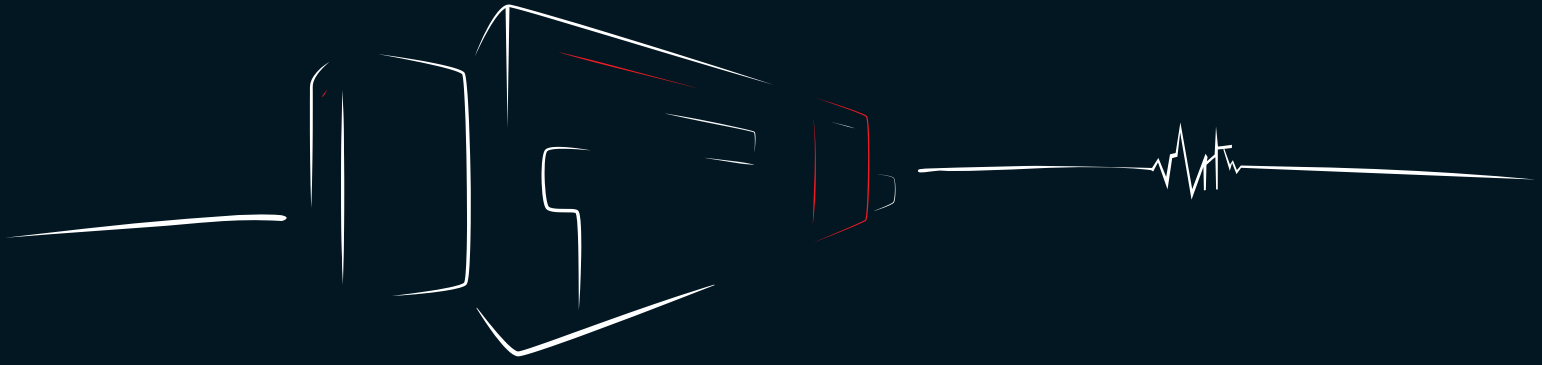


The Art of *Economy*



FIBER LASER CUTTING



GX-F SERIES



Fiber Laser Systems

For the Ultimate Boost of Output.

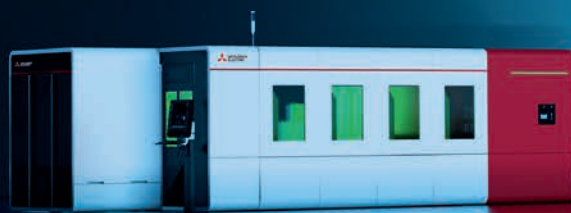


4/6/8/10 kW



3050 x 1525 mm

4050 x 2060 mm



Want to learn what artificial intelligence can do to increase your profit? Find out in this brochure!

CrossFlow Laser Systems

Cutting Quality has a Name.



4.5/6 kW



3050 x 1525 mm



This might also be of interest for you.

Superior cutting quality in stainless steel required?

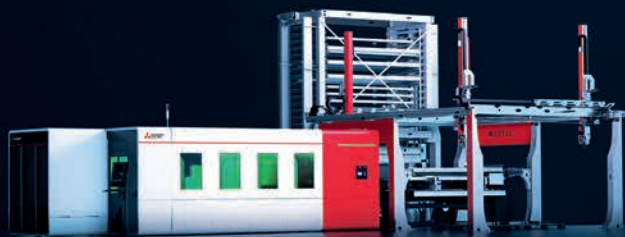
Do you know the CrossFlow?

www.mitsubishi-laser.de/cross-flow



Laser Automation Systems

Higher Productivity means Higher Profit.



Want to increase your earnings?

Leading modular automation solutions

www.mitsubishi-laser.de/laser-automation





Cost-Effective and of High-Value.

Over 18,000 laser cutting systems supplied – experience from a global player.
This also finds expression in the current models.

Development has been focused on high quality, high dynamic and availability,
easy and advanced operation, and brilliantly conceived design.



