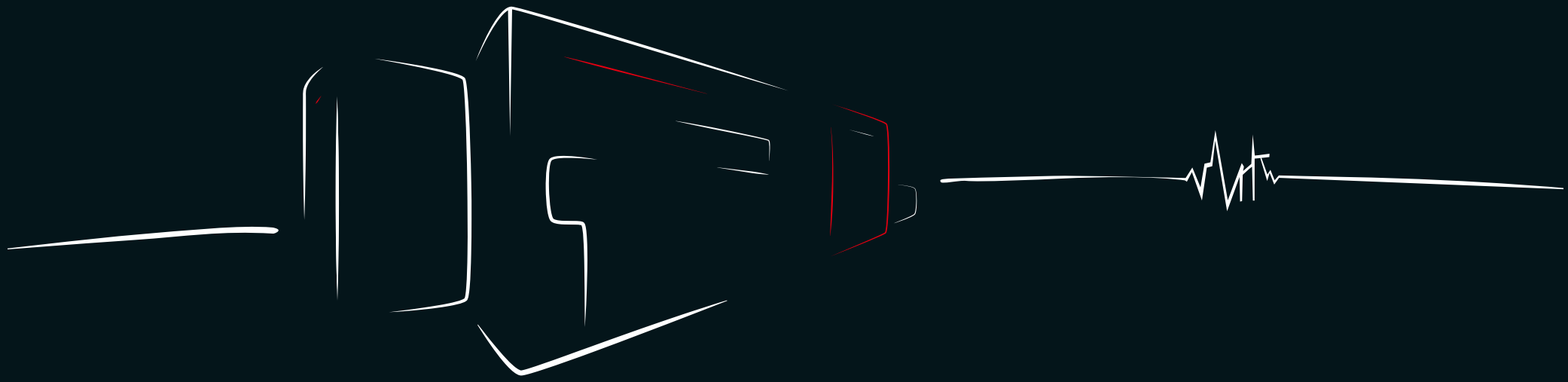
MITSUBISHI ELECTRIC

ASTES 4

The Art of Economy



FIBER LASER CUT

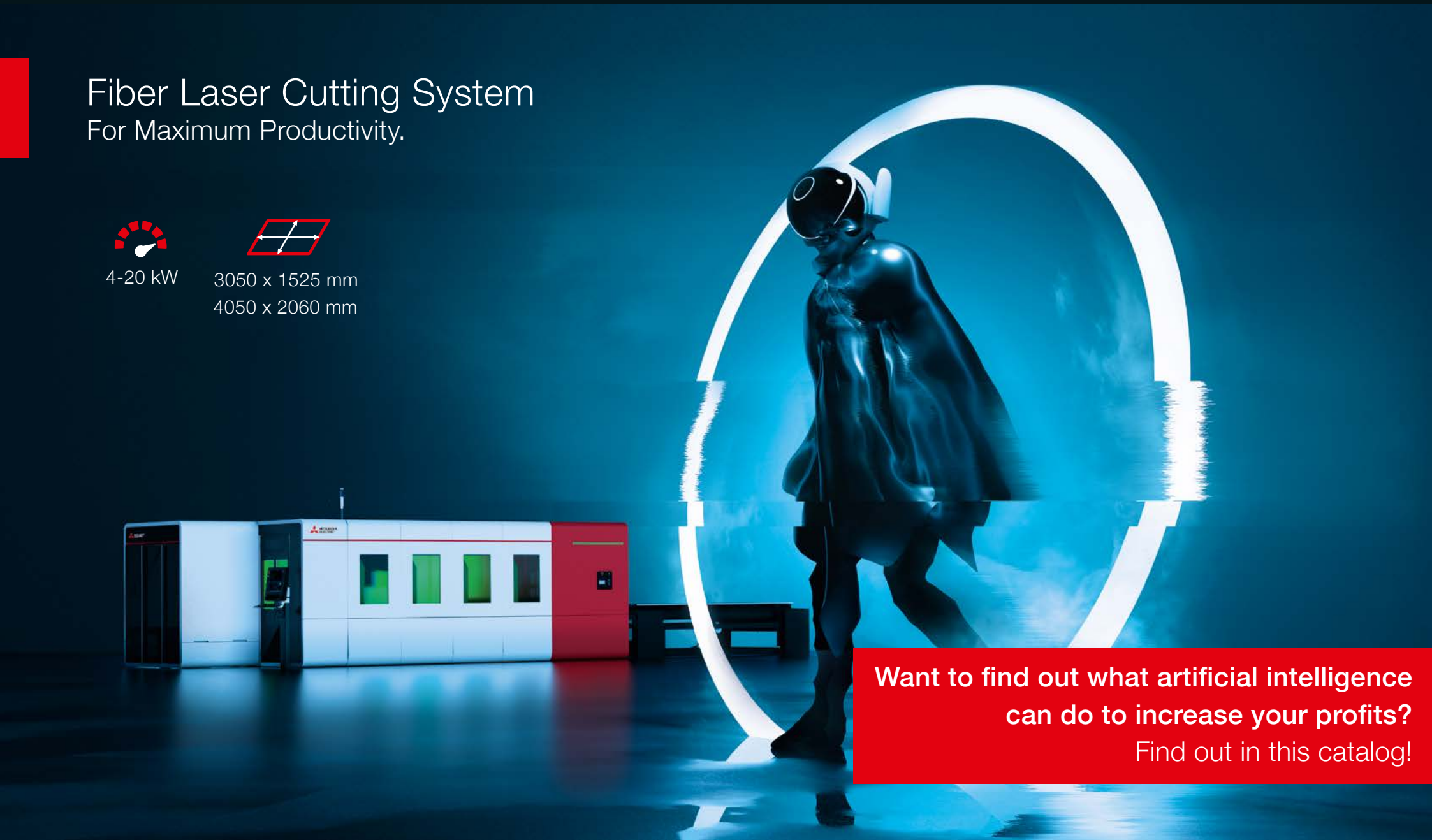
GX-F SERIES

Product Overview

Fiber Laser Cutting System
For Maximum Productivity.

4-20 kW

3050 x 1525 mm
4050 x 2060 mm



Want to find out what artificial intelligence can do to increase your profits?
Find out in this catalog!

Laser Automation Systems

Higher Productivity Means Higher Profit



Want to increase your margins?

Advanced modular automation solutions

www.astes4.ch

The system that's right for me



Affordable
and Great Value.

Over 18,000 laser cutting systems installed – the experience of a global company. This is also reflected in the current models.

Development has focused on high quality, dynamics and availability of the system, ease of use, and a brilliantly conceived design.



