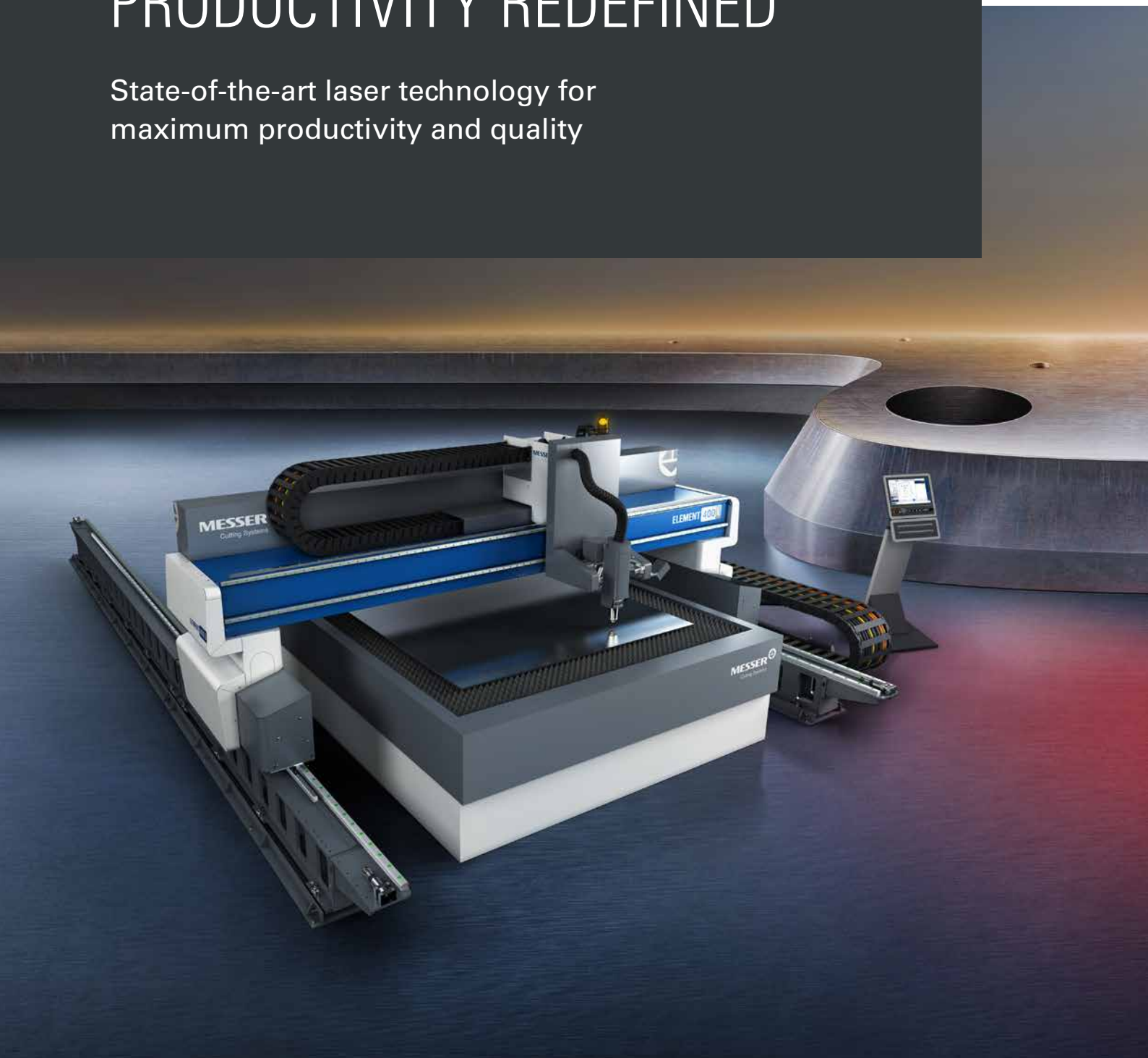
MESSER
Cutting Systems

ELEMENT L
PRODUCTIVITY REDEFINED