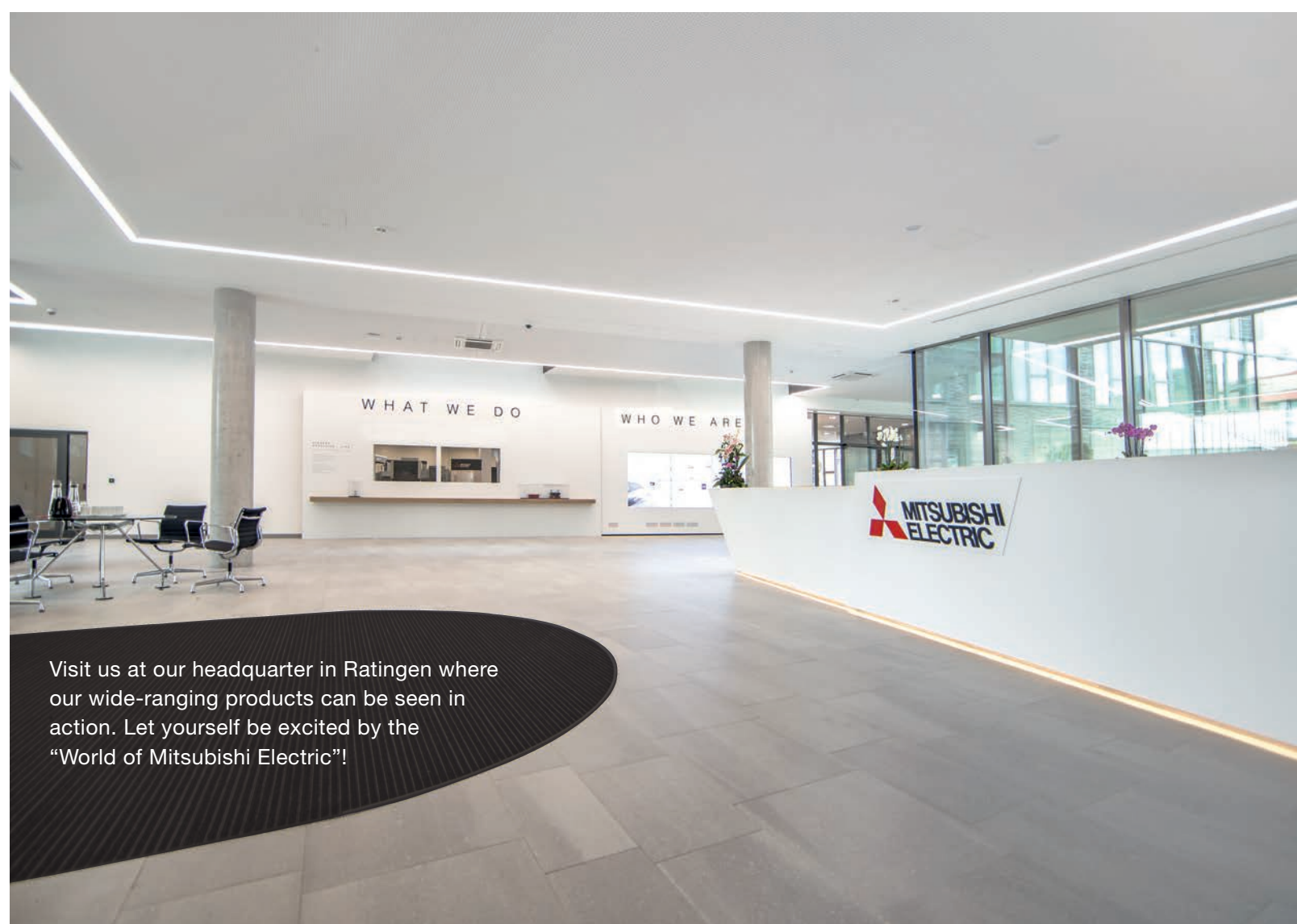
If you want to achieve Big Goals, you need a Strong Partner you can count on.



Companies worldwide rely on high-output laser cutting systems from Mitsubishi Electric since 1982.

Only by developing and producing all the key components in-house can you tailor them to perfection. Mitsubishi Electric resorts to its own controls, motors, frequency inverters, relays and many other components that are adapted in every detail to the requirements. The only thing that you notice of it is that the machine is running smoothly – and often even for decades after purchase.

