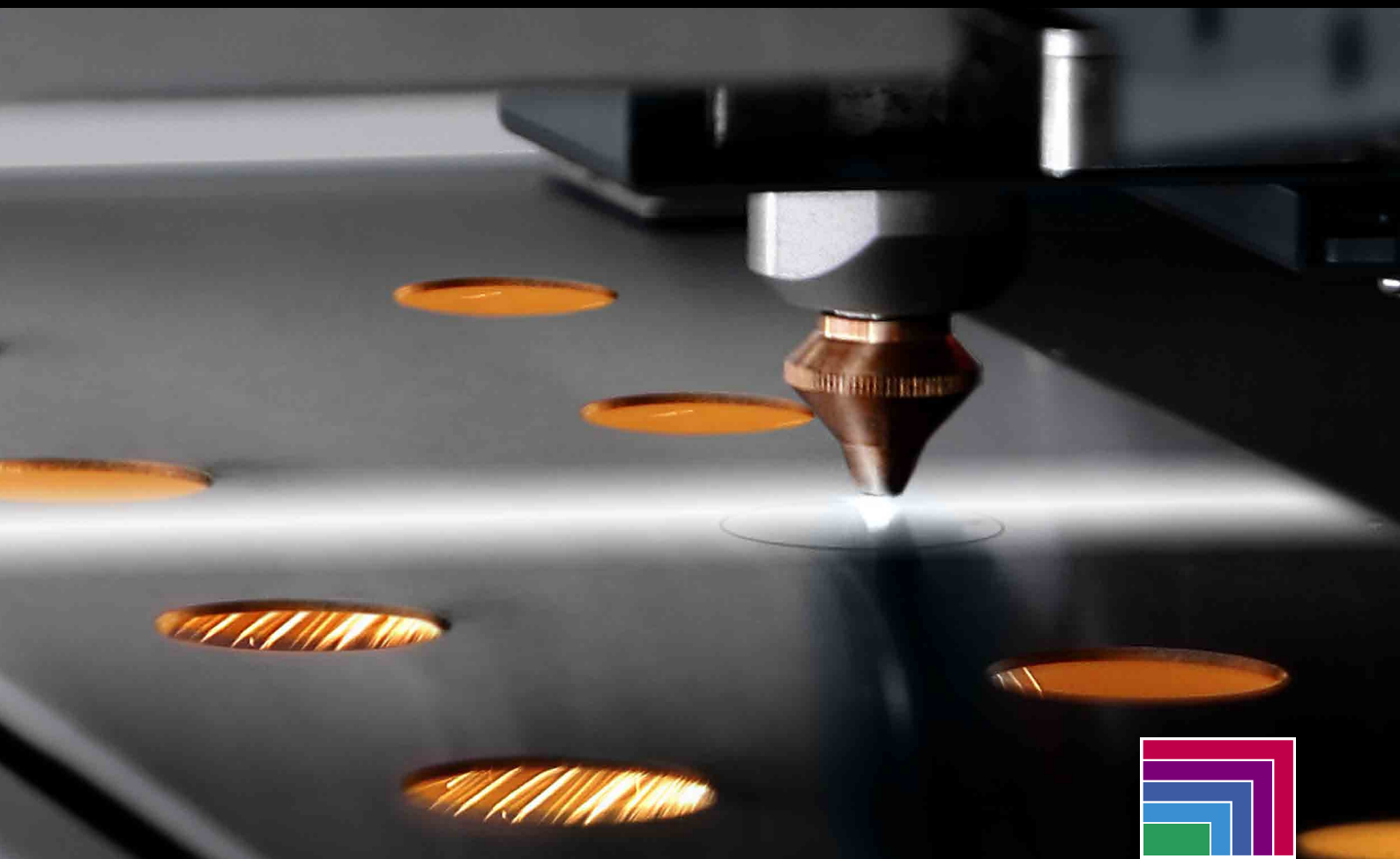
Rittal – The System.

Faster – better – everywhere.

Rittal Automation Systems

Future-proof panel building and switchgear manufacturing



ENCLOSURES | POWER DISTRIBUTION | CLIMATE CONTROL | IT INFRASTRUCTURE | SOFTWARE & SERVICES

FRIEDHELM LOH GROUP

Because investments have to make a solid return



“Automation of our processes is a key element in securing our future.”

Maximise value creation sustainably

The demands on many manufacturing companies are changing: they have to produce more and often also different product options and always with ever better quality as well as faster and cheaper. So what does this major challenge mean for panel builders and switchgear manufacturers?

For short-term success, it may be enough to mechanise individual machines and processes. However, medium and long-term success is only possible by upgrading the entire process chain.



Seamless
automation reduces processing times
by up to
85%

Automation is the key to future-proofing
The panel building and switchgear manufacturing sector needs comprehensive digitalisation and automation if it is to keep pace with the demands of smart factories and Industry 4.0.

As leading partners to panel builders and switchgear manufacturers, Rittal in association with Eplan offers complete end-to-end system solutions for all processes from a single source.