Multiple sectors, consistently excellent results.



HeadQuarter Ratingen, Germania

If you want to achieve Great Goals,

You need a strong partner you can rely on.

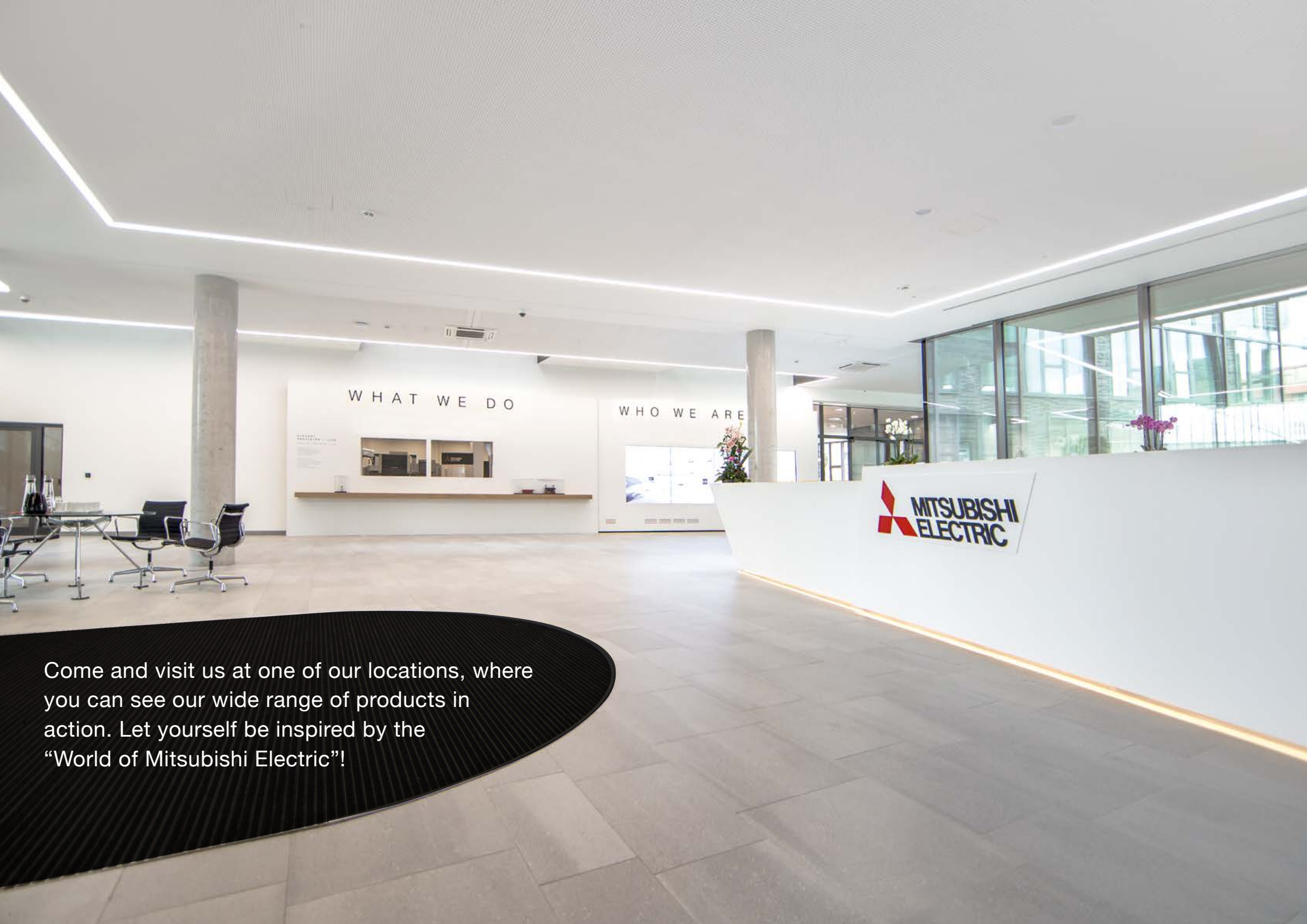


Companies around the world have been relying on Mitsubishi Electric's high-performance laser cutting systems since 1982. Only by developing and manufacturing all key components in-house is it possible to customize them to perfection.

Mitsubishi Electric uses its own controls, motors, inverters, relays, and many other components that are tailored to requirements down to the smallest detail. The only thing you will notice about this is the reliable and consistent operation of the machine, often for decades after purchase.

Anyone who wants a safe investment in a durable laser cutting system chooses **Mitsubishi Electric.**

By doing so, I know I am in good hands.



Come and visit us at one of our locations, where you can see our wide range of products in action. Let yourself be inspired by the “World of Mitsubishi Electric”!

What does Mitsubishi Electric do?

Builds the road to a Secure Technological Future...

With its green company, Mitsubishi Electric and its workforce of 146,500 skilled employees manufacture electrical and electronic products and systems. The product range includes satellite systems, elevators, industrial robots, laser cutting systems, EDM systems, CNC numerical controls, air conditioning units, semiconductors, and much more. In demand all over the world, these products generate annual sales of €32.8 billion.

Key components are produced in-house and adapted to the requirements of state-of-the-art laser cutting systems.

Galactic!
Mitsubishi Electric has built Michibiki 4, its 40th satellite.



The No. 1!
800,000,000 DIPIPMTM compact, intelligent power modules have been produced.



Smart!
Working together with a Mitsubishi Electric ASSISTA Cobot.



In 1979, we launched our first LPM in Japan.