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



Visit us at our headquarter in Ratingen where our wide-ranging products can be seen in action. Let yourself be excited by the “World of Mitsubishi Electric”!

What does Mitsubishi Electric do?

Paving the way to a Secure Technological Future...

As a green technology corporation, Mitsubishi Electric and its 146,500-strong workforce manufacture electrical and electronic products and systems. The product range contains satellite systems, elevators, industrial robots, laser cutting systems, electrical discharge machining (EDM) systems, CNC controls, air conditioning units, power semiconductors and much, much more besides. In demand worldwide, these products generate annual sales of 32.8 billion Euro.

Key components are produced in-house and tailored to the requirements of hypermodern laser cutting systems.

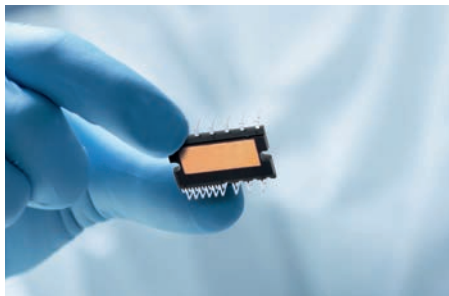
Galactic!

Mitsubishi Electric has built “Michibiki 4”, its 40th satellite.



The number one!

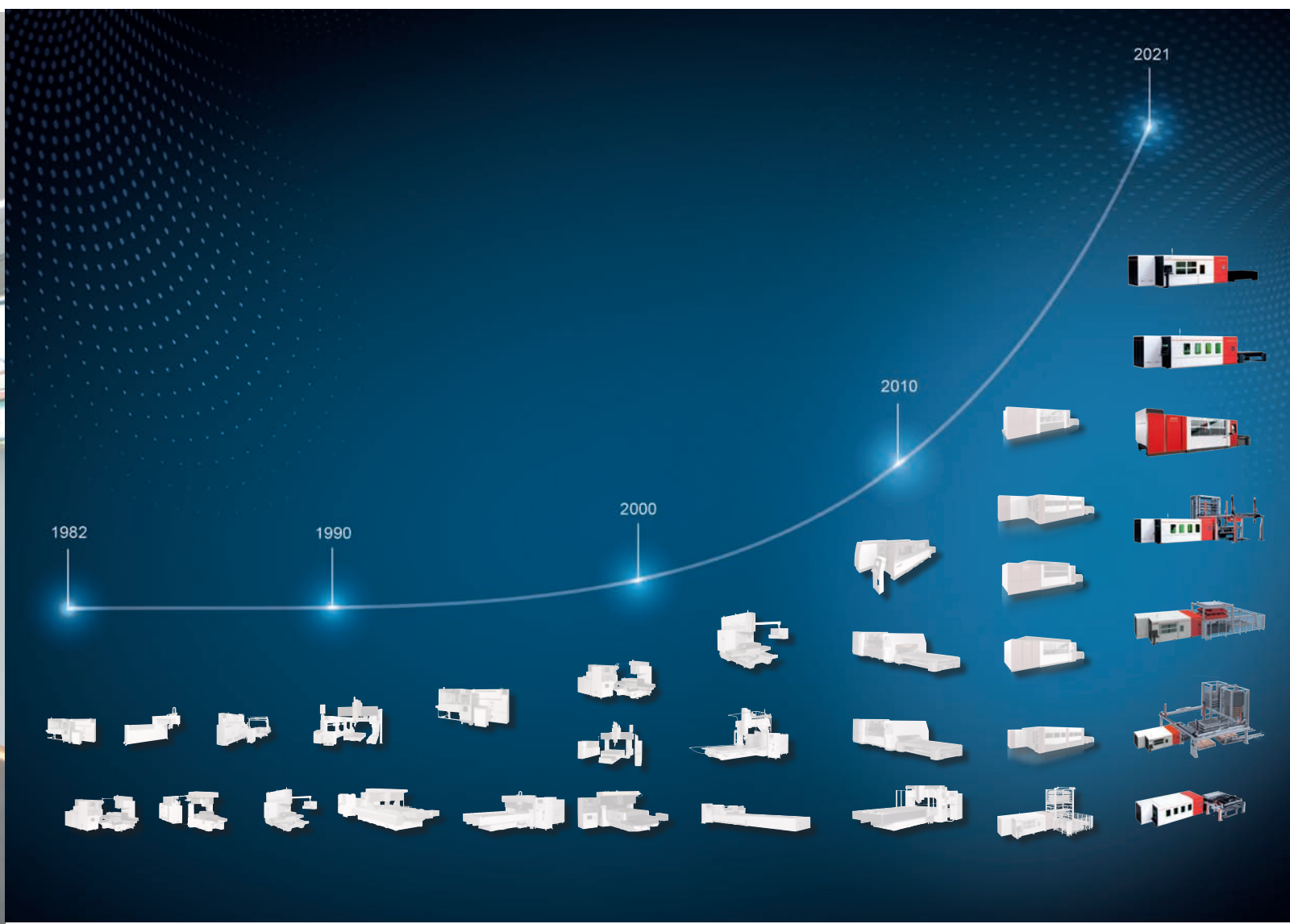
800,000,000 DIPIPM™ transfer-molded package intelligent power modules were produced.