Powerful allies: Rittal and Eplan

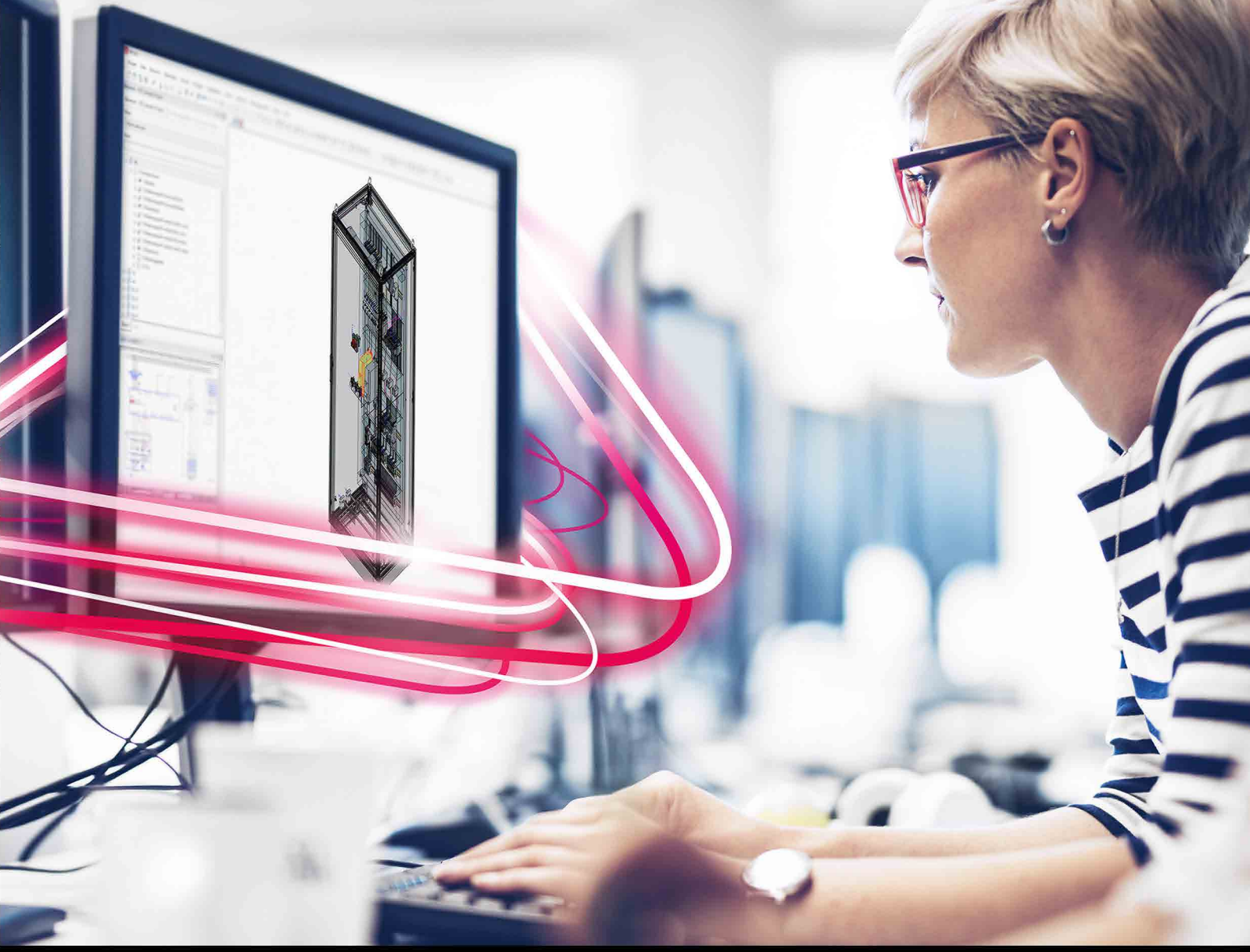
End-to-end digitalisation with knowledgeable and experienced partners

Automating and optimising manual working processes in panel building and switchgear manufacturing helps enhance quality and increase productivity. This approach relies on digital integration and digital continuity throughout the entire value chain.

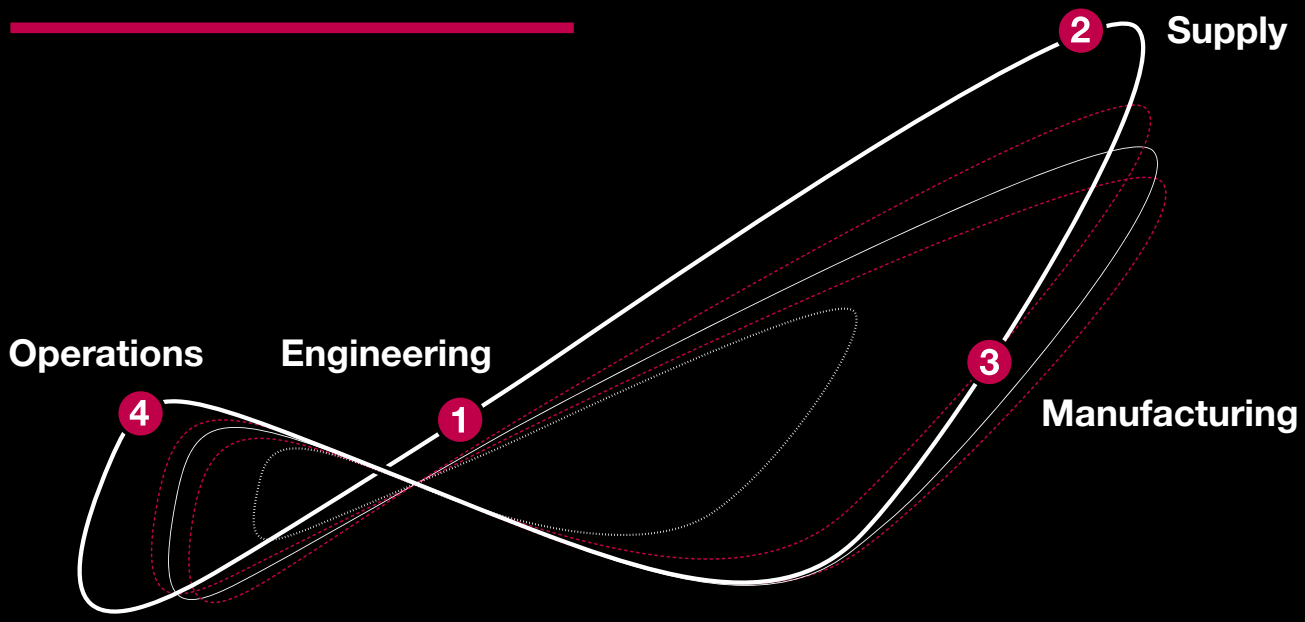
We optimise and mechanise every stage in your value process, from engineering, purchasing and manufacturing, through to operations and servicing. This leaves you free to actively focus on driving forward your business and positioning yourself for the future.

Further information:

www.rittal.com/manufacturing



Data continuity and consistency
in the value process





Seamless digital production processes

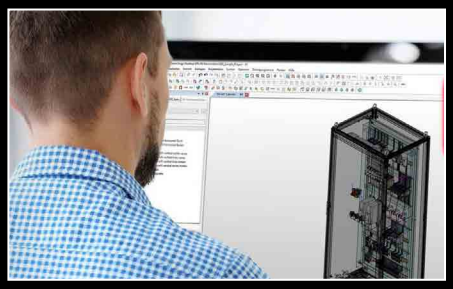
Consistent optimisation of quality and organisation

In collaboration with Eplan, Rittal offers a seamless digital solution for the efficient management of production and machine orders. This helps to shorten throughput times, reduce errors and significantly reduce the overall costs.

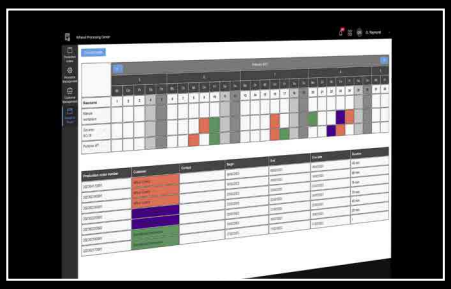
- **Planning/design:** The data from the digital twin developed at the design stage is transferred to the job management system in the RiPanel Processing Center via direct interfaces.
- **Pre-production:** The job management system transfers all production-relevant documents to the machine processes for each specific project. This helps to boost planning reliability and optimise your processes.
- **Production:** The data transferred from pre-production is used by the workstations to ensure efficient project management of each specific task.

Integrating the equipment into the digital processes is a vital step.

