

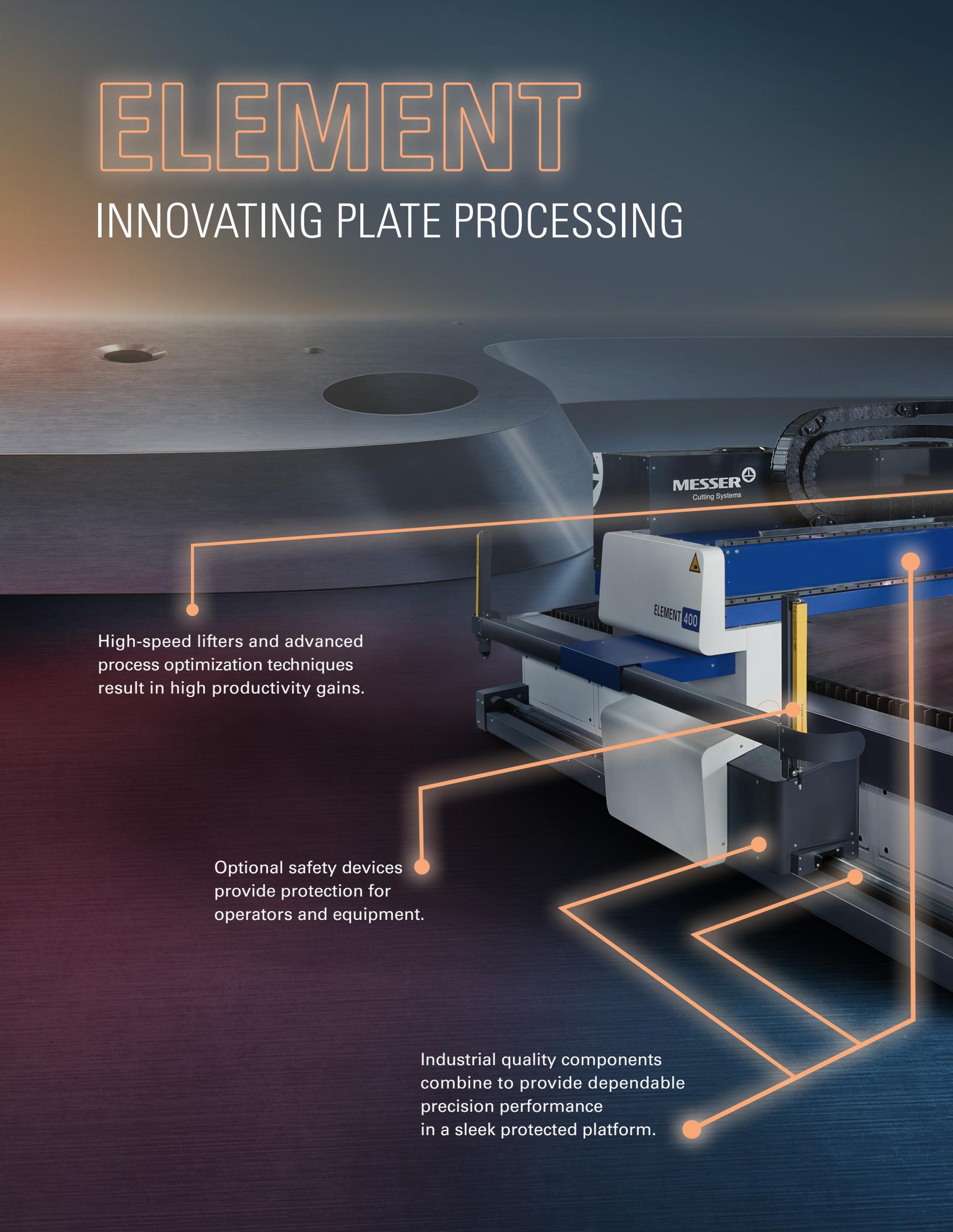
# ELEMENT 400 PRODUCTIVITY REDEFINED

Multifaceted tasks – multifaceted options:  
the platform solution for the metal processing industry



# ELEMENT

## INNOVATING PLATE PROCESSING



High-speed lifters and advanced process optimization techniques result in high productivity gains.