Smart!

Working together with Mitsubishi Electric ASSISTA Cobot.

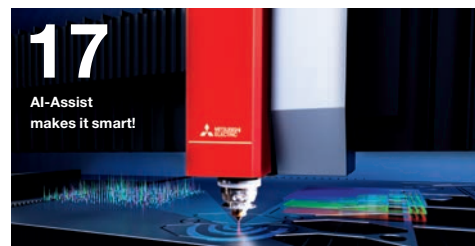


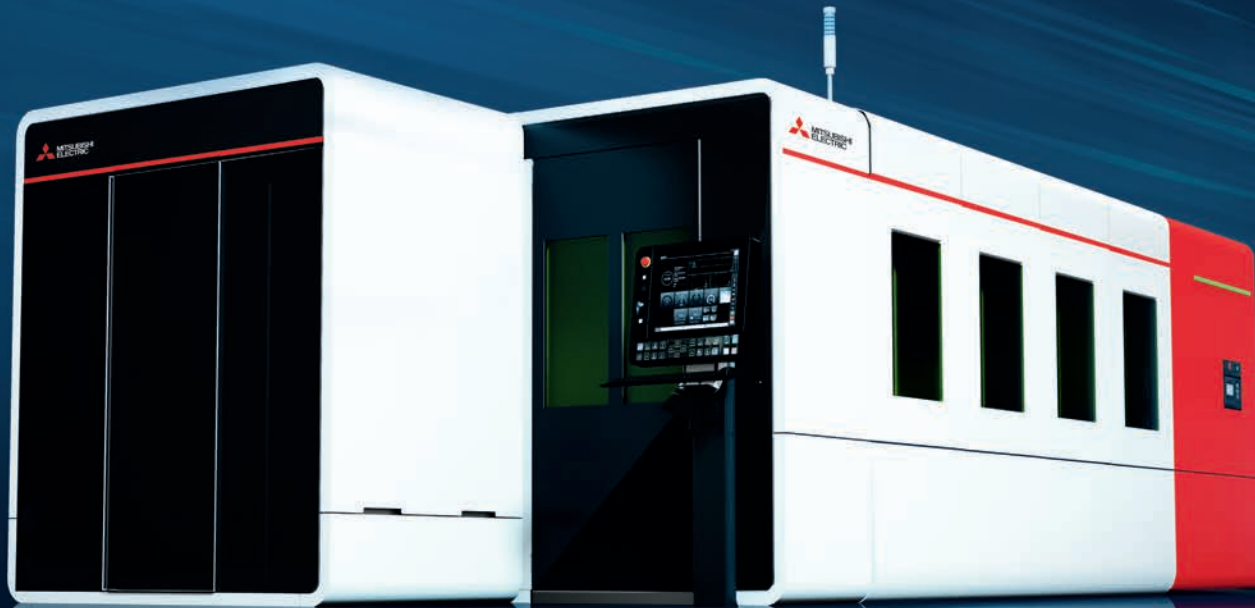


31 Models since 1982.

An Assurance of Innovation and Reliability.