From design to manufacturing at the push of a button



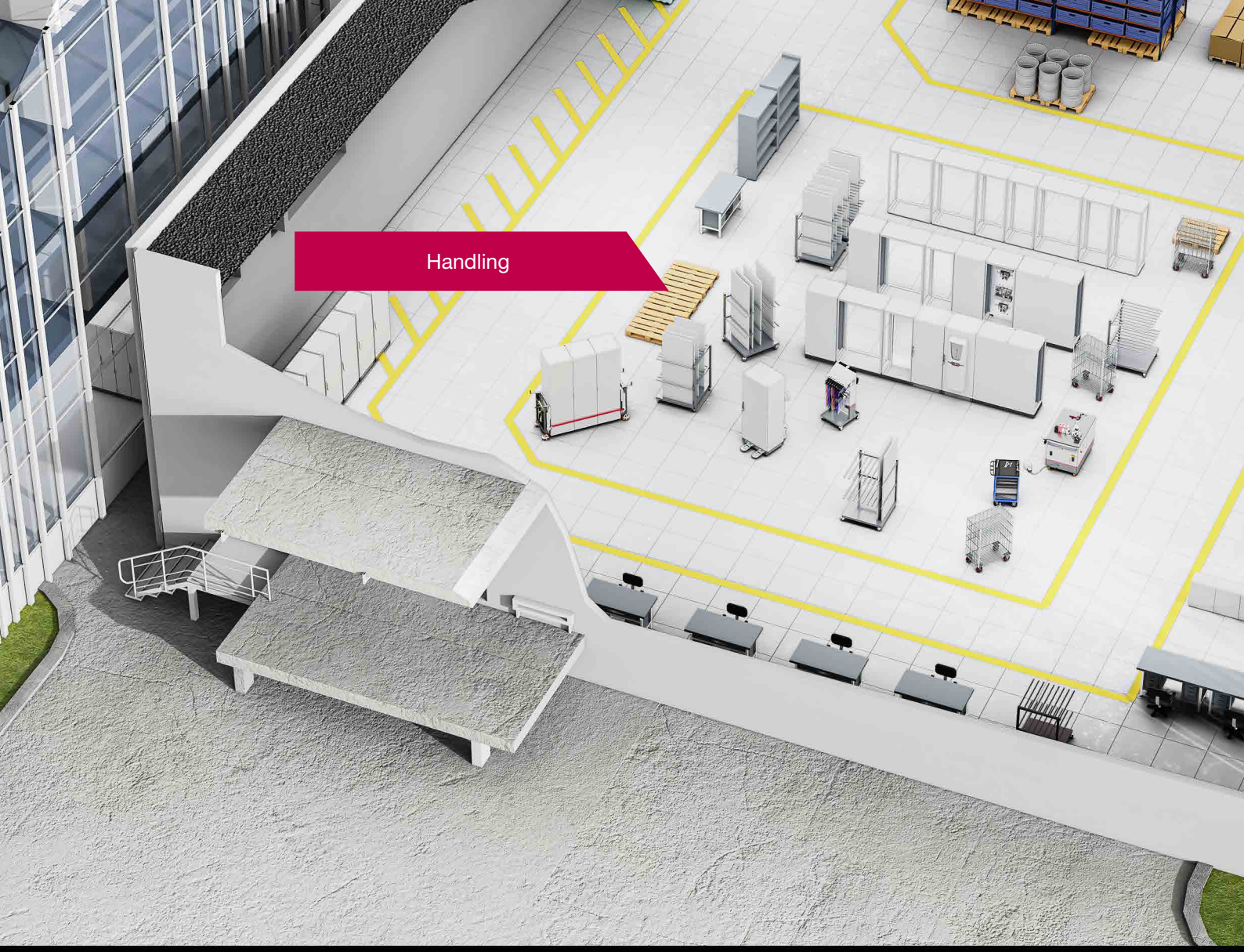
Design
The digital twin is developed using Eplan engineering tools and Rittal configurators and includes all production-relevant data.



Pre-production
Simple, centralised planning of resources and production orders for manufacturing is carried out using the RiPanel Processing Center with its state-of-the-art order management and layout tool.



Manufacturing
The systematic use of digital data in machining and wiring offers a host of benefits and eliminates the need for programming work on the machine.



