



Powered by:



MSE Smart^{FL}

Fiber laser cutting 4.0: powerful, reliable, economical



SMART 4.0
FACTORY

MSE Smart^{FL}

The MSE Smart^{FL} fiber laser cutting machine from MicroStep Europa is a powerful system for high-quality 2D laser cutting. The system owes its high reliability and process safety to the fact that it is equipped entirely with top-quality brand-name components. At the same time, the highly attractive pricing with comparatively manageable investment and operating costs enables a fast return on investment. And, of course, all this comes in a package with MicroStep's outstanding premium service!

Highly dynamic machine gantry

A cast aluminum gantry guarantees higher stiffnesses with a simultaneous weight reduction compared to similar steel gantries. Due to the weight-optimized, highly rigid design and the low center of gravity, high accelerations are therefore possible.

Massive frame construction

The steel frame structure is annealed at over 600 °C to relieve it of stresses. This prevents a distortion of the frame even under high strain for many years.

Shuttle table with sectional suction system

The shuttle table system consists of two movable cutting tables. These tables change position between the cutting area (working area) and the loading and unloading area (parking area). The table with sectional control of the suction zones ensures high efficiency during extraction, resulting in a low energy consumption.

Ready for Industry 4.0

The MSE Smart^{FL} is more than a modern laser cutting system with high-quality components: The system is already well equipped for the manufacturing of the future!

Further information: See page 6



THERMACUT: Cutting head

The MSE Smart^{FL} integrates the German-made cutting heads of the EX-TRABEAM® series. All models have been completely redeveloped and offer reliable, future-proof and cost-effective cutting performance. Thus, the EX-TRABEAM® series also meets the requirements of tomorrow's manufacturing (Industry 4.0). The user-friendly cutting head ensures the best cutting results, while the integrated sensors ensure the best possible monitoring of the machining process and optimum protection of all optical components.



IPG Photonics: Laser source

IPG Photonics is considered the world's leading manufacturer of high-power fiber lasers – the company particularly impresses its customers with maximally process-safe and innovative products which have revolutionized metal processing by lasers.



Control: MSE SmartControl

Together with Eckelmann, MicroStep Europa has developed the control system MSE SmartControl. Eckelmann offers a complete solution portfolio for the automation of machines and for the Smart Factory, from drives to CNC, motion and PLC controls to HMI and CAD/CAM/ERP/IoT integration. The MSE SmartControl can be conveniently operated via two 21.5" multitouch displays as well as via an additional handheld device.



WITTENSTEIN alpha: Gearboxes & racks

Maximum precision, dynamic performance and above-average torque density – these are the qualities for which WITTENSTEIN alpha's reliable planetary gearboxes combined with high-quality racks are renowned.



BOSCH Rexroth: Linear guides

As a technology leader, BOSCH Rexroth has been setting milestones in the field of innovative linear guides for decades – when it comes to high-precision, process-reliable results: the absolute first choice!