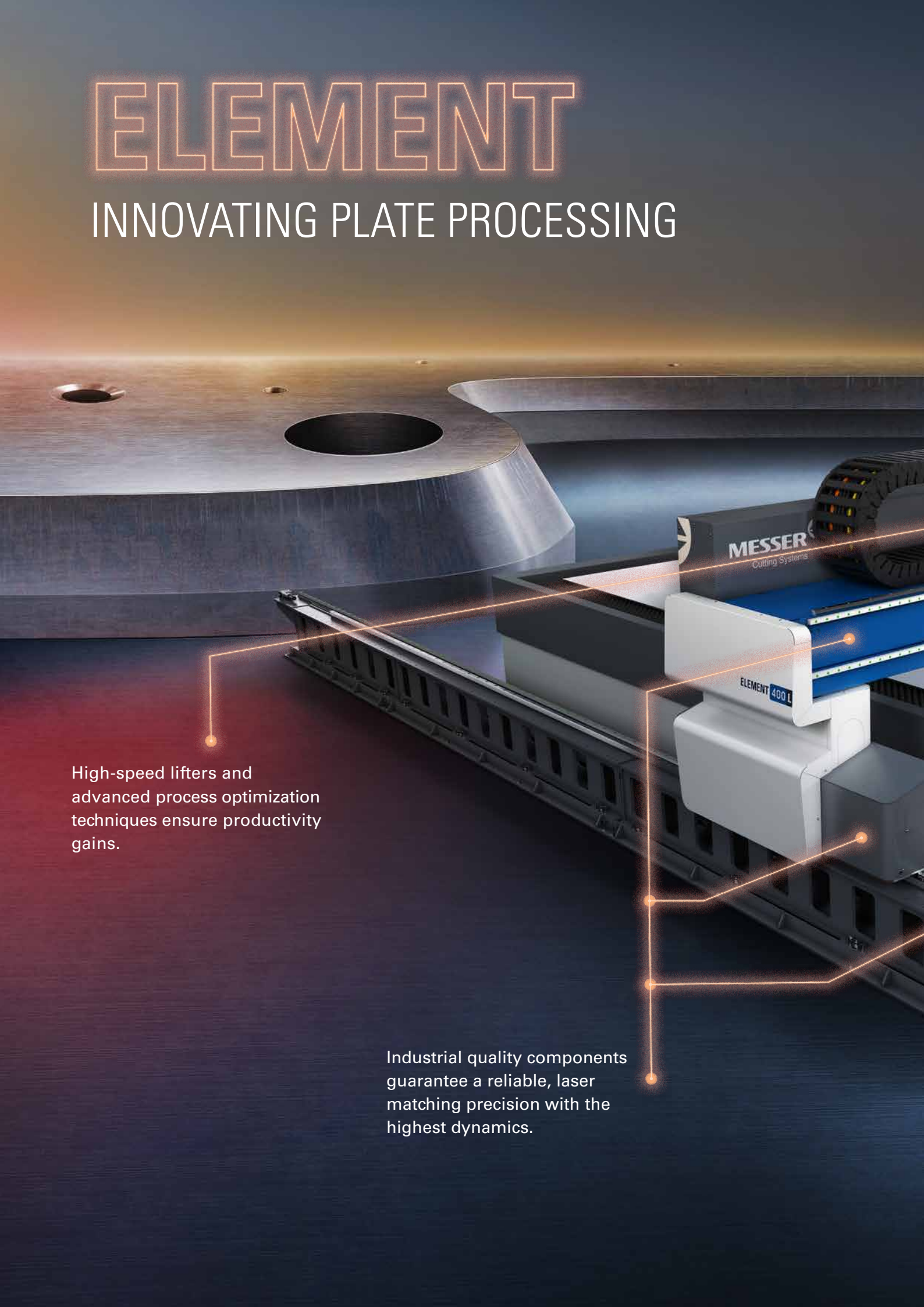
State-of-the-art laser technology for
maximum productivity and quality