MEL·LASER 46° ANNIVERSARIO 1979-2025

Research on CO2 lasers begins

Launch of the first CO2 laser in Japan

Launch of 3D lasers

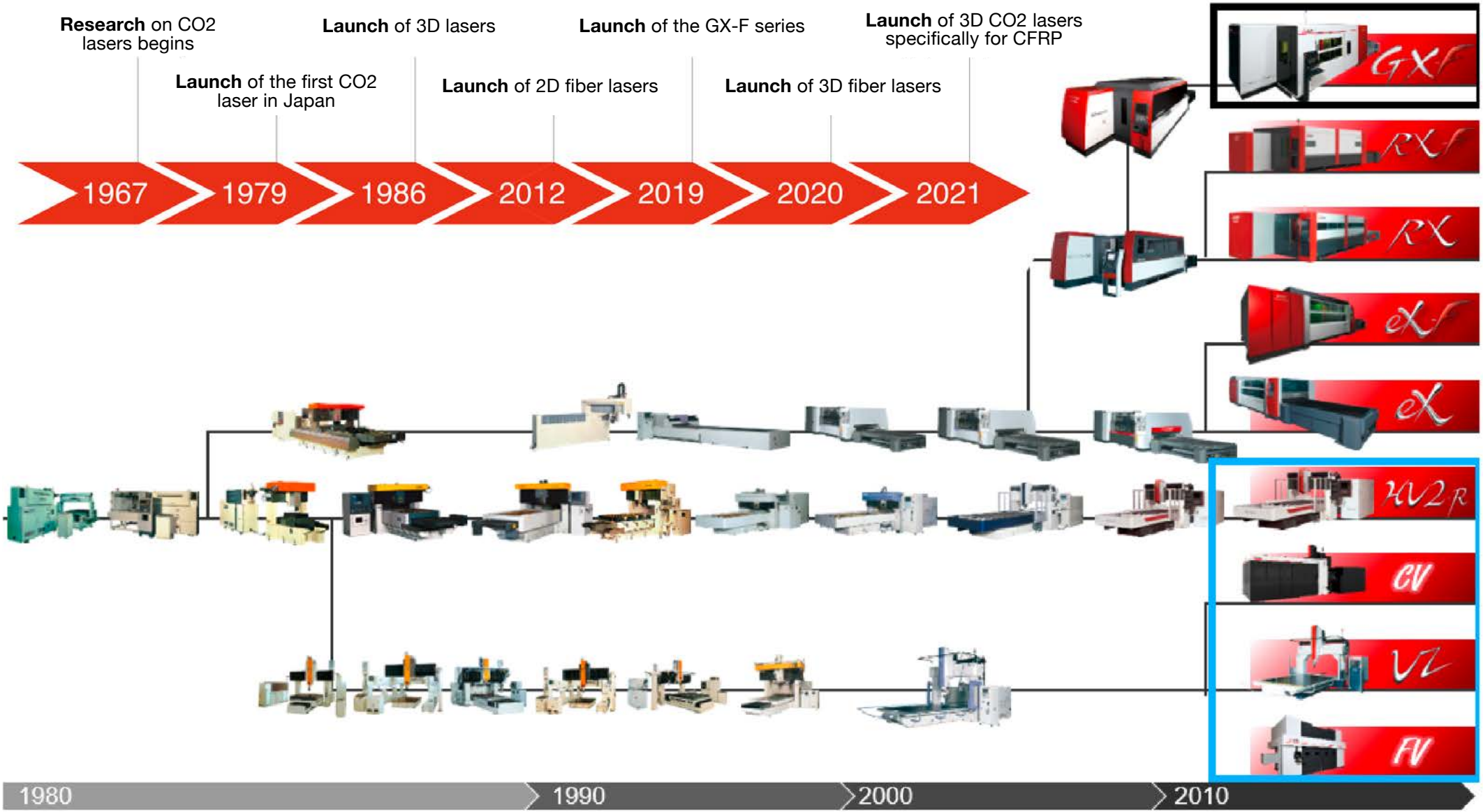
Launch of 2D fiber lasers

Launch of the GX-F series

Launch of 3D fiber lasers

Launch of 3D CO2 lasers specifically for CFRP

1967 1979 1986 2012 2019 2020 2021



1980 1990 2000 2010

31 Models since 1982.

A Guarantee of Innovation and Reliability



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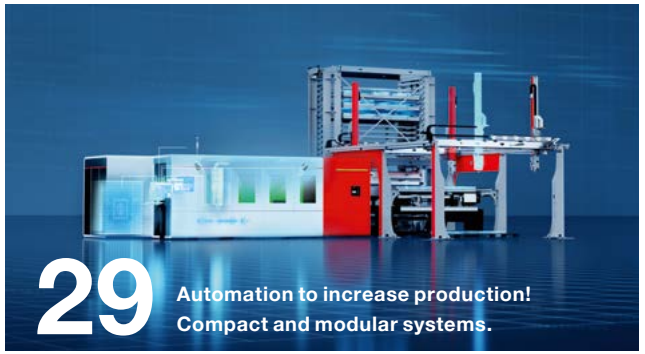








GX-F Series Fiber Laser

Based on Artificial Intelligence (AI)

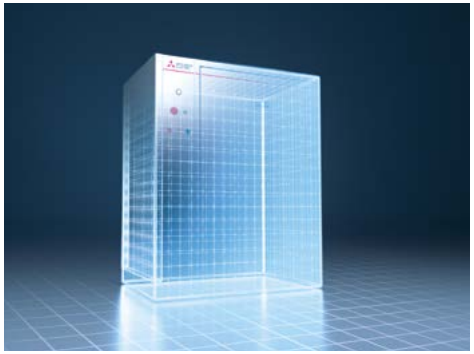
Less Input. More Output.

The power lies in what a fiber laser system can do, not in the kilowatts it has available

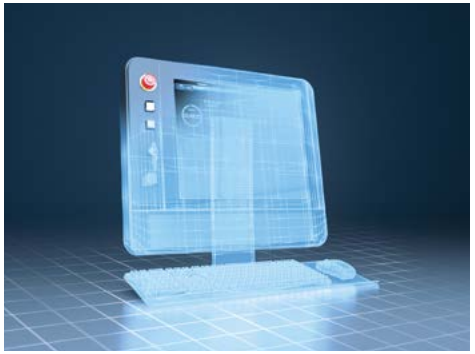
The GX-F series fiber laser cutting systems deliver more power using less nitrogen, which translates into lower operating costs and greater profitability. These state-of-the-art lasers are easy for operators to use, with intuitive controls similar to those of a smartphone and faster, more stable computing power that delivers consistent beam quality.

With the manufacturing industry suffering from a shortage of skilled workers, the GX-F series has been designed to minimize the need for operator intervention, maximizing quality and productivity. This is achieved through the perfect symbiosis between Artificial Intelligence (AI) technology and the M800 CNC control, the laser source, and the ZoomHead, all designed and manufactured in-house.