Optional safety devices provide protection for operators and equipment.

Industrial quality components combine to provide dependable precision performance in a sleek protected platform.

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 remote transparency of important production data.



**For over 120 years we have provided quality products and reliable services for the metal processing industry.**

The **ELEMENT** is a flexible processing machine that can be tailored to fit your unique application. A variety of different sizes and tools can be packaged with powerful software to provide maximum productivity and unmatched performance. The **ELEMENT** seamlessly integrates with multiple material handling systems to complete your metal processing solution.

A high-angle, top-down photograph of an industrial robotic welding cell. A black robotic arm with blue joints is positioned over a large, flat metal workpiece. The welding torch at the end of the arm is actively welding, creating a bright orange and yellow spark shower that radiates outwards. The background shows the complex metal structure of the machine, including blue-painted beams and various mechanical components. The lighting is dramatic, highlighting the sparks and the metallic surfaces.

ELEMENT 400

# CARRIER OF SOLUTIONS



## PROCESS OPTIONS

### Plasma

Advancements in plasma technology over the last few years allows for precision cutting of mild steel, stainless steel, and aluminum. The most recent development has been focused on improved hole cutting and longer consumable life, which provides fewer secondary operations and lower operating costs.

The best plasma system to fit your application will include collision protection and will be mounted on one of our high-speed lifters featuring laminar jumps between pierce points. Along with other process optimizing features, we can provide higher productivity with all industry standard plasma systems.

PRECISION CUTTING OF  
FERROUS AND NON-FERROUS  
MATERIAL UP TO 2 INCHES



+ Maximum thickness up to 6 inches  
(non-ferrous material).



## PROCESS OPTIONS

### Oxyfuel – ALFA

Oxyfuel cutting is the most economical method to produce high-quality parts from mild steel and low alloy steel. The ALFA torch contributes to low operating costs by reducing setup and process monitoring labor. Remote ignition eliminates manual strikers, consumables can be changed without tools. Height sensing feature quickly positions all torches at the optimum cut height to substantially reduce pierce time, it is able to sense the edge of the plate for maximum material utilization. Integrated height sensors provides protection to the torch by reducing the risk of torch damage due to collision.

HIGH QUALITY RESULTS IN  
MILD STEEL AND LOW ALLOYS  
GREATER THAN 2 INCHES



+ Reduce time and labor  
with multiple torches.



## BEVEL OPTIONS

### Bevel-R®

The relatively compact size of this robotic style bevel unit provides excellent results for most weld preparation applications without sacrificing vertical cut quality in everyday use.

Contour beveling is done via five synchronized axes that allow for standard bevel profiles on most parts. Repeatability is maintained via an automatic software calibration routine to align the bevel head over the life of the machine.

Patented collision protection and unlimited torch lead rotation provide high reliability in day-to-day operations.



## BEVEL OPTIONS

### Bevel-S

Accurate and repeatable cut parts are created with this unique design that does not require movement of the entire machine. The plasma torch can therefore tilt very quickly, resulting in maximum plate utilization.

With only two axes required to tilt the torch in our industry-proven skew axis design, precision cutting of small holes to the most complex bevel contours is possible.

Patented collision protection, a simple pneumatic torch lead management system and a few recent enhancements ensure that production requirements are easily achieved.

MOST APPLICATIONS  
REQUIRING STANDARD WELD  
PREPARATION PROFILES



- + +/- 45° bevel angles.
- + I, A, V, Y, X, and K weld profiles.
- + Interpolation of the bevel angle (change-on-the-fly while cutting).