Punching
See page 10/11

Milling
See page 12/13

Laser machining
See page 14/15

Component cutting
See page 16/17

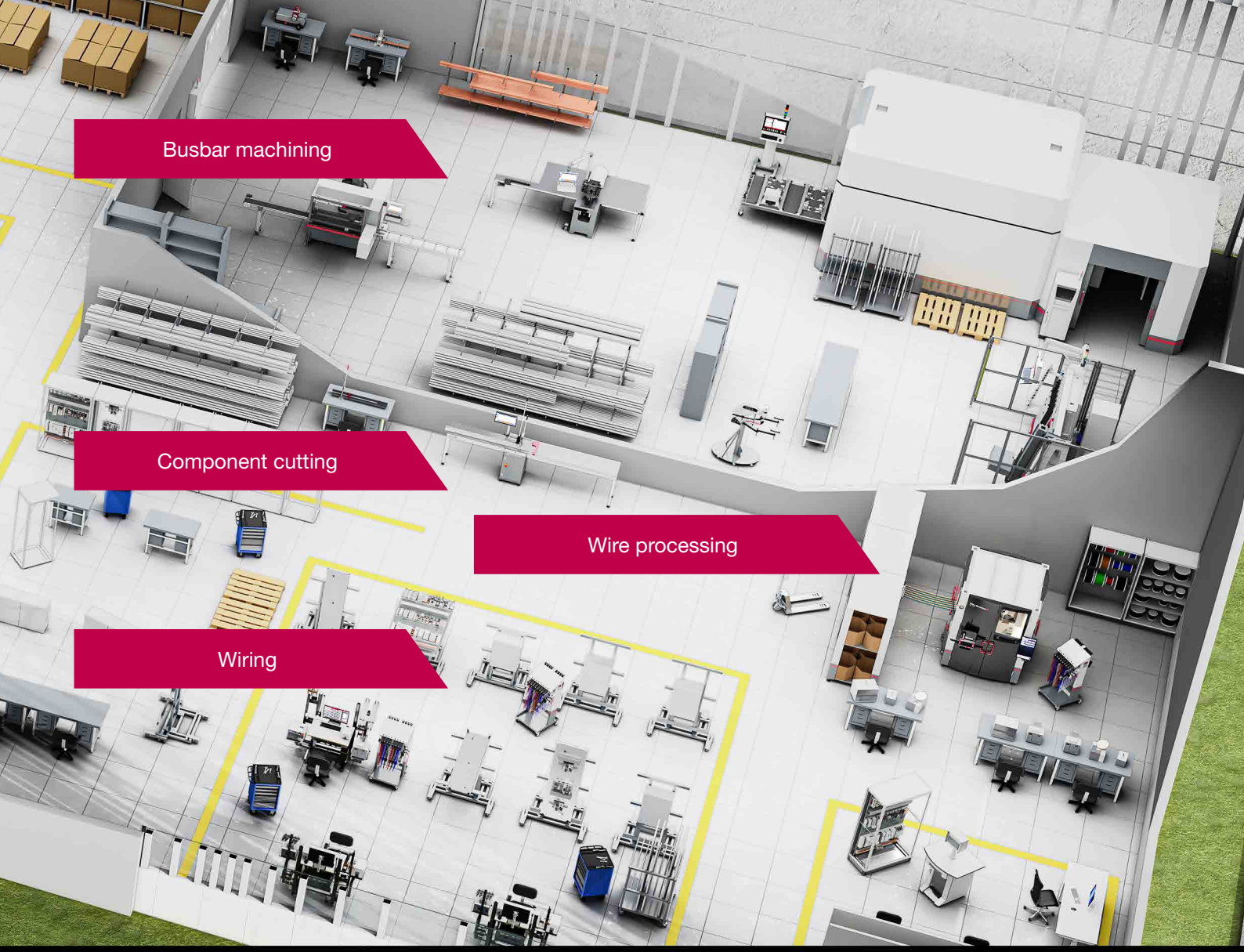
Busbar machining
See page 18/19

Automating panel building and switchgear manufacturing

Helping you forge ahead step by step

The solutions offered by Rittal Automation Systems cover a whole host of individual processes and the entire manufacturing spectrum – from manual tools to fully automated mechanical engineering.

- **Our machines** for the mechanical processing of metals work fast, accurately and highly efficiently.
- **Thanks to automated solutions** for wire processing, we deliver enormous efficiency gains.
- **Our ergonomic handling tools** optimise process steps in manual activities.
- **We offer tailored advice**, bespoke solutions and flexible financing options for each next step in your automation journey.



Component mounting
See page 26/27

Wire processing
See page 22/23

Wiring
See page 24/25

Handling
See page 26/27

Manual tools
See page 28/29

Further information:

www.rittal.com/ras

Rittal Automation Systems –
the simple route to automating and industrialising your panel building and switchgear manufacturing.



Punching: AP 400 stationary punching machine

For rapid punching of cut-outs without pre-drilling

Manual pre-drilling is time-consuming. This is exactly where the AP 400 comes in. Using the hydraulically operated stationary punching machine speeds up your manufacturing processes and increases your productivity.

Workers can use the semi-automatic AP 400 to punch cut-outs into enclosure housings, enclosure doors or mounting plates with speed and precision. Powered by 600 bar, the machine can effortlessly punch round, square and rectangular cut-outs into sheet steel, stainless steel, aluminium and plastic. Special shapes are also possible. Thanks to the rapid tool change, operators work efficiently at all times, even at the extreme edges.

Further information:

www.alfra.de/en/ap400

We reserve the right to make technical modifications



Maximum precision
A laser marks the centre of the cut-out that is to be punched out, providing absolute precision.



No sharp edges
A whole range of shapes and materials can be punched without burrs. Finishing is therefore no longer necessary and throughput times are improved.



Manual hydraulic punch
Round, square and rectangular cut-outs can be punched.



Milling: Perforex Milling Terminal MT

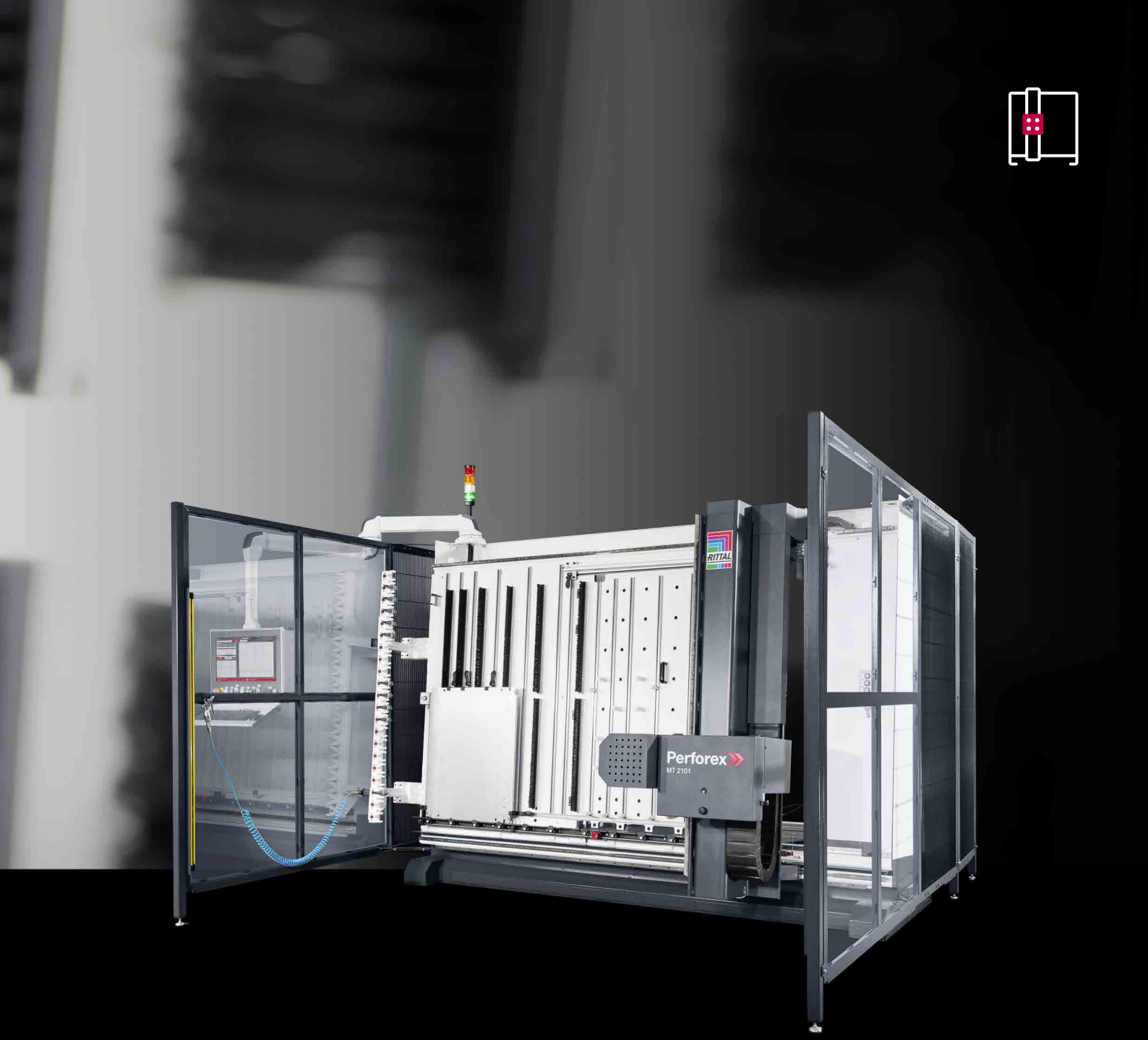
Minimise process times – and achieve maximum precision

Perforex Milling Terminals speed up machining of the smallest housings, panels and large enclosures significantly. These versatile drilling and milling centres are capable of handling all machinable materials, including spray-finished sheet steel and stainless steel as well as aluminium, copper and plastic.