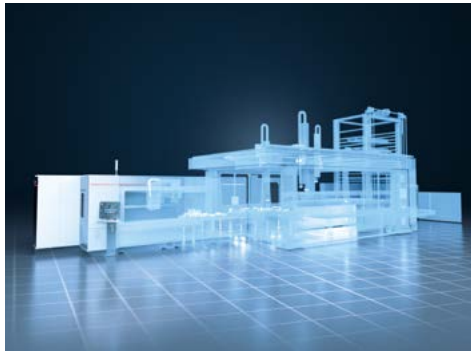
Laser Source Mitsubishi Electric



AI-Assisted Control



Designed for Automation



Achieve greater profits



5 YEARS OF WARRANTY

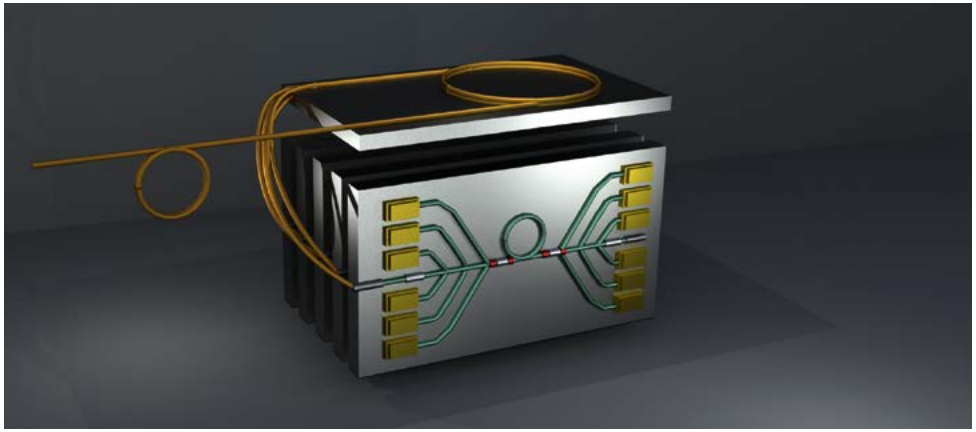


Is it really 16 kW or 20 kW?

The main issue is the capacity of your overall production process. Can you schedule, move, and sort cut components at the required speed? Can you supply the material sheets at the speed required to reliably increase overall productivity? Do you have enough staff to pick up the parts on a 20 kW production line? A faster laser will have minimal impact if there are bottlenecks or other issues in the production process. Request a free consultation to find out what really increases your profits and can offer you the greatest return on investment.

Mitsubishi Electric builds its own laser source,
to match the speed and reliability of its CNC control.

Advanced Laser Fiber Source



Fiber laser sources are solid-state, do not use optical components, and are sealed from the outside air. Thanks to their reliable design, only minor and regular maintenance is required. The Mitsubishi Electric laser source features the most advanced technologies for both clean beam cleaning and anti-reflection.

These advances not only improve reliability, but also enhance productivity and cutting capacity. A stable and reliable cutting process is guaranteed by all components within the laser source, which are manufactured to such a high standard of quality that they come with a 5-year warranty.

Cuts pure copper with nitrogen



Special beam cleaning and anti-reflection technologies prevent the laser source from damage caused by back reflection when cutting reflective materials.

This allows the GX-F series to be the only true fiber laser to cut pure copper with nitrogen.

5 years of peace of mind and unmatched quality.



AI-Assist – Artificial Intelligence supplied by Maisart

Higher cutting speeds with intelligent real-time monitoring during cutting. AI-Assist takes productivity to the next level and reduces waste.

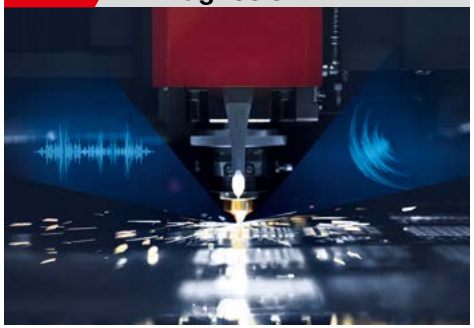
The entire process requires significantly less operator intervention and instantly detects any anomalies as soon as they occur, adjusting parameters or replacing nozzles to achieve the best results.

AI-Assist
makes it smart!

The “brain” behind the GX-F series is Mitsubishi Electric‘s proprietary Maisart® artificial neural network technology, which mimics the neurons in the human brain. It uses audio and light sensors to monitor the cutting process in real time, automatically adjusting parameters to optimize cutting performance.

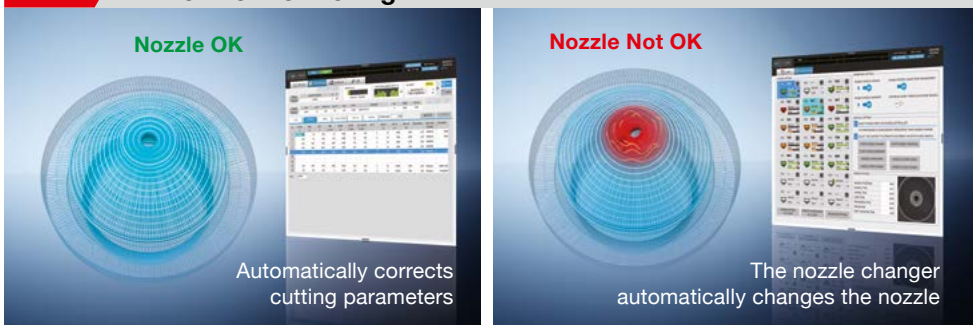
Depending on the stability of the machining, AI-Assist also increases the cutting speed. Also used in automobiles to help prevent accidents, Maisart® is the basis of the GX-F series, creating a process that maximizes productivity.

Step 1 **AI Diagnosis**



If an incorrect cut is detected, artificial intelligence will make the necessary adjustments to improve or recover the cut. The system can also optimize the cutting speed.

Step 2 **AI Nozzle Monitoring**



AI nozzle monitoring uses a camera system to monitor nozzle life. If no damage to the nozzle is detected during inspection, the cutting parameters are automatically adjusted.

Automatic Nozzle Changer



Nozzles detected as defective by AI monitoring are automatically replaced with spare ones to continue the cutting process for a long period of time.

Imagine a race car that only has 3 gears and wants to win...

Some lasers are designed this way, with only 3 beam settings... which means fewer cut products and lower cutting quality.