JOB SHOPS, OEMS AND  
OTHERS WITH HIGH QUALITY  
AND HIGH PRODUCTION  
EXPECTATIONS



- + +/- 45° bevel angles.
- + I, A, V, Y, X, and K weld profiles.
- + Interpolation of the bevel angle (change-on-the-fly while cutting).
- + Plow bolt and countersink holes.
- + Picture-frame features.



## 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. Straight line marking at up to 500 inches per minute is also possible.

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 .25 inches.

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

### Plate Alignment

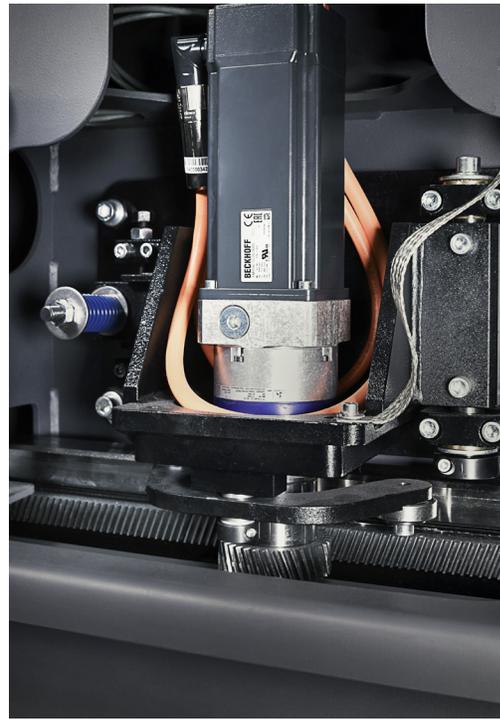
A programmer will nest parts as efficiently as possible to get the best plate utilization. The operator equally is charged with reducing scrap as parts are processed. Multiple times per day, a plate is placed on the cutting table and then matched or aligned to the plate.

The bright dot of a laser pointer or the crisp image of the plate edge digitally streamed to the Global Connect allow the operator to quickly capture the location or angle of the plate. This operation can even be automated using an optional laser system to increase productivity.

REDUCE SETUP TIME AND  
ELIMINATE SCRAP



- + Manual operation  
with laser pointer or camera.
- + Automatic operation  
with laser edge detection system.



## SPECIAL FEATURES

### Motion System

Is the cut edge smooth? Are the holes round? Are the corners sharp? Are the parts accurate? The answer to these questions ultimately speaks to the quality of the machine. An expert operator, optimized cutting parameters, and new consumables will not create a good part if machine movement is rough and the tool does not stay on path.

The **ELEMENT** is built with helical rack and pinions, precision linear ways, and heavyweight rails as a foundation for smooth motion. Large AC servo motors provide exceptional cut part quality by quickly accelerating the cutting tool in and around holes and corners. This machine as it moves exceptionally fast from part to part.

PRODUCE THE HIGHEST  
QUALITY PARTS IN THE  
SHORTEST AMOUNT OF TIME



- + Positioning speed up to 2,800 ipm.
- + Acceleration rate of .06 g

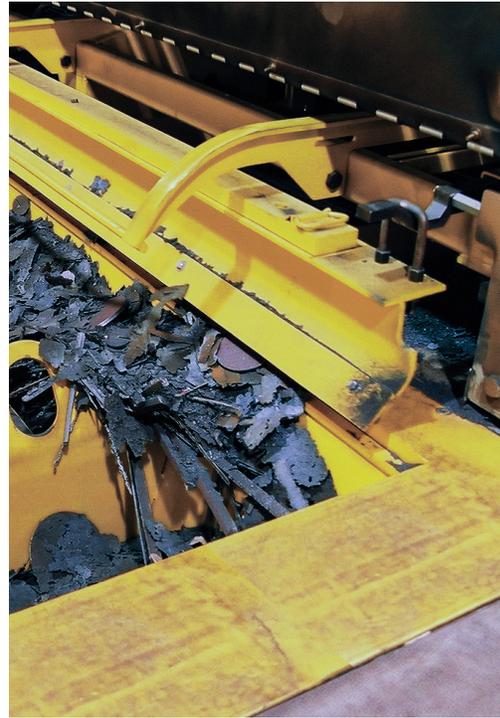


## SPECIAL FEATURES

### Safety

Though functional safety technology prevents damage to machinery and minimizes downtime, its core job is to protect people. Light curtains positioned on the front and rear of the machine offer protection when loading and unloading the cutting table. These devices immediately stop the machine when an obstruction passes through the viewing field. Additional protection is provided by a unique sliding system that also stops the machine in the event of contacting an obstruction.

