**Using item MotionDesigner® for training**

**Understanding linear technology
thanks to an item online tool**

**Which drive technology is the right one for my transport task? How high should the repeatability be and what does the motion profile look like? Automation systems usually have to meet a complex set of requirements. These can be easily defined and met using item** [**MotionDesigner®**](https://www.item24.de/en/customer-solutions/configurators.html)**. The online software guides users through the process of selecting and designing linear units while at the same time imparting important know-how about linear technology and providing clear answers to fundamental questions. A methodical approach and a logical progression of steps simplifies the workflow in the software, making it an ideal introduction to linear technology and a helpful training aid.**

item MotionDesigner® is the digital selection and design tool for item linear technology. The intelligent software sifts through thousands of possibilities to calculate the perfect combination of Linear Unit, Motor and Controller, resulting in a turnkey solution that is perfectly tuned to the user’s specific requirements. The system queries and analyses all the necessary technical details and the circumstances of the intended application. “Parameters that go much further than straightforward technical details and have been determined in comprehensive calculations and measurements are also built in,” explains Uwe Schmitz, product manager for machine automation at item. “The software taps into this specialist expertise so it can suggest the perfect solution in the shortest space of time.” During the selection and design process, item MotionDesigner® imparts useful know-how on the basics of linear and drive technology. Users discover which components in which dimensions are relevant for the automation solution and which details need to be defined. The software sets the focal points and breaks down the configuration process into separate sections.

**A methodical approach that imparts the all-important basics**

To achieve the optimum design for their [automation solution](https://www.item24.de/en/productworld/automation.html), users formulate their transport task in a simple and intuitive dialogue with the intelligent software. This guides them step by step through the various sequential sections, starting with selecting the Linear Unit and building all the way to compiling the project documentation. This structured approach creates clarity and ensures users can engage closely with individual focal points during the design process. Important basic expertise is imparted almost as a side-effect. Users gain an insight into which drive type, motorisation, control system, gearbox and drive sets might be worth considering to find the right solution for a specific automation task. Additional information and definitions can also be viewed at numerous points when parameters need to be adjusted or technical data recorded. For example, repeatability and duty cycle are defined and the functions and tasks of encoder systems are explained. Among other things, general information and tips like these give users a deeper understanding of the material at hand and enable them to get to grips with specific aspects of linear technology in close detail.

**Step-by-step to the result**

item MotionDesigner® guides users step by step through the configuration process. In the very first step, users decide whether to choose from a list of products or carry out a detailed configuration. If they take the first option, they need to enter a number of details then choose the Motor, Gearbox and Controller they want from a selection of suitable components. When following the route of a detailed configuration, item MotionDesigner® will lead the user through all the steps in the configuration, asking specifically about the general circumstances of the application, the mounting arrangement, load and carriage movement. item MotionDesigner® then recommends the most suitable item linear motion unit®. The result is thus the ideal combination of Linear Unit, drive and Controller. So how does the step-by-step design process work? Users who select the “Detailed configuration” option are asked to choose between an individual Linear Unit, cantilever axis and synchronous axis. In the next step, they specify the general circumstances for the application. For example, the smart software asks them to enter the repeatability that is required, the drive technology that is desired and the electrical power supply at the place of use. Users also need to input details regarding the encoder system, environmental conditions and the technical parameters of service life and duty cycle. The next step is to specify the mounting arrangement and orientation of the carriage. After that, users define the motion profile. item MotionDesigner® then makes recommendations on the item linear motion unit® based on the motion and load profiles entered and precise calculations. The next task is to define the assembly position. This is where users determine the position of the drive components and the arrangement of the Gearbox and Motor and specify whether the Controller is to be supplied parameterised. At the final stage, users once again have the option to specify the basic components they want and can also select additional Controller accessories and necessary Cables. If required, the program creates detailed project documentation, supplies CAD data and generates a configuration file that can subsequently be transferred to the commissioning software item MotionSoft®. The only thing left to do is add the configured products to a cart so they can be ordered directly.

**Configuration with maximum learning effect**

Users benefit a great deal from the methodical approach used in the configuration process and the numerous tips and help functions in the tool. They are given important pointers that help them interpret data and facts accurately. Clear drawings and graphics are also useful in ensuring users can get to grips with the subject matter. Where specific values need to be entered, the software limits the range for possible entries so that only viable figures can be inputted. For example, the stroke length must be between 0 and 5820 mm. Presettings such as these also make incorrect entries a thing of the past. This prevents the task from becoming unnecessarily complex and minimises the risk of design flaws. If individual parameters are changed, new scenarios are produced in the space of a few seconds. “Compared to item MotionDesigner®, other systems on the market take a lot longer to perform calculations after a value has been changed,” says Uwe Schmitz. “When working with those solutions, users tend to avoid making changes, while our software ensures they can easily and quickly experiment, try things out and compare different approaches.” Example applications and learning content that have been created in the software can be saved and reopened as many times as required.

**Teaching plans and exercises compiled in no time**

item MotionDesigner® is a free browser application. Users’ IT systems don’t need to meet any special requirements in order to run it. The intelligent selection and design tool is always up to date and available directly online with nothing to download. It can therefore be easily integrated into webinars and video conferences. This means participants can follow the individual steps involved in configuring Linear Units from anywhere. “item MotionDesigner® is not just a software solution that considerably simplifies and speeds up the configuration of linear systems,” points out Schmitz. “It is also an online tool that is ideal for training purposes.” For example, teachers and lecturers in training workshops, vocational schools and company training facilities can use the tool to introduce the basics of linear technology. Teaching plans can be based around its logical structure, starting with the definition of a Linear Unit, the general circumstances of such applications and the fundamentals of the technology, then going on to describe individual components and accessories, before concluding with final documentation in line with machinery directives. The direct practical correlation serves to extend and consolidate teaching content. When using item MotionDesigner®, teachers don’t need any additional materials to plan their lessons, whether they are explaining drive and guidance technologies or the influences of static and dynamic aspects, for example. Students also benefit, as they can use the tool at home, or anywhere else, to extend their knowledge.

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**Caption 1:** item MotionDesigner® helps with the selection and design of Linear Units and imparts important specialist know-how about linear technology.

**Caption 2:** When selecting the “Detailed configuration” option, users choose between an individual Linear Unit, cantilever axis and synchronous axis.

**Caption 3:** Users benefit a great deal from the methodical approach used in the configuration process and the numerous tips and help functions. This means they can access information on repeatability, drive technology, the encoder system and technical parameters when specifying the relevant circumstances.

**Caption 4:** The program compiles detailed project documentation.

**About item**

item Industrietechnik GmbH is the pioneer in building kit systems for industrial applications and a partner of the manufacturing industry across the entire globe. Today, the item product portfolio comprises more than 4,000 high-quality components designed for use in machine bases, work benches, automation solutions and lean production applications. The company has received a string of awards for products with ground-breaking industrial design and end-to-end ergonomics.

item is spearheading digital engineering by driving forward the digitalisation of processes with software tools developed in-house. The item Academy offers training at various levels with on-demand training and online courses available in multiple languages.

Headquartered in Solingen, Germany, item has subsidiaries in various countries. Some 900 employees worldwide harness their know-how and passion to develop innovative solutions and services. Twelve sites make sure the company is always close to customers in Germany, with a global logistics chain ensuring swift delivery times for all components.

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