch Cabinet-Router
- Cable routing-Router
- Cabel and wire way - Designer
- Control Cabinet-Wiring
- Plant-Machine-Wiring
- 3D Street-Network Routing (Street Mesh Routing)
- Fill level controlling, Collision Check, restricted areas
- 3D Cable routing Cross-Section / Color-Controlled
- Routemesh Debugger
- 3D Cross-Section dependent line / Smoothing function
- Manual Line post processing with calculation
- Free-Hand Cables, Copper, Hose, Envelopes with calculation of the length
- Espace® device tag controller is the Controll-Center for in- / expansion and Routing
- Fully and semi-automatic layout system, Plandata supported and monitored
- 3D Part list, Step list and Piece list export
- Support rails, Cable ducts, Mounting plate, Holder, Accessories
- Dimension, Article number
- Layout with data
- Device tag for Wire and Cable
- Drilling data export
- Export of Hose and Copper pipe data
- Material database (Wire end ferrules, Length order data...)
- Device tag, Article data, Total length, Part length, Diameter
- Router & Controller Import interface
- Specialization of bars (allocation of accessories)
- System-neutral Import format for reading external CAE Device and Connection data
- Object positioning of 3D symbols, Macros, Models
- 3D Character functions, Boolean functions, Editing
- 3D Grid and Jump freely adjustable and switchable
- Icon and Macro creation with administration
- 3D Feature-TreeManagement
- 3D BUS-Technology
- Orbital and Single Axes Camera Management
- Material and Color assignment of 3D objects
- Modell View: 4 views Synchronized or Single view
- High-resolution screenshots, Photos of the scene, Model print in the drawing frame
- 3D Converter for Importing all known 3D CAD native formats
- Large Model memory Management 64bit
- Logscript Commands (Interpreter Language) to the generator-supported Mounting plate assembly
- Neutral Output format for Controlling any Machine
- Data export interface formats: Office Excel and CSV and Access
- ...



System requirements:

- Operating Systems: Windows Vista, 7/8/10, (32/64 Bit)
 Hardware: Commercially available PC, Mouse, Keyboard
 Screen: at least 8 GB of Memory
 > 15 GB Hard disk during installation
 > 500 GB Working Hard disk
- Processor: from Intel® Core™ i5 oder compatible / 2,6 GHz or compatible
 Graphic Card: we recommend a 3D Graphics Card from the NVIDIA Quadro series o similar



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