Most tools on the machine also offer a level of protection for the hardware itself. For example, all plasma torches feature our patented SureStop magnetic collision sensor which quickly stops the machine and turns the process off. Recovery is simple so that production can resume.



## SPECIAL FEATURES

### Self-cleaning Table

Taking time to clean a cutting table of all the scrap material and slag is one of those things that has to be done but also something no one wants to do. It also has a big impact on meeting production requirements.

What if you could push a button and clean an entire table in just a few minutes? The Slagger®, exclusively from Messer Cutting Systems, is the solution. A powerful blade starts pushes all the accumulated debris to the other end of the table where it can be easily collected for disposal. This patented time-saver table does a great job of removing smoke by dividing the table into smaller sections, allowing the dust collector to work efficiently as it only exhausts from where the machine is actively cutting.

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



- + Can be used with plasma, oxyfuel and laser applications.
- + Small parts may can be easily retrieved.
- + Table widths from 9' to 18' (ELEMENT version).
- + Table lengths up to 150'.



## OMNIWIN

### Ideal for work preparation

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

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

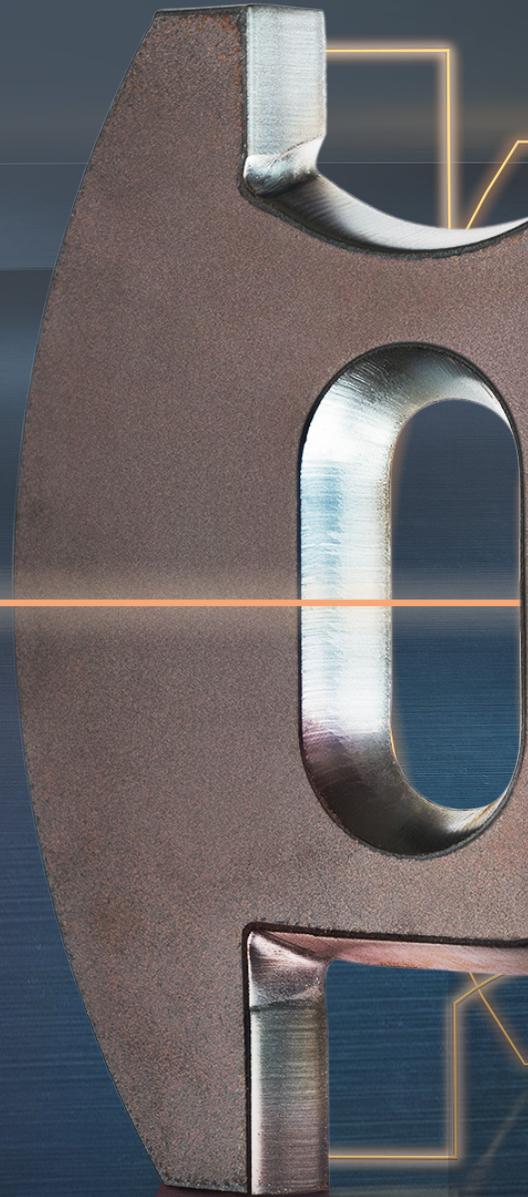


## OMNIBEVEL

### 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 can be used for straight cuts, cylindrical holes, exact bevel angles and parts with absolute dimensional accuracy. 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

OmniFab is the software suite that integrates Messer Cutting Systems' mechanical engineering technology into commercial processes in a holistic and process-oriented manner.