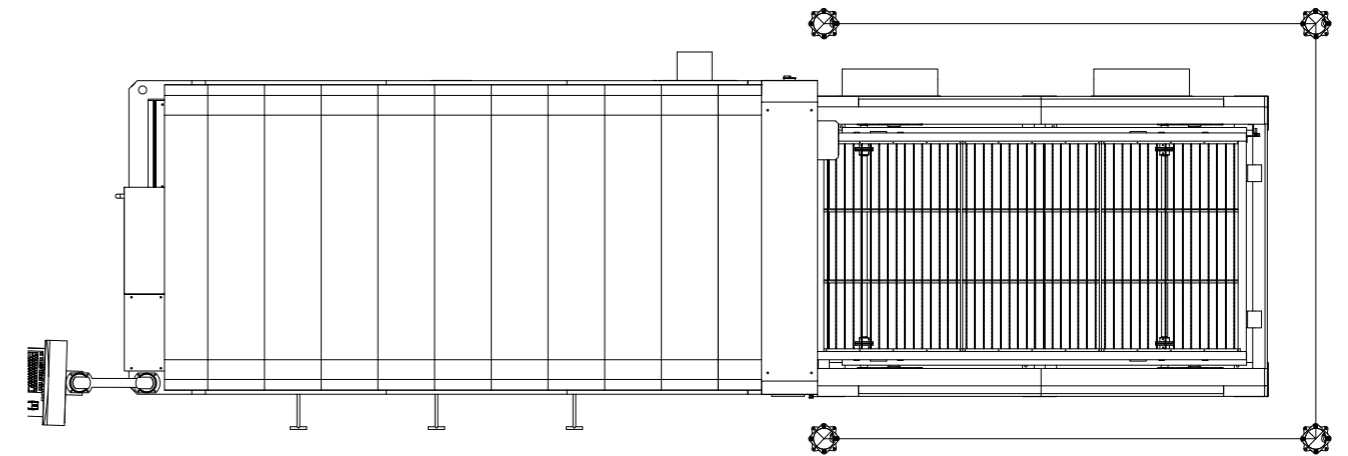


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Technical data

Model		MSE Smart ^{FL}
Shuttle table		Motorized – automatic exchange
Traverse speed		180 m/min
Acceleration	X axis	max. 2.1 g
	Y axis	max. 2.1 g
	Z axis	max. 2.1 g
Positioning accuracy		± 0.03 mm
Repeatability		± 0.02 mm
Process gases	O2	0.5-6 bar
	N2	0.5-25 bar
	Air	0.5-25 bar
Industrial machine PC		ECKELMANN Industrial E°DualPanel PC G0421E2 2x 21.5" TFT Multitouch Full-HD LED Backlight, Win 10 IoT Enterprise, Intel Core i3,5,7 9th Gen., 4x Gigabit-Ethernet, 8-16 GB RAM, min. 256GB SSD, 8x USB, 2x RS232 (Germany)
CNC control		MSE SmartControl powered by ECKELMANN (Germany)
Servo drives		ECKELMANN E°Darc K10 / E°Darc K313 (Germany)
Servo motors		ECKELMANN E°SU / E°SU3 (Germany)
Internet / Ethernet connection		RJ45
Laser source		IPG YLS/YLR (Germany), cooler included
Laser cutting head		THERMACUT EX-TRABEAM® series (Germany)
Planetary gearboxes		WITTENSTEIN ALPHA (Germany)
X, Y racks		WITTENSTEIN ALPHA (Germany)
Linear guides		BOSCH REXROTH (Germany)

Graphical illustration based on the example of the MSE Smart^{FL} 3001.15:



Model		MSE Smart ^{FL} 3001.15	MSE Smart ^{FL} 4001.20	MSE Smart ^{FL} 6001.20	MSE Smart ^{FL} 6001.25
Max. permitted workpiece weight (kg)		3,000	3,500	4,000	5,000
Cutting area	Length (mm)	3,050	4,050	6,050	6,050
	Width (mm)	1,550	2,050	2,050	2,550
Dimensions incl. peripherals*	Length (mm)	8,500	11,500	15,500	15,500
	Width (mm)	4,700	5,200	5,200	5,700
	Height (mm)	2,750	2,750	2,750	2,750

*Approximate figures incl. space required for peripherals (laser source, filter system, cooler, safety equipment)

Available laser sources power | maximum sheet thickness:

Power	Steel (St)	Stainless steel (VA)	Aluminium (Al)	Brass (CuZn)	Copper (Cu)
2 kW	12 mm	6 mm	8 mm	4 mm	3 mm
3 kW	18 mm	10 mm	12 mm	6 mm	5 mm
4 kW	20 mm	12 mm	15 mm	8 mm	8 mm
6 kW	25 mm	20 mm	20 mm	15 mm	10 mm
8 kW	25 mm	25 mm	25 mm	15 mm	12 mm
10 kW	25 mm	30 mm	30 mm	15 mm	12 mm
12 kW	30 mm	30 mm	30 mm	20 mm	15 mm





Ready for Industry 4.0!