Product overview	3
Application sectors	5
Mitsubishi Electric	7
Highlights	13
Fiber Laser Source	15
AI-Assist	17
ZoomHead	19
AGR-eco	23
CNC Control	25
Augmented Reality	27
Automation	29
Software Packages	31
Investment Security	33
Service	35
Spare parts	37
Technical data	39





GX-F Fiber Laser Series
 Powered by Artificial Intelligence (AI)

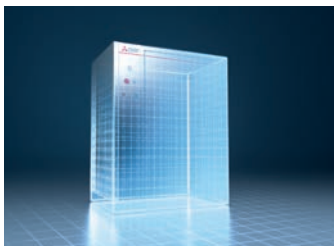
Less Input. More Output.

Power lies in what a Fiber Laser System Can Do, not in the kilowatts it has.

The GX-F Series fiber lasers deliver more power while using less nitrogen, translating into lower operating costs and higher profitability. These state-of-the-art lasers are easy to use for operators of all skill levels, with intuitive, smartphone-like controls and faster, more stable processing that delivers consistent beam quality.

With the manufacturing industry suffering from a shortage of experienced workers, the GX-F Series has been designed to minimize the need for operator input while maximizing quality and productivity. This is achieved by the perfect symbiosis of AI technology and the all-in house designed and manufactured M800 CNC-controller, laser source and ZoomHead.

Mitsubishi Electric laser source



AI-assisted control



Designed for automation



Achieving higher profits



5-YEARS WARRANTY

Up to 50 % wall-plug Efficiency



Why not 15 kW, 20 kW or 30 kW?

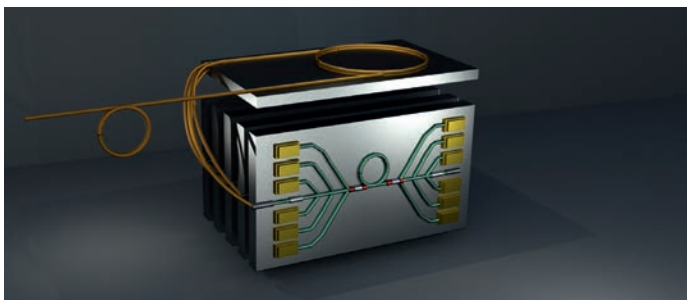
The core question is how much throughput does your process yield. Can you programme, move and sort the parts quickly enough? Can you supply the sheets at the required rate to really increase throughput reliably? Do you have enough manpower for picking parts in a 30-kW production line?

If you have other bottlenecks in your production, a faster laser will have very little impact. Ask for a free consultation to find out what increases your profits and gets the most out of your investment.

Mitsubishi Electric builds its own Laser Source,

to match the own CNC Control's Speed and Reliability.