KICK | SAUBER F1® TEAM

TECHNICAL PARTNER

KICK Sauber C44

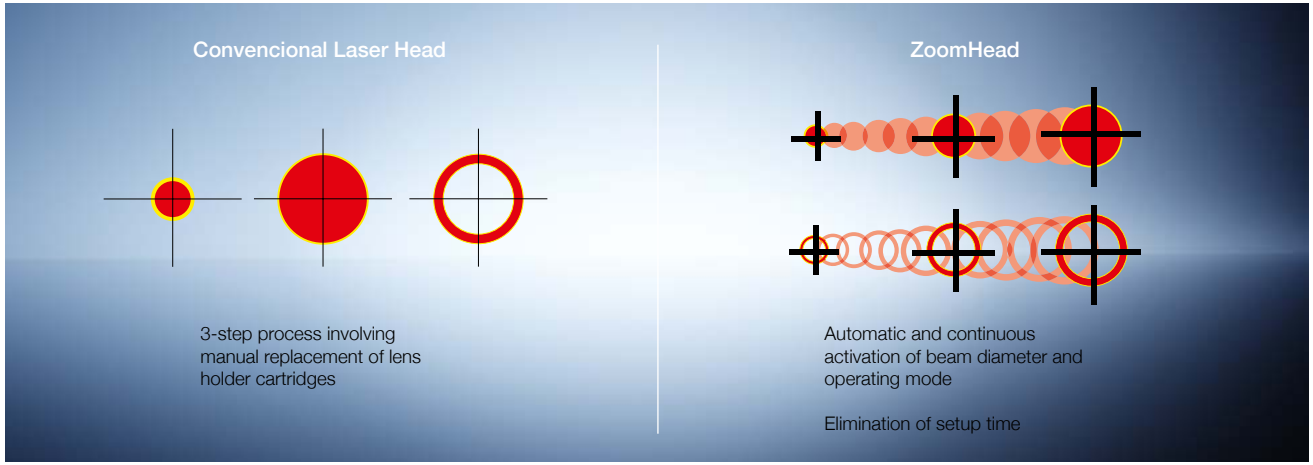
A concrete example of applied efficiency: Mitsubishi Electric technologies have been supporting the Sauber Formula 1 team for years in the high-precision production of critical components.

Mitsubishi Electric's ZoomHead.

Continuous adjustment of the laser beam faster than a pit stop!

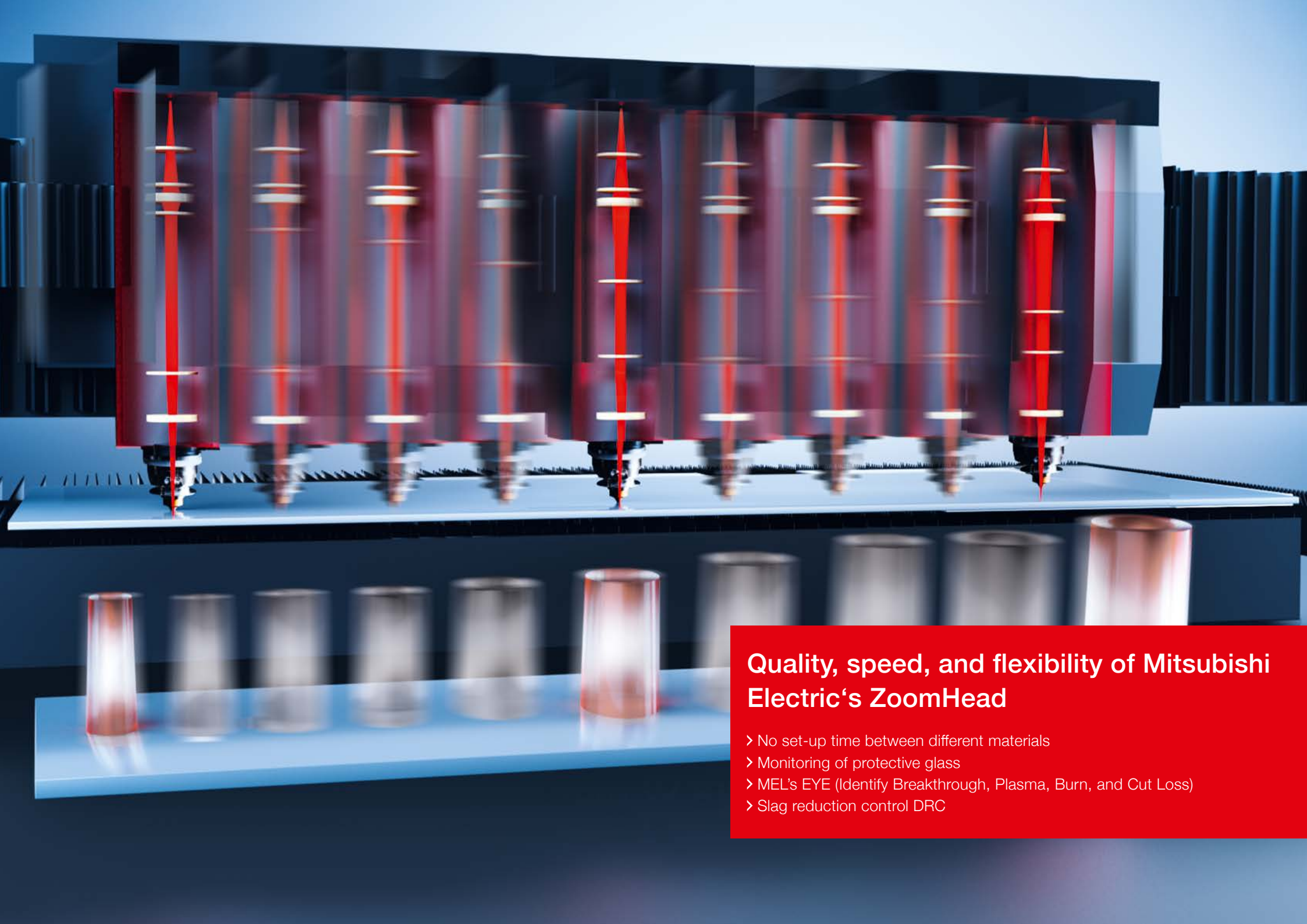
ZoomHead – Record-time adjustments





Mitsubishi Electric's proprietary optical system provides optimal beam control based on material and thickness. The ZoomHead offers quality, speed, and flexibility by automatically changing the beam size, beam shape, and focal point for each material. It also works with a wide range of thicknesses. Since there is no need to replace the cutting lens according to sheet thickness and material, setup time is significantly reduced.

This allows operators to switch from one material to another, even of different thicknesses, without compromising cut quality and without lifting a finger.
The optional nozzle changer automatically cleans, calibrates, and changes nozzles according to material types, eliminating setup time.