PRODUCT

ELEMENT

INNOVATING PLATE PROCESSING

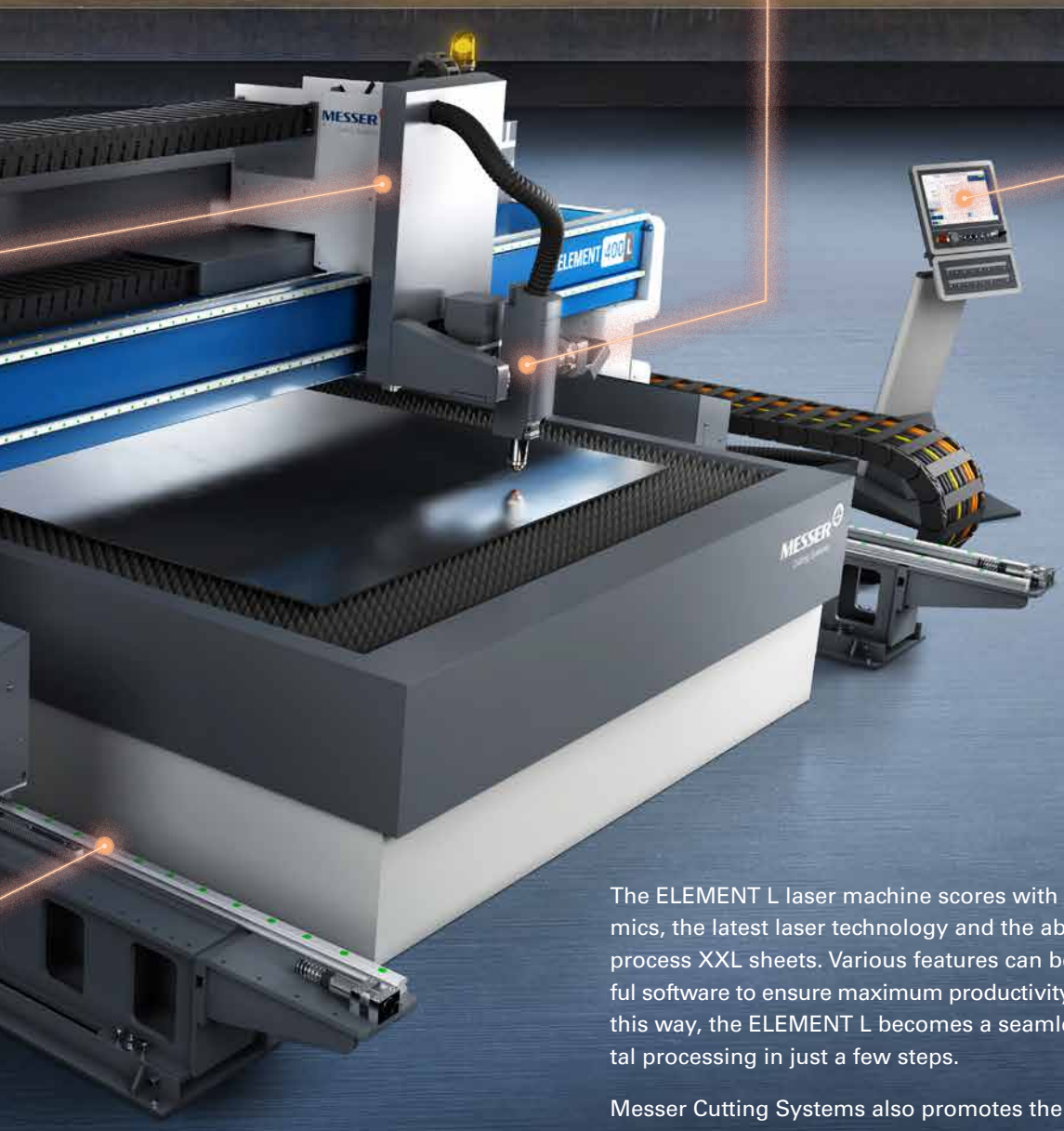


High-speed lifters and advanced process optimization techniques ensure productivity gains.

Industrial quality components guarantee a reliable, laser matching precision with the highest dynamics.

Independent servo driven tools provide versatile processing options. Reduce setup time by spacing or parking multiple tools automatically through the part program or at the control (optional).

CNC control designed to improve operator efficiency, eliminate redundancy and to provide more clarity of operations of important production data.