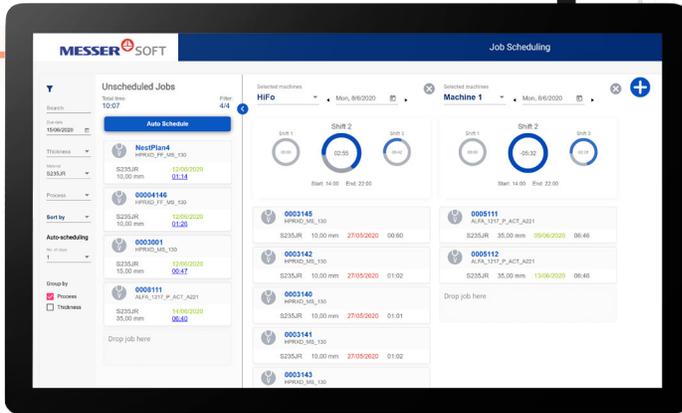
It provides relevant information for work preparation, production planning and plant management by connecting all systems. OmniFab also integrates material handling systems like loading/unloading stations, towers, material transportation devices and more – even on mobile devices.

# GLOBAL CONNECT

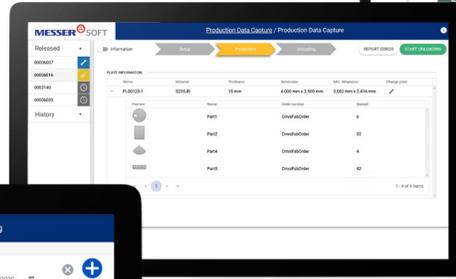


# Everything at a glance

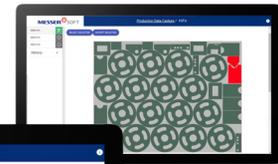
With OmniFab Job Management, you always have an overview of all jobs. The software ensures the jobs are done on the right machines and with the best utilization, whether you are scheduling manually or automatically. Via OmniFab PDC, feedback from the running operation comes in real-time from the machine operators. You can use this information to react quickly to unforeseen events and make the right decisions.