Advanced Fiber Laser Source



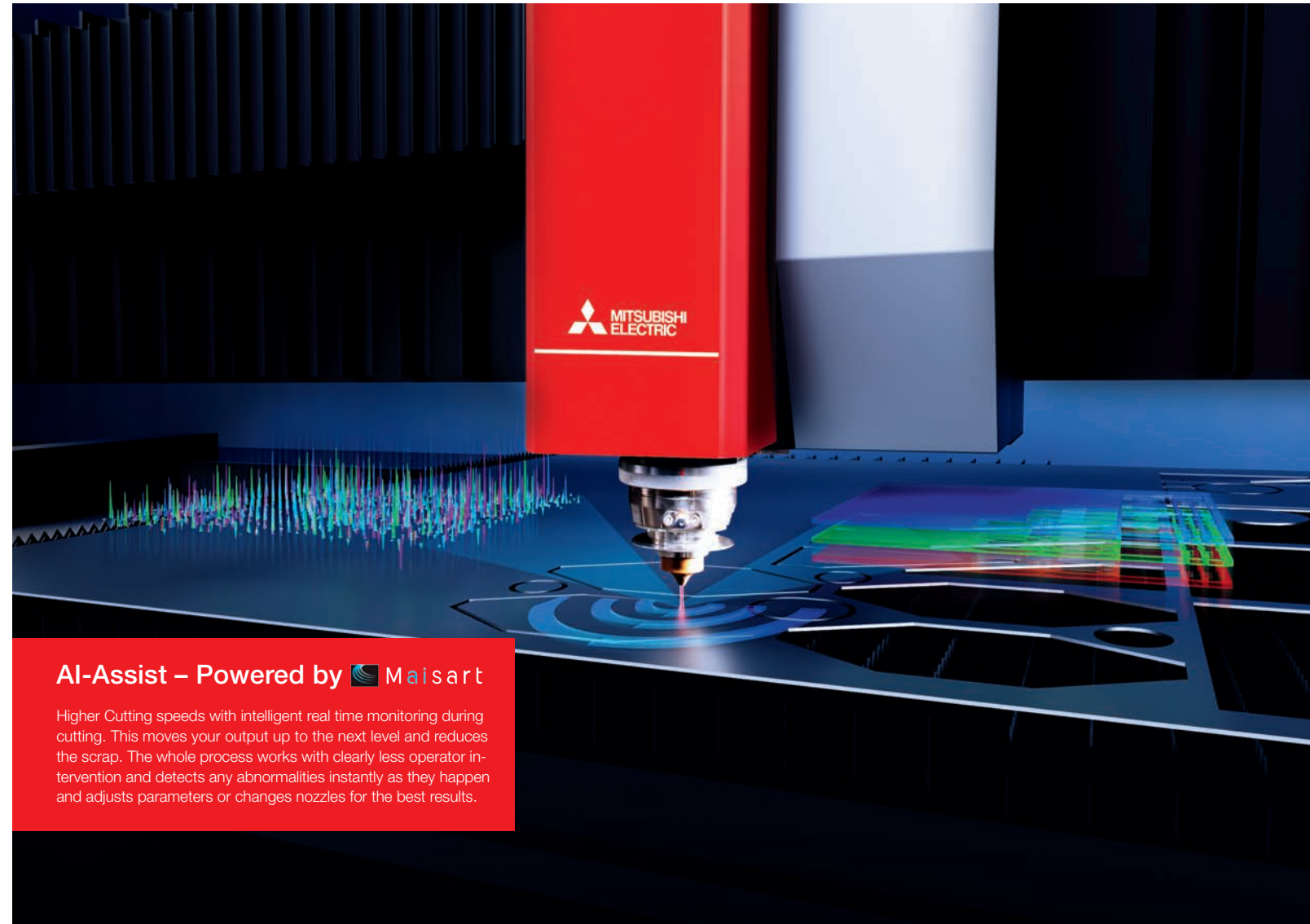
Fiber laser sources are solid state, use no optical components and are sealed from outside air. Because of the reliable design, there is little need for regular maintenance.

The Mitsubishi Electric laser source delivers the latest advances in clean beam and anti-reflection technologies. These advances not only improve reliability but also enhance output and processing capabilities. A stable and reliable cutting process is ensured by all components inside the laser source which are produced to such a high-quality standard that 5 years warranty are offered.

Cuts pure copper with nitrogen



The special beam cleaning and anti-reflection technologies prevent the laser source from damages caused by back-reflection from reflective material. This enables the GX-F Series as the only true fiber laser to cut pure copper with nitrogen.



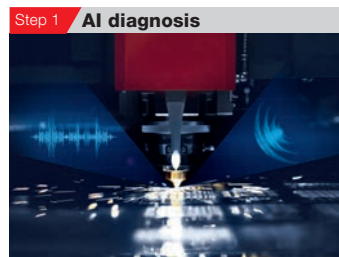
AI-Assist – Powered by Maisart

Higher Cutting speeds with intelligent real time monitoring during cutting. This moves your output up to the next level and reduces the scrap. The whole process works with clearly less operator intervention and detects any abnormalities instantly as they happen and adjusts parameters or changes nozzles for the best results.