The ELEMENT L laser machine scores with remarkably high dynamics, the latest laser technology and the ability to economically process XXL sheets. Various features can be combined with powerful software to ensure maximum productivity and performance. In this way, the ELEMENT L becomes a seamless total solution for metal processing in just a few steps.

Messer Cutting Systems also promotes the integration of the ELEMENT L into Industry 4.0 environments. Open interfaces integrated into the machine control system are used via REST API to achieve the best possible use of production data.

ELEMENT L

CARRIER OF SOLUTIONS

PROCESS OPTIONS

Laser

Leap in performance in laser technology! Whether it is rapidly increasing laser technologies, different laser beam profiles or even new cutting gases: Today's laser machines must be able to follow current trends.

Innovation is needed as applications must become more effective and transparent. In addition, the increasing shortage of skilled workers is pushing for plants to become more self-sufficient. One machine operator alone has to be able to supervise several machines.

Automation of nozzle change material supply and removal and continuous data exchange or reconciliation across the entire production flow are the prerequisites that were at the forefront of the ELEMENT L's development.

EQUIPMENT AND TOOLS

Bevel-U

The Bevel-U bevel unit, specially developed for the laser process, enables the production of precise, repeatable bevel cuts at continuously adjustable angles and within the tightest tolerances. With the ability to produce I-, V-, Y-, X-, and K-shaped weld edges, the Bevel-U is perfectly suited for preparing workpieces for the most demanding welding tasks.

The design includes magnetic collision protection for the cutting head. This unique construction, along with the option of automatic nozzle changes and automatic sheet position detection, makes the cutting machine ideal for almost completely automating the cutting process..

THERMAL CUTTING WITH HIGHEST PRECISION

- **Maintenance-friendly cutting process**
- **Tightest component tolerances**
- **Option for automation**
- **Increased dynamics through the use of mixed gas**

BEVEL AND WELD SEAM PREPARATION

- **Bevel angles from -50° to +50°**
- **Perfect for weld edge shapes on large components**
- **Customized bevel shapes possible**
- **Including magnetic collision protection**

DRILL OPTIONS

Drilling System

Discover the future of manufacturing with our fully automated drilling system, specifically designed to significantly increase productivity in your manufacturing processes. This innovative system transforms your flame cutting machine into a state-of-the-art machining center, offering you a wide range of possibilities

Thanks to the versatility of our system, you can effortlessly perform various machining processes, whether drilling, tapping, or countersinking. The 12-compartment tool magazine makes system operation not only efficient but also user-friendly.

The newly designed hold-down clamp ensures stable support of the plate, thus ensuring low-vibration machining of the components. The integrated air nozzles efficiently remove chips and optimally prepare the system for subsequent processes.

The quick and easy machining of cutting parts is supported by intuitive operation and advanced technology. The optimized collaboration between the CAD/CAM software OmniWin and the machine control system significantly simplifies the execution of orders and thus increases planning reliability.

MAXIMUM EFFICIENCY AND FLEXIBILITY

+ **Increased productivity through automated processes**
+ **Flexible drilling system for versatile application processes**
+ **Easy operation and job setup thanks to intuitive control**
+ **Low-vibration machining for optimal results**

MARKING OPTIONS

Inkjet Marker

Parts often need non-permanent marking for secondary operations such as layout lines or simple part identification as they move through production. The inkjet marker produces markings that do not damage the plate and are not visible after painting.

Production does not slow down for marking as the marker creates text at speeds of up to 17 characters per second. Available with 7, 16 or 32 nozzles.

Black ink only systems satisfy most requirements while optional hardware can be used with pigmented ink to create higher contrast results for some applications.

MARKING OPTIONS

Pin Marker

For applications which require a more permanent mark, the pin marker uses a vibrating stylus to create easily legible characters or layout lines.

In just a few seconds, the robust and low-maintenance marker can create text as small as 10 mm.

The results are visible on a variety of materials, including primed, rusted or mill scale plate. In some cases, the mark may still be visible after painting.