A variety of interfaces support problem-free data transfer from virtually all standard CAD systems and planning tools, such as .dxf, Eplan Pro Panel, RiPanel Processing Center and the RiPanel configurator. The RiPanel Processing Center enables cutting-edge order management, including layout creation. This ensures a digital workflow and high efficiency.

Further information:

www.rittal.com/milling



We reserve the right to make technical modifications



Automated machining
With a fully automated tool changer and an integrated magazine for up to 21 tools, all work operations are completed in a single pass



Profitable even with a batch size of 1
With its simple, intuitive programming and option of remote maintenance, the machining centre guarantees a rapid return on your investment.



Top quality
A choice of operating modes and automatic tool calibration ensure perfect results every time.



Laser machining: Perforex laser centre LC

Rapid modifications, even in stainless steel

Perforex LC laser centres are ideal for automated mechanical modification of standard enclosures in stainless steel, sheet steel and powder-coated metals. Machining stainless steel enclosures is many times faster and there is no damaging of the cut edges. Even small and medium-sized panels can be machined, shortening the amortisation period still further.

What is more, the machining of spray-finished metal panels with intricate contours and mounting plates with tapped holes can be achieved without any visible damage to the paintwork. Contactless, low-vibration 3D laser machining boasts significantly shorter throughput times and enhanced productivity.

Further information:

www.rittal.com/laser-machining

We reserve the right to make technical modifications



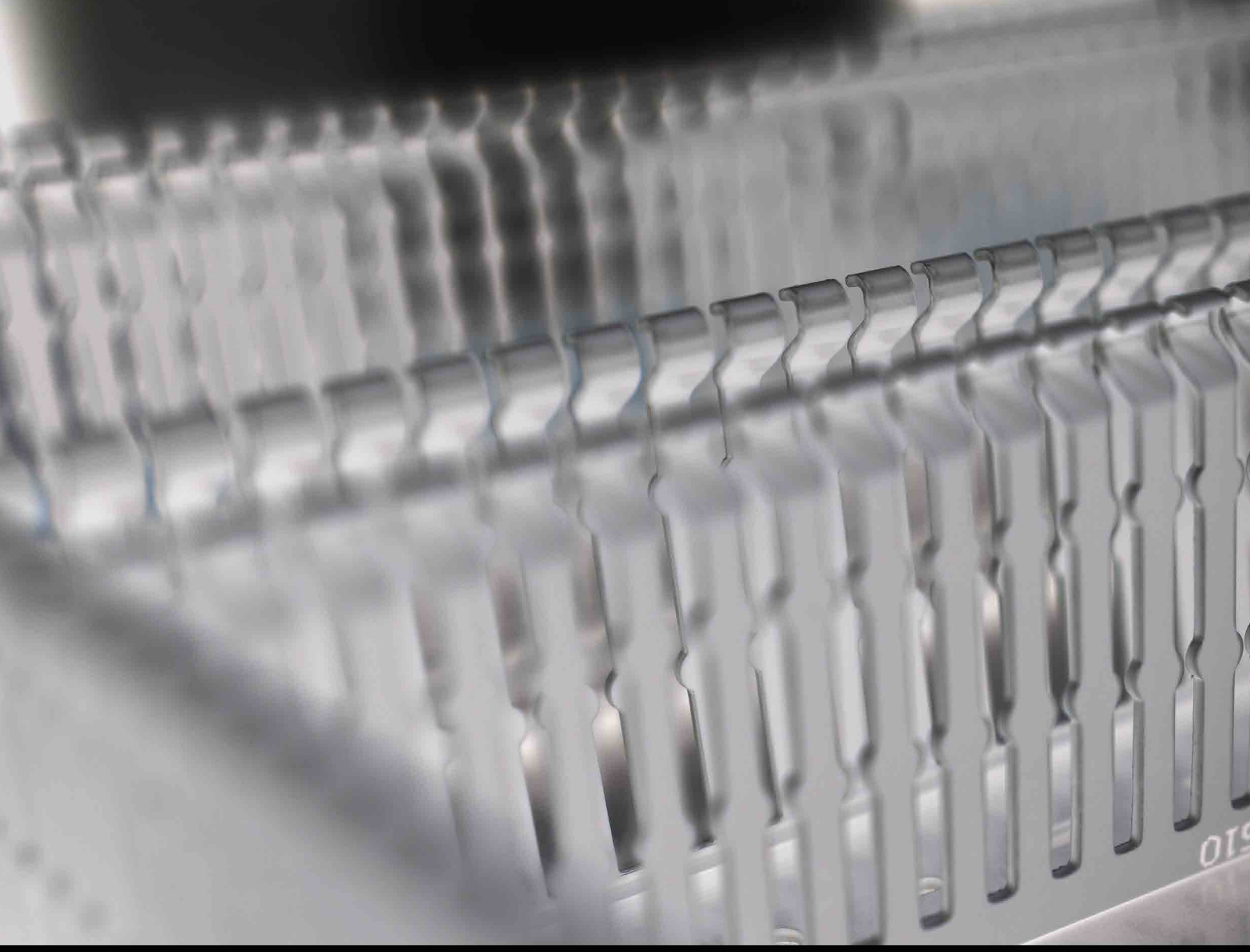
Highly efficient
Perforex laser centres can machine multiple components in a single operation and from five sides simultaneously, with minimal set-up and operating input.



Thread tapping option
The LC 3030 offers even greater flexibility with six thread sizes in the tool magazine and automatic change-over of the machine head.



Clean process
Fast, wear-free cutting, even in stainless steel, requires no coolants or lubricants and is exceptionally precise, eliminating the need for time-consuming rework.