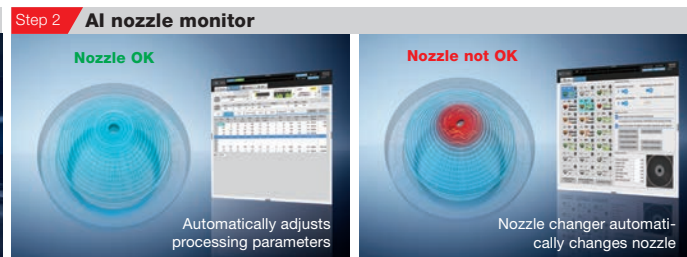
AI-Assist makes it Smart!

The “brains” behind the GX-F Series is the proprietary Mitsubishi Electric artificial neural network technology Maisart®, which imitates 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 output. Depending on the processing stability, AI-Assist also increases the cutting speed.

Also used in automobiles to help prevent accidents, Maisart® is the foundation of the GX-F Series, creating a processing system for maximum productivity.



If a bad cut is detected, the artificial intelligence will make the required adjustments to improve or regain the cut. The system can also optimize the cutting speed.



The AI nozzle monitor uses a camera system to monitor nozzle life. If it doesn't detect any nozzle damage during its inspection, the processing parameters are adjusted automatically.



Nozzles that are determined to be defective by the AI nozzle monitor are automatically replaced with spare ones to support continuous processing for a long period of time.

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

Some lasers are designed like that, just 3 beam settings... meaning less output and lower parts quality.



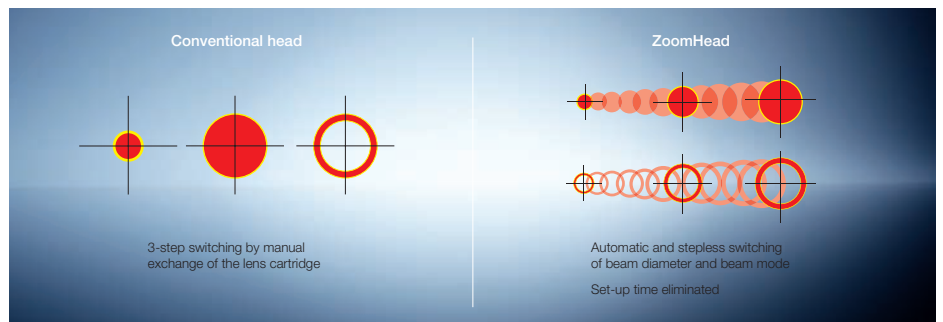
Alfa Romeo Racing C41



Mitsubishi Electric ZoomHead.