**OmniFab  
Job Scheduling**



**OmniFab  
PDC Digital  
Working Paper**



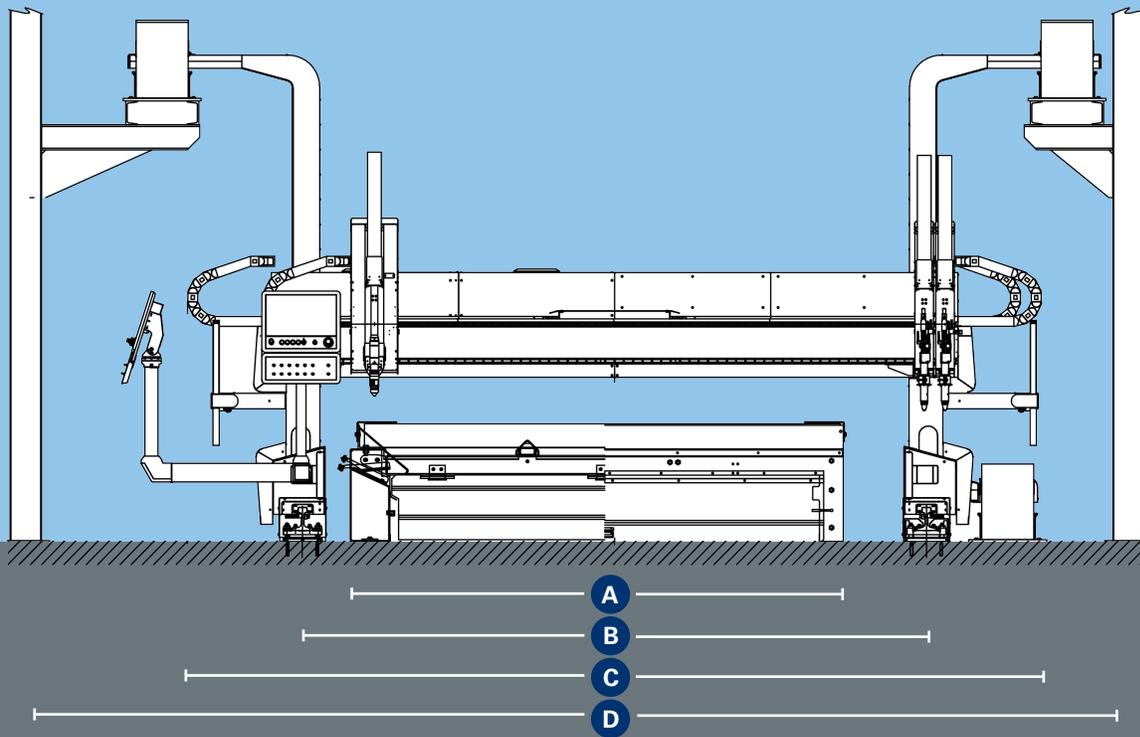
**OmniFab  
PDC Parts Status**

**Novice operators can 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.



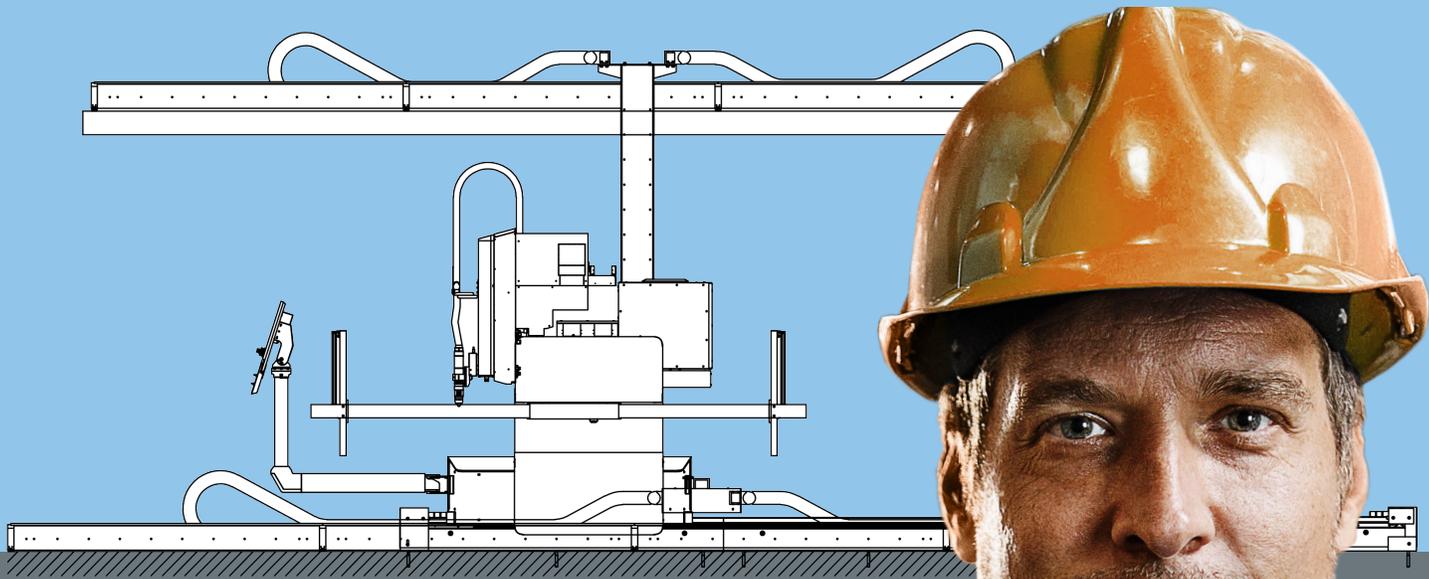


**A** Maximum Table Width      **B** Machine Rail Gauge      **C** Machine Working Width      **D** Overall Machine Clearance