Component cutting: Cutting Terminal CT

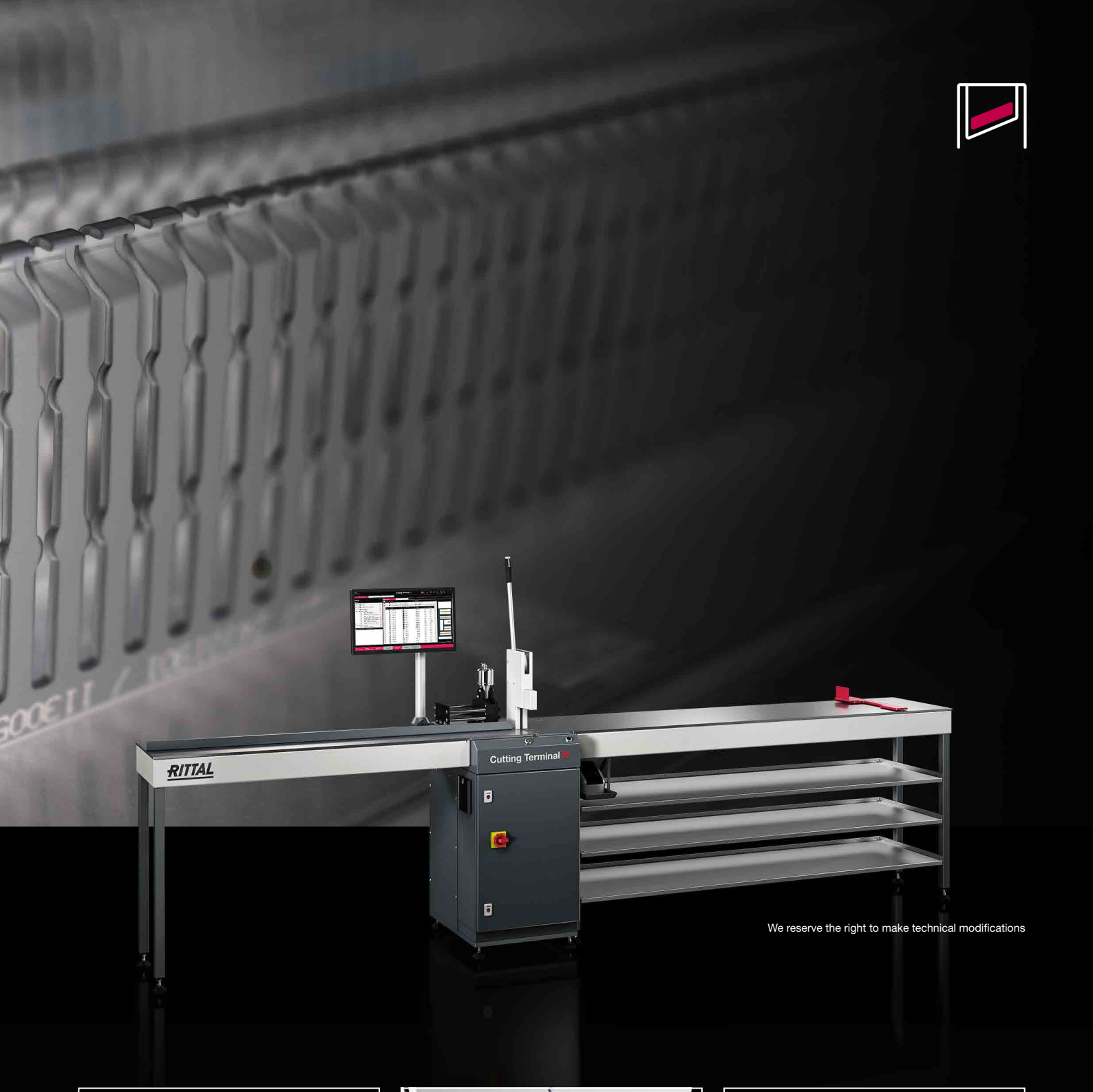
Precise length cutting with reduced wastage

Cut wiring ducts, cable duct covers and support rails to the precise length required with our new Cutting Terminal CT M and Cutting Terminal CT H cutting centres. The integrated manual cutting tools offer a user-friendly, simple and burr-free means of cutting to length. The Cutting Terminal CT H variant offers hydraulically supported cutting for DIN rails.

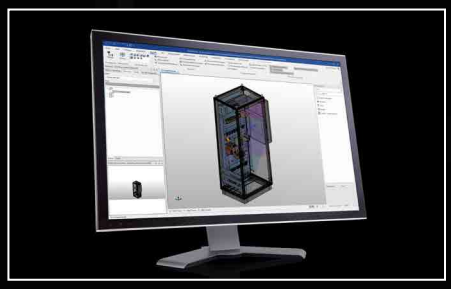
Data supplied from engineering plus automated end stops in the cutting terminal support the workshop process and ensure cut optimisation even across multiple projects. Full connectivity and data continuity from engineering through to the production processes delivers an integrated, cross-process product solution.

Further information:

www.rittal.com/component-cutting



We reserve the right to make technical modifications



Seamless data
The machine software supports data transfer from CAD systems and planning tools such as Eplan Pro Panel and RiPanel Processing Center.



Integrated hand tools
The tools enable a user-friendly, straightforward and burr-free trimming of cable ducts, cable duct covers and various DIN rail sizes.



QR codes for labelling trimmed material
QR codes are generated to label trimmed material. These can be read with Eplan Smart Mounting to ensure that positioning on the mounting plate is reproduced precisely.



Busbar machining: Punching Terminal PT S4

Smooth, reliable machining with modern, intuitive operation

The Punching Terminal PT S4 is ideally suited for entry-level automated busbar machining. Accommodating up to 4 tools with a quick-change function, this product solution allows you to punch and cut flat materials quickly and precisely to the required length. With powerful tool springs and correspondingly high retraction forces, even thick copper bars are punched extremely cleanly, so that no reworking is required.

The seamless data communication via Ethernet ensures professional machine monitoring and production analysis to boost your production efficiency.

Further information:

www.rittal.com/Punching-Terminal



We reserve the right to make technical modifications



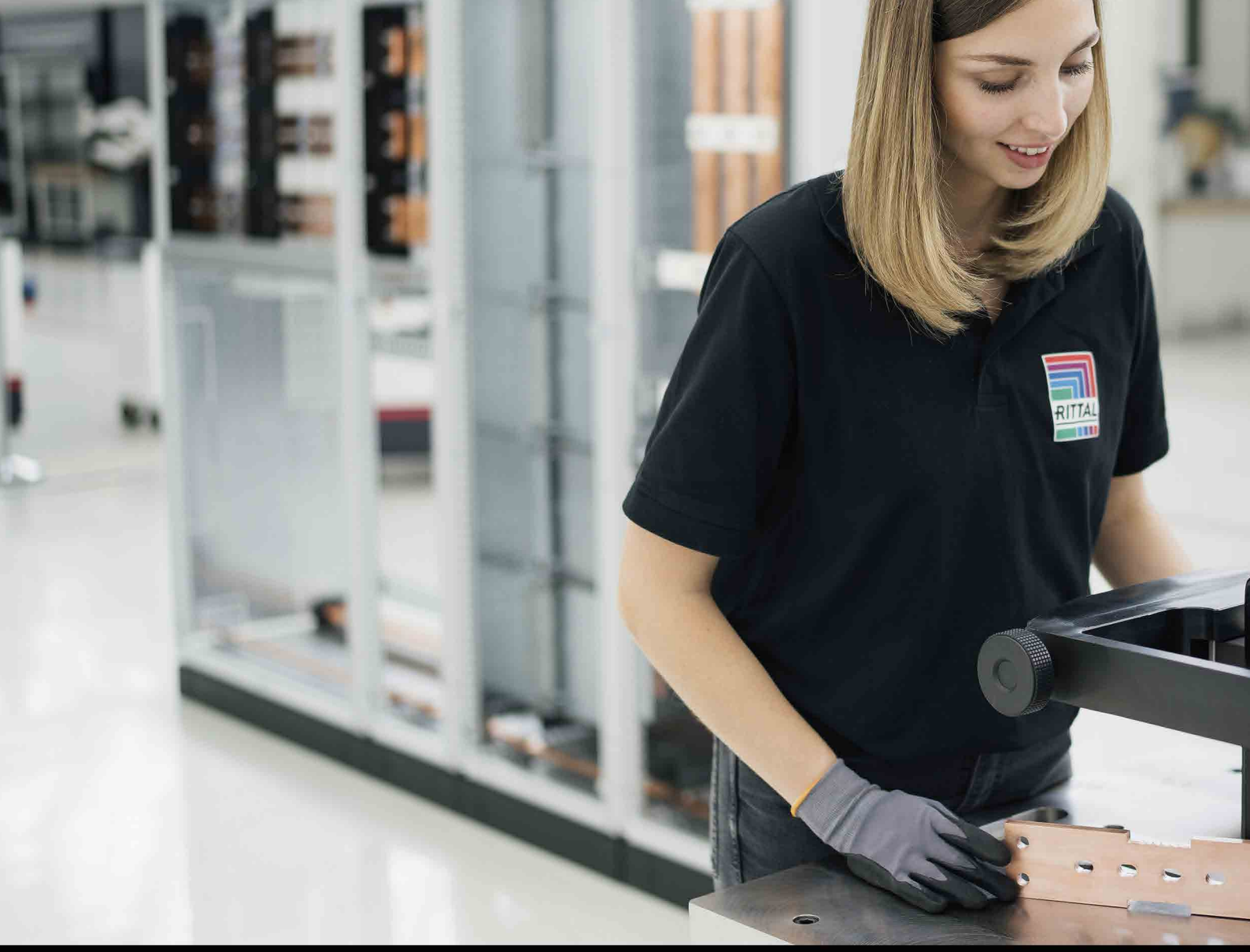
Minimal set-up times
Holding up to four tools with quick-change function, it offers an immediate time gain.



Mobile busbar machining
The mobile CW 120-M combines bending, punching and cutting in a single product solution. Thanks to the castors, the station can be used flexibly at the relevant workstation.



Static busbar machining
The units in the CW 120-S product series are ideal for bending, punching and cutting busbars. The integral precision laser facilitates the cutting and bending process.



Busbar machining: Bending Terminal BT 20E

Energy-saving drive is pioneering

The new electrical bending machine for busbar machining supports a range of bending types, from multi-stack bending to closed U-bending.

The electric drive makes the Bending Terminal BT 20E particularly quiet, low-maintenance and efficient. The special plug-in system supports user-friendly tool changes, quick set-up times and exceptionally precise bending results.

Further information:

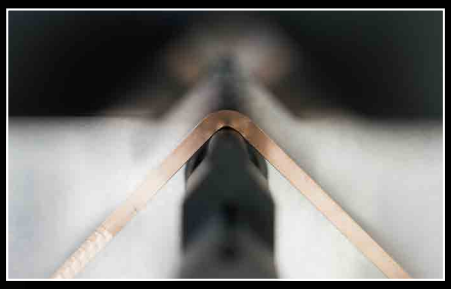
www.rittal.com/busbar-machining



We reserve the right to make technical modifications



Versatile interfaces
The machine software supports the import of a range of data, such as manufacturer-independent DXF formats, data from Eplan, Optimation, Metamation and WiCAM.



Maximum bending accuracy
The integrated electronic angle-measuring system with spring back compensation provides the highest level of accuracy from the first part, thus ensuring reproducibility with consistent quality.



Aluminium processing
Alongside conventional copper rails, it is also possible to process aluminium rails, which are lighter and more cost-efficient.



Speed up your wire processing: Wire Terminal WT C

Boost takt rate and cycle times and improve processes

The **Wire Terminal WT C** fully automated wire processing machine processes wires and labels them on a fully automatic basis.

A fully integrated crimper solution that uses servo technology and has been specially modified for the application ensures that wires with cross sections from 0.5 to 6 mm^2 can be stripped fully or partially to any length or fitted with wire end ferrules in various lengths. Wire store WT Tube 12 is ideal for straightforward change-over of wires. The modular system has state-of-the-art wire shunting, including a wire infeed block with quick-change system and RFID memory.

Further information:

www.rittal.com/harnessing

Now up to

15 times faster

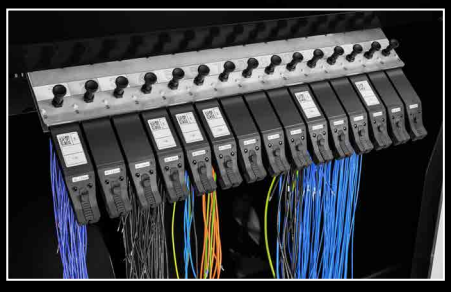
thanks to end-to-end

process optimisation

We reserve the right to make technical modifications



Wire labelling
The Wire Terminal can be configured with the very latest IQ.JET marking system for labelling the source and target of wires.



Choice of wire output
Wire output takes place sequentially by a wire rail system or optionally in chain bundle format.



Rittal semi-automated machines
More efficiency in the workshop when trimming to size, sheath-stripping and crimping wires



Wiring support

Perfectly streamlined processes down to the last detail

Whether you opt for partially or fully automated wire processing:
Component wiring in the rack or on the mounting plate can be time-consuming. Rittal has developed a series of perfectly coordinated solutions to streamline this process and make wiring more reliable and efficient.

Wires processed on a project-specific basis at the Wire Terminal are easily order-picked for the Wire Cart and transported to the Wire Station wiring bench. The wires are sequentially arranged in the wire rails for simple, intuitive wiring. At the Wire Station, the wires are securely wired using robust, ergonomic hand tools. The Eplan Smart Production Collection digital assistant visualises every step in the wiring process for superior results and reduced stress.

Further information:

www.eplan-software.com/smart-wiring

The **wiring**
accounts for **49%**
of the **processing time**
with a rack project



Eplan Smart Wiring
Digital assistant for clear presentation of the wiring process, also suitable for use on mobile output devices.



Wire Station
The mobile and ergonomic wiring table enables fatigue-free working.



Smart component placement
During later stages in the process, the QR code on the label can be used with Eplan Smart Mounting to visualise the placement of the component that has been cut to length.