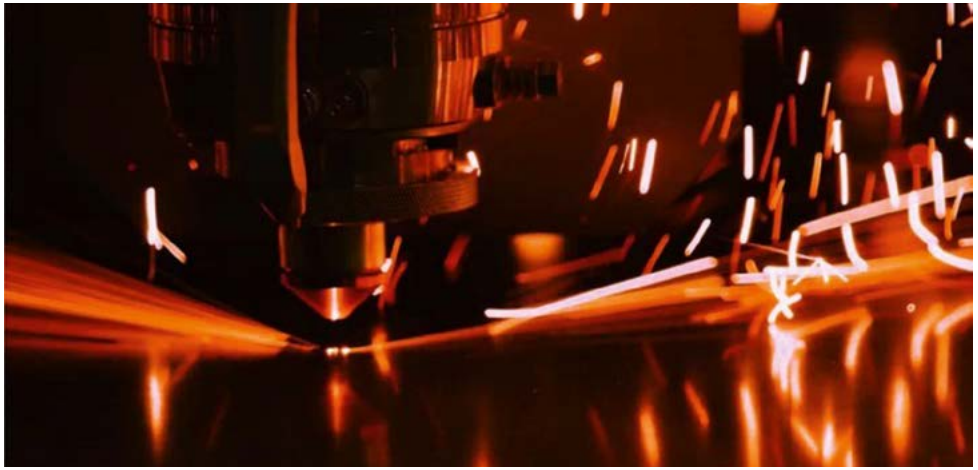
Quality, speed, and flexibility of Mitsubishi Electric‘s ZoomHead

- No set-up time between different materials
- Monitoring of protective glass
- MEL’s EYE (Identify Breakthrough, Plasma, Burn, and Cut Loss)
- Slag reduction control DRC

A laser is only as good as its ZoomHead.

With precise and continuous control, like the acceleration of an electric car...

High Power Breaking HPP



The perfect symbiosis between the laser source, fiber, and Mitsubishi Electric's ZoomHead not only improves cutting quality but also reduces breakthrough time by up to 60%, making it possible to pierce 25 mm of iron in 0.8 seconds.

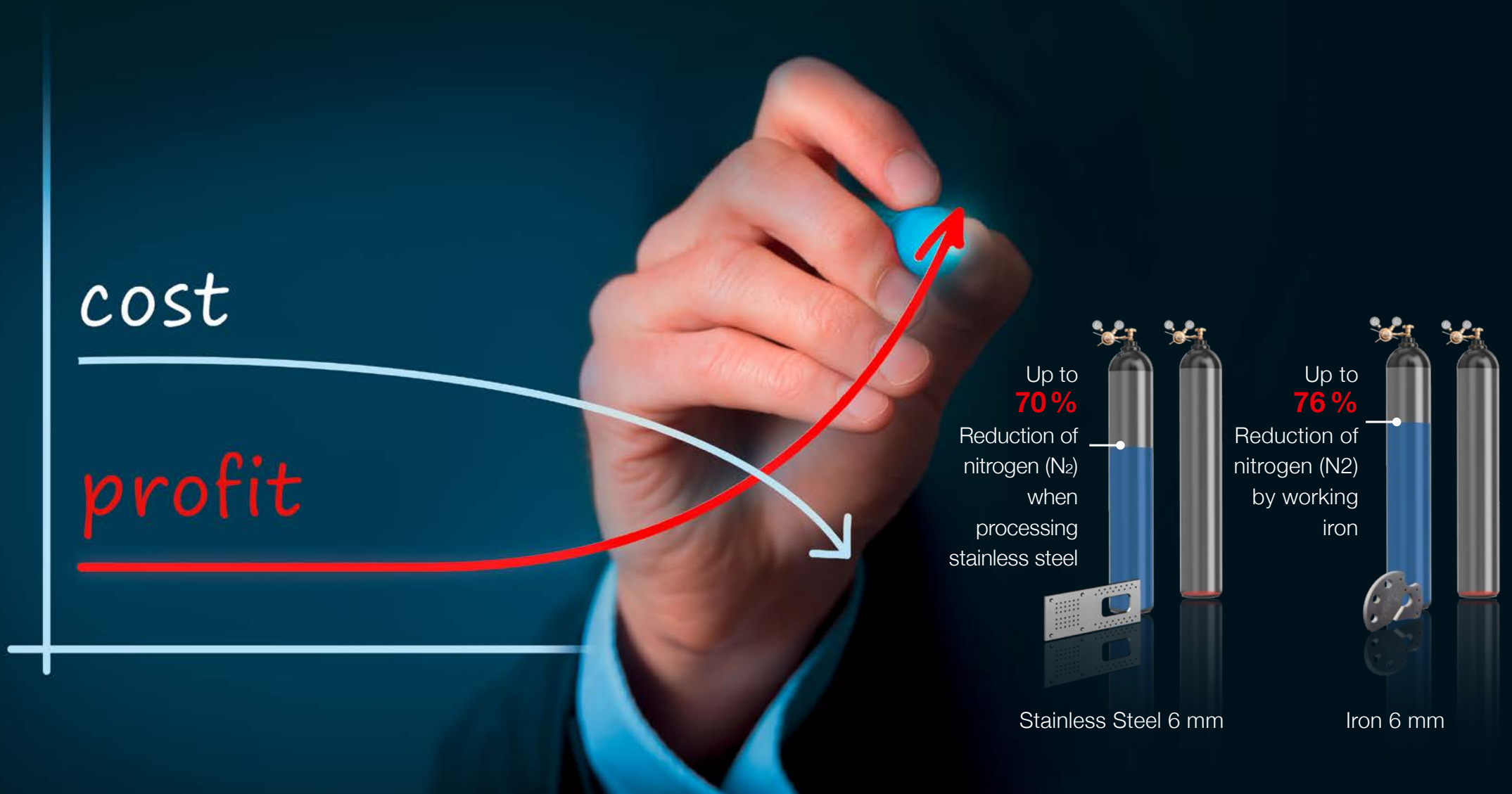
Magnetic mechanism for damage reduction



The cutting head is held magnetically in place and can be returned to its original position within seconds after a collision. This not only minimizes the risk of damage to components in the event of a collision, but also reduces the need to center the nozzle after unexpected contact.

Take a look at gas consumption reduction technology, which generates profits for you... and has other advantages too.

› No scratches on the surface of the material
› During cutting from 1 mm to 25 mm



Advanced technology for reducing gas consumption (AGR-eco).

Lower operating costs mean higher profits

Increased productivity

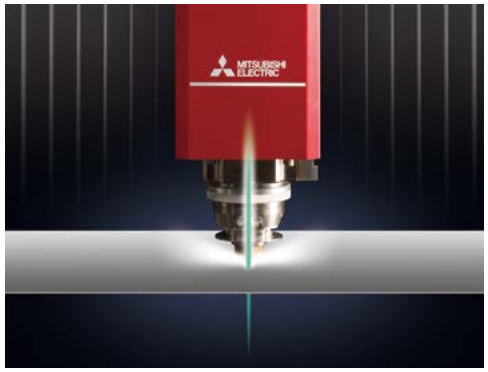




Increase profits by boosting productivity. Productivity gains of up to 26% are achieved through faster piercing times and higher cutting speeds thanks to the high quality of Mitsubishi Electric's fiber laser beam, but mainly due to faster communication from the AI-assisted M800 CNC control.