NON-PERMANENT MARKING OF TEXT AND LAYOUT LINES

- **+ Dye-based ink MEK (Methyl Ethyl Ketone)**
- **+ Dries in 3–5 seconds**
- **+ Will not wipe off with water**
- **+ Standard text height at 9, 12, 18, 27 mm**
- **+ Optional 45 and 67 mm text**

TEXT AND LAYOUT LINES THAT ARE MORE PERMANENTLY VISIBLE

- **+ Clear, physical markings that cannot be easily removed**
- **+ Variable marking depth**

SPECIAL FEATURES

LNC Terminal

The nozzle has a great influence on the cutting quality: With the next generation LNC terminal, Messer Cutting Systems offers the solution to operate a laser cutting machine with maximum processing quality and productivity for any material, thickness and process as well as to achieve autonomous operation. The operator does not even need to be present, the machine does it itself.

The LNC terminal offers the following functions: Before each job, it checks whether all necessary nozzles are present in the station. To ensure maximum process reliability, the nozzle quality is regularly checked, cleaned and replaced if necessary, e.g. in the event of a defect or if a different nozzle is required for a different sheet thickness. In addition, the calibration of the nozzle height laser beam centering controlensure reliable cut quality and shortened setup times.

FAST AND RELIABLE AUTOMATION OF LASER MACHINES

- **+ Automation of set-up operations**
- **+ Prevents machine downtime**
- **+ Shortened set-up times before and during the cutting process**
- **+ Planning reliability and optimization**

EQUIPMENT AND TOOLS

Gas Mixer

By using a gas mixer, the speed advantages of nitrogen cutting can be combined with the cut quality of oxygen cutting.

Using mixed gas ensures optimal cutting results in structural steel at maximum cutting speed and is characterized by high process stability. The minimal burr formation on the underside of the workpiece allows for minimal rework, while the cut surface – unlike with oxygen cutting - remains free of a disruptive oxide layer.

This significantly simplifies subsequent surface treatments or welding. At the same time, contamination from dirt or paint on the material has a considerably smaller impact on cut quality, making the overall process more robust and reliable.

COMBINING THE ADVANTAGES OF NITROTEN AND OXYGEN IN LASER CUTTING

- **+ High cutting speed with minimal rework**
- **+ Increased process stability**
- **+ Cut edges free of disruptive oxide layers**
- **+ Low heat input**

SPECIAL FEATURES

Safety

Functional safety technology prevents damage to the machine and minimizes downtime. Its primary function, however, is to ensure the safety of personnel.

Modern fiber laser technology requires a completely light-tight laser safety enclosure. Access for materials and personnel is monitored by safety devices, and the system automatically shuts down if the safety devices are unintentionally opened.

Operating laser cutting systems with full enclosures offers the highest level of laser safety. The cutting process is completely isolated from the environment. Furthermore, a material conveyor table enables user-friendly loading and unloading of the machine.

SPECIAL FEATURES

Conveyor Table with Integrated Extraction

The conveyor table allows for material loading and unloading outside the machine's working area, thus contributing to ease of operation. Defined transfer zones ensure continuous material flow and allow loading and unloading of the machine during cutting operations.

With sectional extraction, the entire extraction process is concentrated on the cutting area and therefore requires only minimal fan power to achieve complete removal of cutting dust and fumes.

Optionally, the cutting table can be equipped with a vibrating trough that automatically removes slag and small parts. This ensures clean system operation and significantly increases the user-friendliness of the cutting system.

LEVEL OF PROTECTION FOR THE MACHINE BUT MORE IMPORTANTLY THE OPERATOR

+ **Light curtains and other overall machine safety features are available**
+ **Internationally certified TwinSAFE on-board**
+ **Key switch prevents machine movement during maintenance operations and when performing consumable exchange**

EFFECTIVE SMOKE REMOVAL AND MINIMAL CUTTING TABLE MAINTENANCE

+ **Automatic loading and unloading of the machine**
+ **Reduces machine downtime**
+ **Efficient extraction of cutting gases**
+ **Automatic slag and small parts removal**
+ **Ideal prerequisite for one of our material handling systems**

OMNIWIN

Ideal for work preparation

OmniWin is a powerful, easy to use designing and nesting software that saves time, material and costs. It is the ideal tool for work preparation in oxyfuel, plasma and laser cutting with CNC machines, taking over all cutting tasks for order-based production.

The software is both effective and economical – for small production runs as well as for just-in-time manufacturing with changing quantities in custom cutting operations.