More than „just“ a machine: The MSE Smart^{FL}

The MSE Smart^{FL} is optimized for the use of IndustryFusion, a cross-vendor open source connectivity solution for Smart Factories and Smart Products.

Pioneering platform IndustryFusion

Since 2016, mechanical engineering companies in the Industry Business Network 4.0 association have been working together with corporations such as Intel, TÜV Süd, and research institutions such as Fraunhofer IGCV on a vision that has now become reality: making the advantages of a digitally connected production accessible to small and medium-sized companies as well. The open source connectivity solution IndustryFusion is a perfect, vendor-independent solution for connecting your production!

Additional value through connectivity

IndustryFusion offers complete transparency of all connected plants and machines in your production – and as a result enables you to produce even more efficiently and automatically. Already existing machines can be easily retrofitted and integrated in the connectivity solution. Find out more about the many added values that IndustryFusion offers you:

Further information:
www.industry-fusion.com



Perfect partner for the MSE Smart^{FL}!

The AirCube from Teka – Filtration at top level

Teka's AirCube extraction and filtration system is used wherever metals are processed thermally or mechanically and fumes or dust are generated during the processing operation. The high-quality system is equipped with the latest nano-filter technology, sensor-monitored filter cartridges, and a control system that dynamically regulates the performance as required with maximum energy efficiency. Interfaces such as MQTT or optional OPC UA ensure that the system can be easily integrated in a connected production environment.



MicroStep: Excellent service

We are always at your side – for the entire machine life!

We know that in most cases our cutting systems are the first in our customers' production chain. Therefore, to ensure the highest possible machine availability, we offer you an extremely reliable service and support network. The service & support department is the largest within MicroStep Europa GmbH – more than 25 of our own specialists take care of your needs. From the installation and commissioning of your system to training, maintenance and telephone support. And if on-site help is really needed, we will be with you and your machine quickly!

In addition to our premium service, there are other reasons why thousands of customers place their trust in us and our technologies. Here is an overview of the most important ones for you:

Provider of all relevant cutting technologies

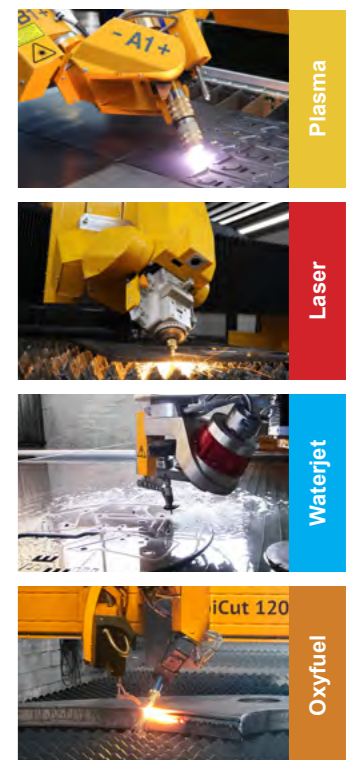
We offer system solutions for all four cutting technologies relevant in metal processing (plasma, laser, waterjet, oxyfuel), both in 2D and 3D at high-end level. We therefore provide independent advice on the technology and analyze your production requirements in detail. As a result, we can offer you the exact technical solution that you actually need.

Solutions for small and large

We are manufacturers of plasma, oxyfuel, laser and waterjet cutting systems – from small CNC machines for schools and workshops to customized production lines for shipyards, steel centers or the automotive and aerospace industries. In addition to large corporations such as BOSCH, thyssenkrupp or Siemens, also several thousands of small and medium-sized companies rely on us.

Multifunctionality saves time and money

Thanks to patented technologies, several technologies can be applied in a process-safe combination on MicroStep gantry cutting machines: 2D cutting, 3D cutting, e.g. for weld edge preparation, drilling, countersinking, tapping as well as marking & labeling. This saves space in production, time for material handling and a lot of investment costs.





Your Partner for Cutting and Automation



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