Lower operating costs





Increase profits by reducing operating costs. Reduced operating costs are achieved by decreasing nitrogen (N2) consumption by up to 76%. This value can be achieved by using Mitsubishi Electric's original nitrogen (N2) flow technology, which has the advantage of drastically reducing consumption without the nozzle touching the surface of the material, i.e., without scratching the surface, and being able to work with materials from 1 to 25 mm thick.

Mitsubishi Electric‘s CNC Control 800

Intuitive, easy to use

- Extensive database of parameters for all common types of material
- Online work planning and execution time estimation
- Real-time adjustment and correction of conditions
- Intelligent cutting assistance
- Real-time monitoring of electricity and service gas consumption



Mitsubishi Electric‘s CNC Control M800.

Designed for Simplicity and Reliability

The intelligent and ergonomic M800 control offers a large 19“ user interface. Operation is intuitive and easy to use, similar to a smartphone. Touch screen, mouse, and keyboard are available to the operator to find the ideal way of working for everyone. The CNC control comes with an extensive database of parameters for all common types of material. This supports even inexperienced operators and offers good starting conditions for more experienced ones.
Each operator can customize the start screen and shortcuts. The ability to adjust machining conditions in real time ensures the best cutting quality.
Intelligent cutting assistance, as well as advanced assistance and maintenance screens, help the operator keep the cutting process and the machine in optimal condition.

Multi-Touch-Display with gestures control



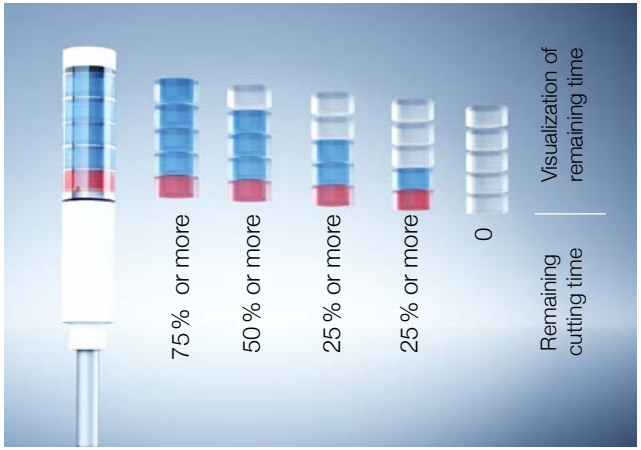
Simply scroll to the desired screen.
The graphics can be easily resized.

Adaptable to your needs



The start screen can be customized in just a few clicks. Simple nesting of multiple parts allows for quick reproduction of parts.

Staying on top of the process



During the cutting process, the display shows the time remaining until the end of the program, which is also indicated by the 5-level light signal tower. This allows the operator to keep the process under control at all times, both on the machine and from a remote location.

Easier to use than many smartphones - and just as productive.



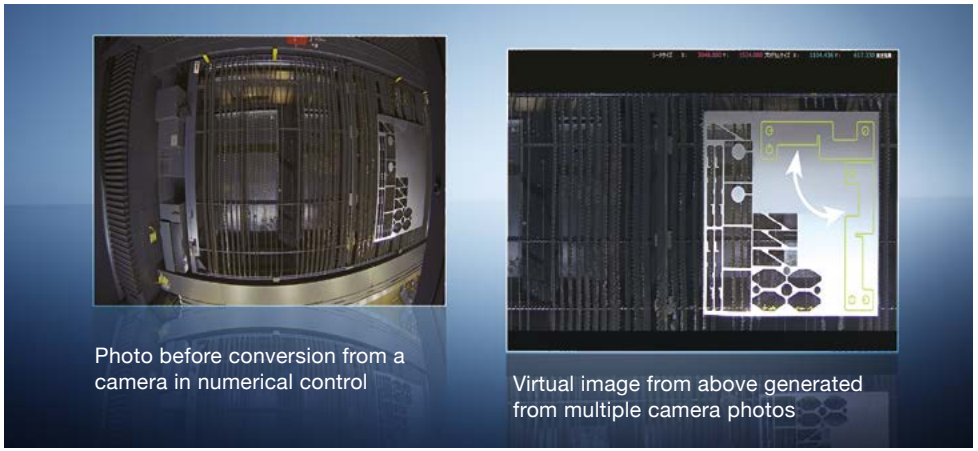
MEL‘s AR – Eliminate Any Uncertainty

› Cut the part in seconds (drag, drop, and press start)
› Virtual image from above generated from multiple camera photos
› Simple nesting of multiple parts, rotation of parts, and scrap

Mitsubishi Electric‘s Augmented Reality (MEL‘s AR).

Easy use of leftover sheet.

Virtual image from above



After placing the residual sheet anywhere within the work area, you can take a virtual image from above using multiple cameras within the system.

Easy positioning and nesting



Individual pieces or nestings can then be positioned on the recovered scrap sheet. This ensures that the parts truly fit the designated scrap sheet. Simply press start to cut the required parts or nestings.

Never waste material again with this easy-to-use and precise feature.

Laser Automation – Get the most out of your laser system

- Increased productivity
- Rapid return on investment
- Automatic sorting of parts
- Easy programming in 4 clicks



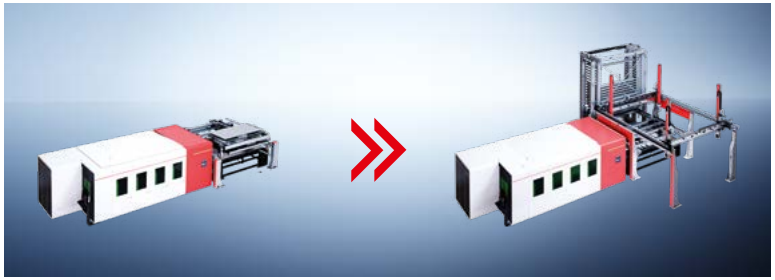
Automation to Increase the Production!

Compact and Modular Systems.

Is a laser system with pallet changer enough for you? With automation, you can increase machine utilization and produce more parts per hour. Intelligent, customized automation solutions are available so you can achieve the degree of automation that best suits your needs. Degrees of automation range from loading and unloading systems to fully automated process solutions with automatic picking and sorting of cut parts and warehouse integration.