OMNIBEVEL

The tool for bevel cutting

OmniBevel is the software for dimensionally accurate parts and the leading product for bevel cutting. The post-processor module with a graphical, easy to use interface delivers optimal cutting results.

It stands for vertical cuts, cylindrical holes, exact bevel angles and enormous flexibility. Almost all possible technology parameters and operation details are adjustable.

YOUR DIGITAL WORKFLOW

PRODUCTION DIGITIZATION

Our solutions ensure maximum transparency in operations management, production planning and control.

OMNIFAB

Software suite for digital transformation

The OmniFab Suite digitizes your processes from sales quotes, production planning, control and monitoring to business process analysis in the entire value chain.

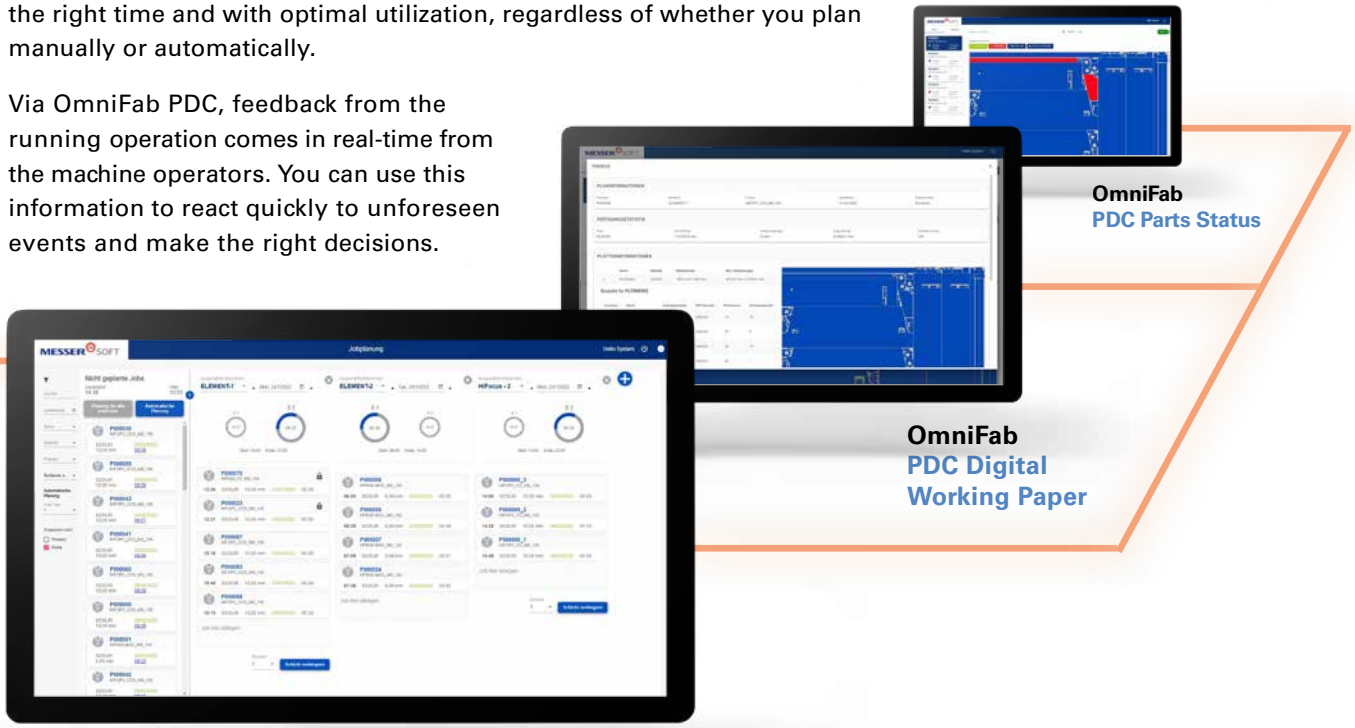
You gain real added value from the “enhanced” machine data in real time through the integration of all systems. Control your material handling systems like loading/unloading stations, towers, material transport devices and more with OmniFab – even on mobile devices.