Simple handling

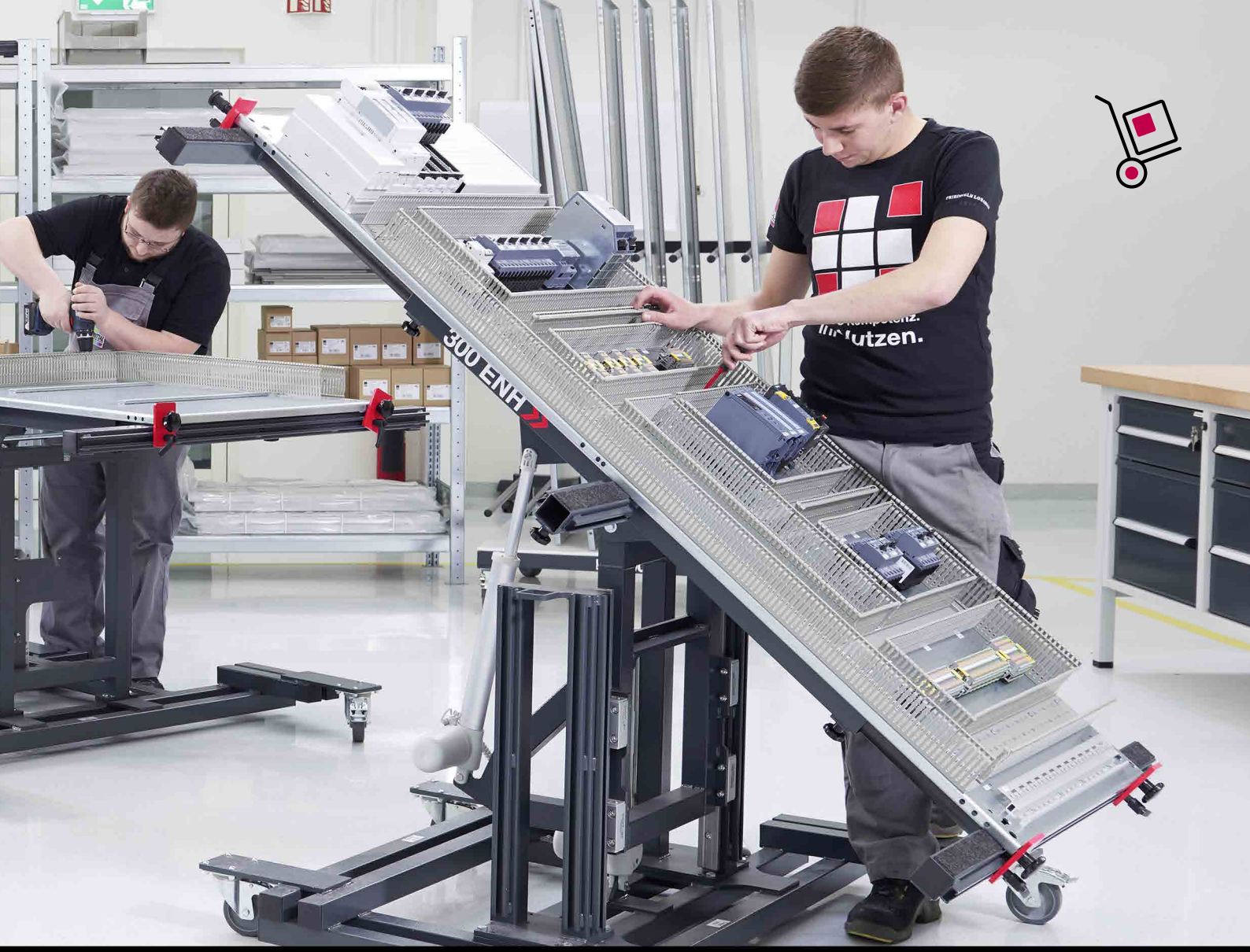
Clever tools for ergonomic working

With the right equipment, manual tasks can be considerably simplified, streamlined and speeded up. That's why we offer a wide range of high-quality and ergonomic bench solutions for machining, assembling, wiring and testing enclosures.

Our ergonomic handling systems for transport and lifting operations make the work for fitters and service personnel easier. They are ideal for transporting materials and tools to the jobsite and can even accommodate very large components.

Further information:

www.rittal.com/handling



Ergonomic measures can reduce musculoskeletal disorders by up to 57%



Rittal assembly frames
With a height- and tilt-adjustable mounting level for efficient, ergonomic machining of mounting plates and enclosures



Rittal Smart Lifter
Robust lifting and transport device for easy handling of enclosures and bayed enclosure suites



Rittal storage and transport trolley
Ideal for storage and order picking, and for easy handling of enclosure panels



Fatigue-free working

Essential high-quality tools

Rittal Automation Systems offers solutions – ranging from manual to fully automatic – for all panel builders and switchgear manufacturers. These also include high-quality tools that feature exceptional levels of functionality, durability and handling.

Our tools are ergonomic. As a result, they enable rapid, comfortable working that requires less effort and reduces the risk of injuries and accidents. The added value for you is greater motivation, increased productivity and more efficiency.

Further information:

www.rittal.com/handtools



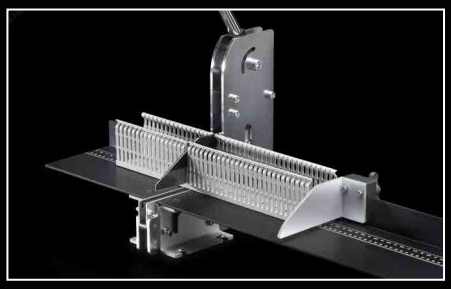
High-quality tools stand out for their exceptional functionality, durability and handling



Rittal screwdrivers
Whether screwdrivers, hex wrenches, or bits and bit holders, our screw driving tools combine high-quality, robust materials with a user-friendly design.



Rittal pliers
Crimping, sheath-stripping, cutting to length and gripping – Rittal offers the perfect tool for every process.



Wiring duct cutter MC 125
Manual cutting of wiring ducts, with adjustable length end stop. Anodised contact surface with laser-engraved calibration in millimetres and inches.



Professional servicing for your machines

Service and support direct from the manufacturers

No-one knows your equipment better than the manufacturers. Regular maintenance of your machines by the Rittal Manufacturer's Service team is the best way to ensure their availability for use, performance and a long service life. Draw on the experience and knowledge of our highly trained qualified service technicians and benefit from dependable production quality and exceptional reliability.

Service agreements – individual and customisable
Everyone's service needs are different. Rittal service agreements allow you to arrange multiple services individually and also combine various service packages, all with fixed, transparent conditions.

Further information:

www.rittal.com/our-services



	Scope of services included in standard contract	Optional contract modules
Maintenance	1 x per year	2 x per year
Availability	Working days (Mon – Fri) 7 am – 5 pm	Every day of the week (Mon – Sun) 24 hours
On-site service	Within 72 hours, incl. reduced hourly rate	Within 48 hours, incl. reduced hourly rate
Machine warranty	No warranty extension	+ 12 months
Individual stocking of spare parts	On request	
DXF remote training	One training session	
Software update	As necessary (but excluding hardware/PC or operating system replacement)	

Rittal – The System.

Faster – better – everywhere.

- Enclosures
- Power Distribution
- Climate Control
- IT Infrastructure
- Software & Services

You can find the contact details of all
Rittal companies throughout the world here.

www.rittal.com/contact

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