|                  | <b>A</b> Maximum Table Width | <b>B</b> Machine Rail Gauge | <b>C</b> Machine Working Width | <b>D</b> Overall Machine Clearance |
|------------------|------------------------------|-----------------------------|--------------------------------|------------------------------------|
| <b>Beam 3700</b> | 9' - 2"                      | 10' - 10"                   | 15' - 8"                       | 18' - 8"                           |
| <b>Beam 4400</b> | 11' - 6"                     | 13' - 1 1/2"                | 18'                            | 21'                                |
| <b>Beam 5000</b> | 13' - 6"                     | 15' - 1"                    | 20'                            | 23'                                |
| <b>Beam 5400</b> | 14' - 9"                     | 16' - 4 3/4"                | 21' - 4"                       | 24' - 4"                           |
| <b>Beam 6400</b> | 18'                          | 19' - 8 1/4"                | 24' - 6"                       | 27' - 6"                           |

## Standard features

- + Cutting widths 6' to 16'.
- + Cutting length up to 150'.
- + Machine motion accuracy; +/- .010" accuracy; .010" repeatability (compensated machine motion in 72"), measured with a laser interferometer.
- + Cuts material from 26 ga. to 8" thick plate.
- + Cuts mild steel, stainless steel, and aluminum.
- + Positioning speeds up to 2,600 ipm.
- + Contouring speeds up to 400 ipm.
- + Reinforced steel weldment construction with high rigidity beam (less than 0.001" bend and 0.002 degrees of twist).
- + Machined mating surfaces and bores (critical tolerances of 0.002" maintained).
- + Enclosed powertrack in both axes is standard.
- + Up to six torch stations (maximum two plasma stations).
- + Up to three torch stations will cover full rated cutting width.
- + Global Connect, Windows® based with easy-to-use operator interface.
- + Right- or left-hand mounted control console with tilt and swivel for operator comfort.
- + Virtual Service™ remote consultation and diagnostics.
- + SureStop collision sensor with easy and accurate reset
- + Advanced oxyfuel technology provides consistent piercing and faster cutting
- + Designed and manufactured in the USA to machine tool and ISO 230-2 standards



## Optional features

- + Plasma Bevel Units: Bevel-R® and Bevel-S.
- + Turbo Flame™ or ALFA oxyfuel torches.
- + Advanced oxyfuel technology with Omniflow automated gas regulation system.
- + Auto torch spacing with programmable torch selection.
- + FT100 torch ignitor and automatic height control for oxyfuel systems.
- + Plate markers: Plasma, Inkjet Marker, and Pin Marker.
- + Digital video camera.
- + Automatic plate alignment.
- + Laser pointer.
- + IoT 4.0 (Machine Insight).
- + Programming and nesting software0
- + Light curtain and pull-cord safety devices.
- + Operator glare curtain.
- + Zoned exhaust tables, including self-cleaning Slagger®.
- + Messer Cutting Systems dust collection system.
- + Exhaust ducting kits.
- + Material handling systems.
- + Sentry Service Preventative Maintenance Program.
- + Visual Service adds a sense of sight to the troubleshooting process.



WHAT WE STAND FOR

# CREATING SOLUTIONS BEYOND MACHINES

Messer Cutting Systems is a global supplier of cutting edge technology for the metalworking industry.

With over 900 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 have made us the worldwide partner of choice for innovative total solutions on all aspects of cutting systems for over 120 years.

## **Messer Cutting Systems, Inc.**

W141 N9427 Fountain Boulevard  
Menomonee Falls, WI 53051

Tel. +1 262-255-5520

Fax +1 262-255-5170

[sales.us@messercutting.com](mailto:sales.us@messercutting.com)

[www.messer-cutting.com](http://www.messer-cutting.com)