GLOBAL CONNECT

Everything at a glance

With OmniFab Job Management, you always have an overview of all jobs – even on the Global Connect. Process your orders on the right machines at the right time and with optimal utilization, regardless of whether you plan manually or automatically.

Via OmniFab PDC, feedback from the running operation comes in real-time from the machine operators. You can use this information to react quickly to unforeseen events and make the right decisions.



OmniFab
PDC Parts Status

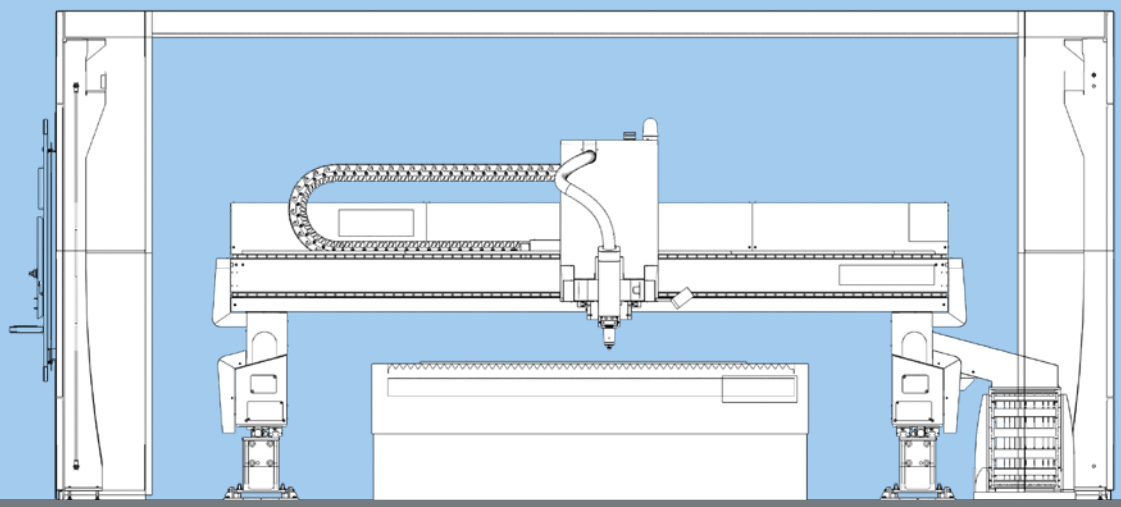
OmniFab
PDC Digital Working Paper

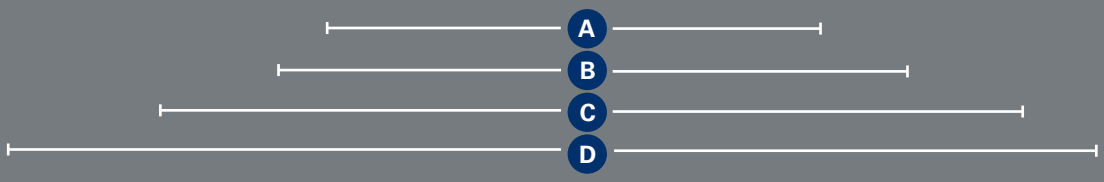
OmniFab
Job Management

Novice operators become experts.
Programmers control the process remotely.
Maintenance employees prevent downtime.
Production managers know the job status and reduce operating costs.

All of this is possible if you see the CNC control as the connector between production plant, machine and its operator to allow local as well as remote production scheduling. Data transparency to others within the organization provides key information which is needed to make better business decisions.

+ Flexible job-centric environment for new operators to learn quickly and experienced operators to excel
+ Job scheduling for improved production flow
+ Quick processing of past or repetitive jobs
+ Local nesting and standard shape library for just-in-time workflow