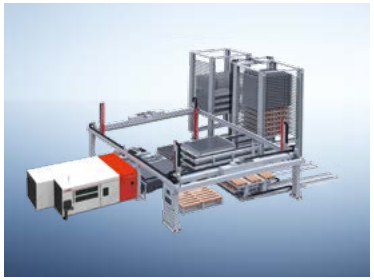
Ready for automation!
Not sure what the future holds and want to start small? No problem: our automation solutions can be adapted at any time.
Your laser cutting system can grow with your needs.

ASTES4 Modular Automation System



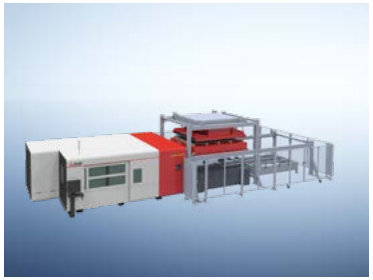
From the SkyWay loading/unloading system to the fully automated high-speed sorting cell with an integrated storage system.
In modular stages, according to your needs.

ASTES4Sort



The fully automated sorting cell that adapts completely to your specific needs.

ASTES4Linear



The linear loading/unloading system. Automation with minimal space requirements.

ASTES4CompactTower



The compact tower automation system. Longer processing times without operational intervention.

Only one way to safeguard your investment...

Use it wisely...

This page probably only exists in a Mitsubishi Electric catalog...
Here's 5 reasons why thi is the case:

No. 1
Using internally manufactured components with a slight difference... this makes all the difference – complete control of quality and specifications at all times

No. 2
Long-term availability of spare parts, with no risk of discontinuation

No. 3
International patent registrations of laser cutting system manufacturers

No. 4
Company size: any guarantee or support is based on the actual presence of the supplier within 10 years...

100 YEARS
...a safe investment with a reliable partner

Key Components produced by Mitsubishi Electric


Laser Source


Laser cutting head


CNC Control


Servo motors


Servo amplifiers


Frequency inverters


Power switches



Assistance Service Smart and Remote

Expert assistance when you need it. The specialist technician can get a clear picture via remote connection and your smartphone/tablet camera to provide targeted help. This makes diagnosis safe, fast, and accurate, wherever you are.
Secure connection, no additional software installation required: browser-based, fast, and no travel costs.

World-Class Service!

For the most demanding customers...

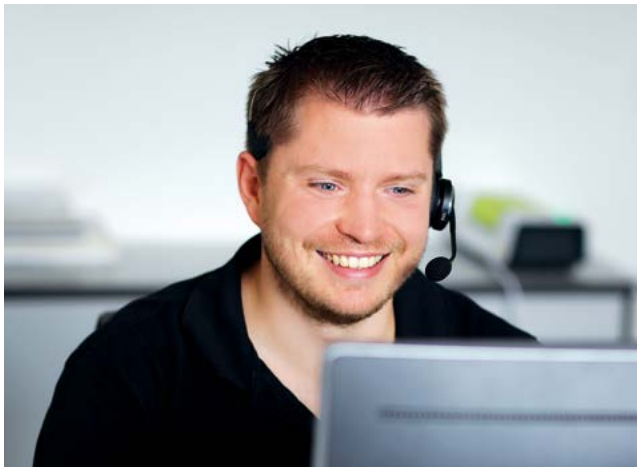
Installation, training, and technical support



To get off to a good start, everything must be ready when the laser cutting system is installed.
Our experienced engineers ensure professional installation. Users receive operational and application training to acquire the necessary skills.
Immediately after installation and at any time in the future, if necessary.

Telephone and on-site service





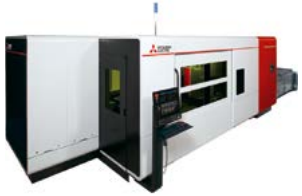
Our support team, consisting of our helpdesk and field service technicians, ensures your long-term success. Whether you need support by phone, email, or in person at your site, you will always receive reliable service from Mitsubishi Electric.

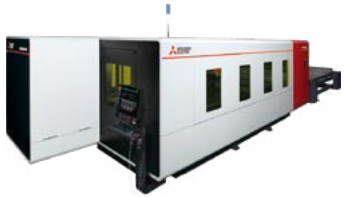
Competent assistance whenever I need it.


98,7%
of spare parts and consumables are available in Europe.
Delivery within 24/48 hours from our warehouse in Italy.
167.000
spare parts
in our warehouse.

Technical Data

GX-F Series	ML3015GX-F	ML4020GX-F





Machine Specifications			
Machine type		Mobile Optics	
Control		Mitsubishi Electric M800 – 19” Multi-Touch display	
Motion of the Axes	X-axis	3.100 mm	4.100 mm
	Y-axis	1.565 mm	2.100 mm
	Z-axis	120 mm	
Rapid feed rate		Max. 170 m/min simultaneous	
Positioning repeatability		+/- 0,01 mm	
Maximum sheet size		3.050 x 1.525 mm	4.050 x 2.060 mm
Maximum sheet weight		950 kg	1.650 kg
Board height		890 mm	
Machine Dimensions		10.550 x 2.970 mm	12.400 x 3.560 mm
Machine weight		9.400 kg	13.000 kg

Laser Source Specifications	
Manufacturer	Mitsubishi Electric
Excitation method	Ytterbium Doped Fiber
Wavelength	1,07 µm
Types of lasers available	F40/F60/F80/F100/F120/F160/F200
Available laser power (CW)	4/6/8/10/12/16/20 kW
Cutting head	ZoomHead
Transmission method	Fiber Cable

Cutting thickness	GX-F40	GX-F60	GX-F80	GX-F100	GX-F120	GX-F160	GX-F200
Material	**Nominal/Maximum cutting thickness (mm)**						
Iron	25 / 28	25 / 30	25 / 30	25 / 30	25 / 30	25 / 30	25 / 30
Stainless Steel	20 / 22	25 / 30	25 / 30	25 / 30	25 / 30	25 / 30	25 / 35
Aluminum	20 / 22	25 / 30	25 / 30	25 / 30	25 / 30	25 / 30	25 / 30
Brass	12 / 14	15 / 18	15 / 18	20 / 22	20 / 22	20 / 22	20 / 22
Copper	6 / 8	10 / 12	12 / 15	15 / 18	15 / 18	15 / 18	15 / 18

All values mentioned in this brochure are based on a certain laser source power and on the conditions of the machine, the environment, the operator's skills, and the quality of the required parts. The maximum cutting thickness is limited by the maximum weight per sheet.
Please note that the values obtained may differ due to the costs of energy, gas, services, and other factors in your specific country/region.

Here I find the machinery that's right for me!



EN Subject to technical change and error / effective 09.2025 / Version 2.0.0

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ASTES4

MITSUBISHI ELECTRIC
Changes for the Better