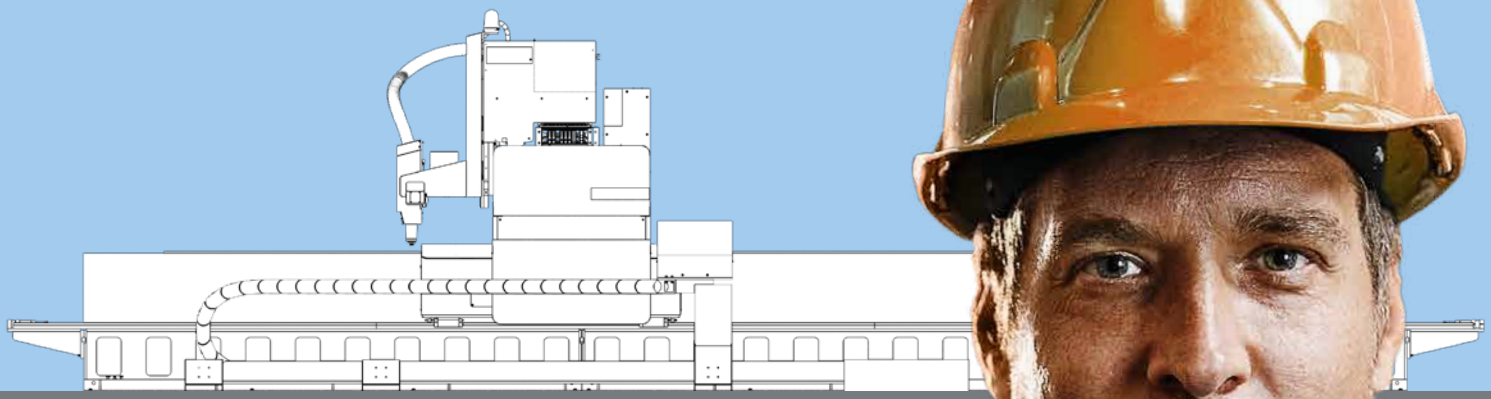


A Working Width	B Machine Rail Gauge	C Machine Width	D Overall Width
2,100	2,600	3,840	4,340
2,600	3,000	4,240	4,740
2,600	3,300	4,540	5,040
3,100	3,600	4,840	5,340
3,600	4,000	5,240	5,740
4,100	4,600	5,840	6,340
4,600	5,000	6,240	6,740
5,600	6,000	7,240	7,740

All dimensions in mm

Standard features

+ Working length up to 25,000 mm
+ Mild steel, stainless steel, aluminum
+ Positioning speeds up to 140 m/min (combination X-/Y-axis)
+ Reinforced steel structure
+ Closed energy chains in transverse and longitudinal directions
+ Global Connect, Windows®-based with easy-to-use user interface
+ Stand-alone operator console, tiltable and swiveling for high convenience
+ Meets high safety requirements
+ Process monitoring via camera
+ Bevel cutting with bevel cutting unit Bevel-U up to 50



Optional features

+ Automatic gas mixing system
+ Marking systems: Plasma, inkjet and needle marker
+ Fully automatic drilling system
+ Room monitoring via digital video camera
+ Automatic plate alignment
+ Programming and nesting software
+ LNC: automatic nozzle management
+ Enclosure for any laser power
+ Cutting tables with extraction zones
+ Filter systems for various applications
+ Material handling systems
+ Visual service support

CREATING SOLUTIONS
BEYOND MACHINES

PRODUCT
AUTOMATION
DIGITAL
SERVICES
KNOW-HOW

What we stand for

Messer Cutting Systems is a global supplier of cutting-edge technology for the metalworking industry. With almost 1,000 employees worldwide in over 50 countries, we maintain a constant dialogue with our customers to achieve sustainable user-oriented innovation.

Our portfolio embraces the themes PRODUCT, DIGITAL, SERVICES, AUTOMATION and KNOW-HOW. We will live up to our claim “Creating Solutions Beyond Machines” not just with the most modern cutting systems and solutions for oxyfuel technology.

Appropriate services and training, our own software applications as well as the integration of solutions from our technology partners, e. g. in the field of automation, complete the machine to give forward looking total solutions.

Our Know-how combined with our customer-oriented attitude and actions make us the world-wide partner of choice for innovative total solutions on all aspects of cutting systems for 125 years.

Messer Cutting Systems GmbH

Otto-Hahn-Straße 2–4 | 64823 Groß-Umstadt
Germany

Tel. +49 6078 787-0
Fax +49 6078 787-150
Mail info@messer-cutting.com

M0000035

messer-cutting.com

THE MESSER EXPERIENCE