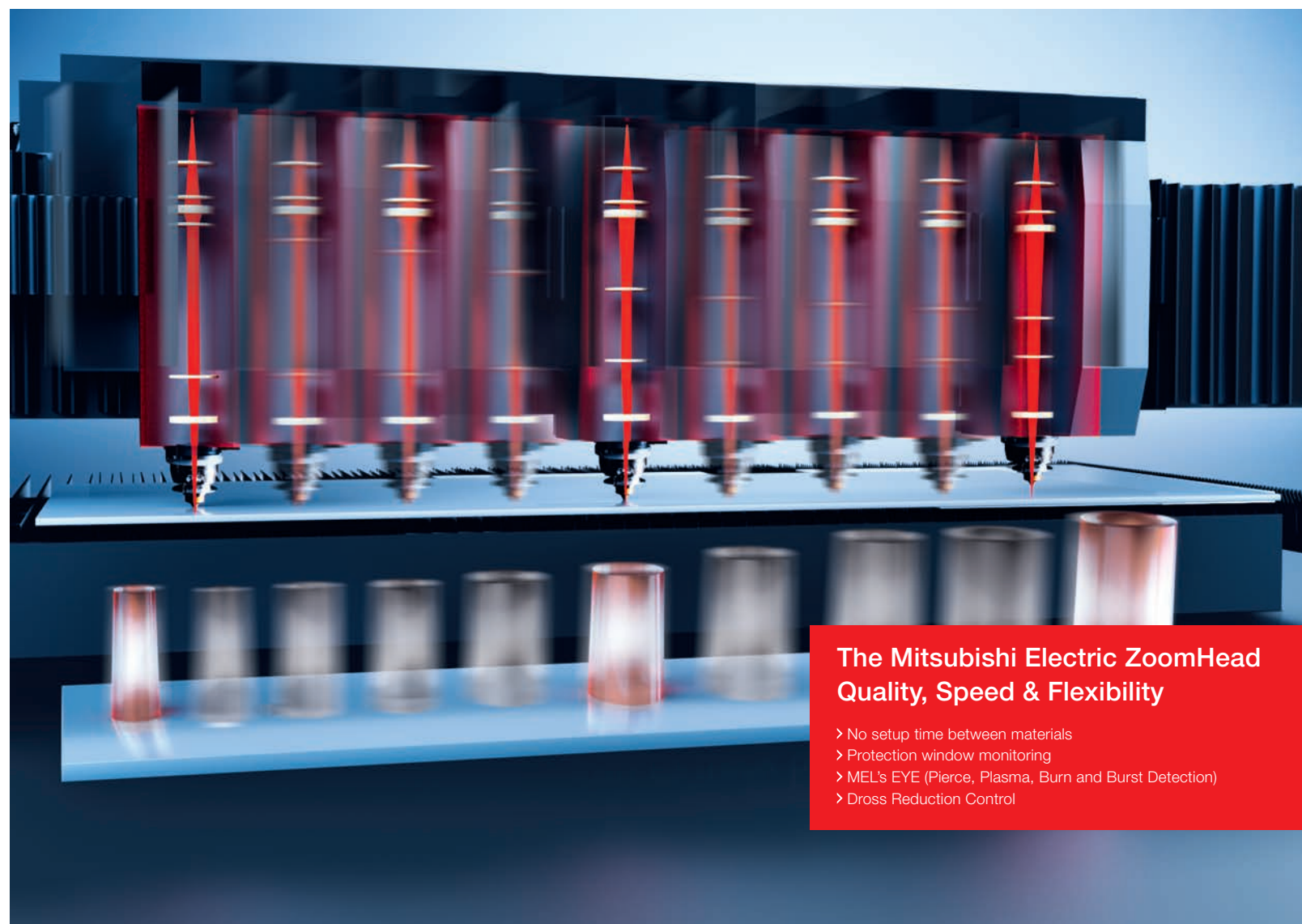
Stepless Laser Beam Adjustment faster than a Pit Stop!

ZoomHead – adjustments in record time



Mitsubishi Electric's proprietary optical system offers optimal control of the beam according to the material and thickness. The ZoomHead delivers quality, speed and flexibility by automatically changing the beam size, beam shape and focal point for each material. It also processes a wide range of thicknesses. Because it's not necessary to exchange the processing lens according to sheet thickness and material, setup time is significantly reduced. So, operators can switch between material of different thicknesses without compromising cutting quality, even without a finger tip.

The optional nozzle changer automatically cleans, calibrates and changes nozzles between material types to eliminate setup time.



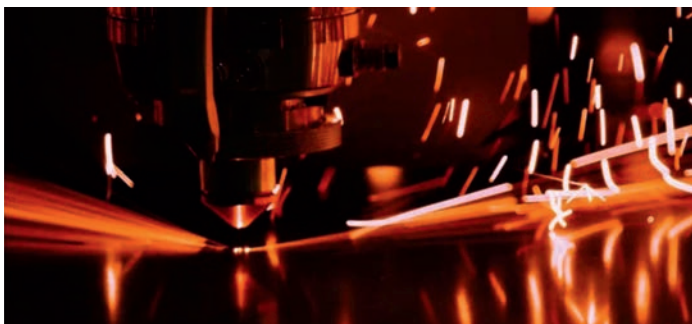
The Mitsubishi Electric ZoomHead Quality, Speed & Flexibility

- > No setup time between materials
- > Protection window monitoring
- > MEL's EYE (Pierce, Plasma, Burn and Burst Detection)
- > Dross Reduction Control

A Laser is only as good as its ZoomHead.

With Precise, Stepless Control, like the Acceleration of an Electrical Car...

High Peak Piercing



The perfect symbiosis of Mitsubishi Electric's own laser source, feed fiber and ZoomHead does not only improve the edge quality but also reduces the piercing time by as much as 60 percent, making it possible to pierce a 25-mm-thick mild steel within 0.8 seconds.

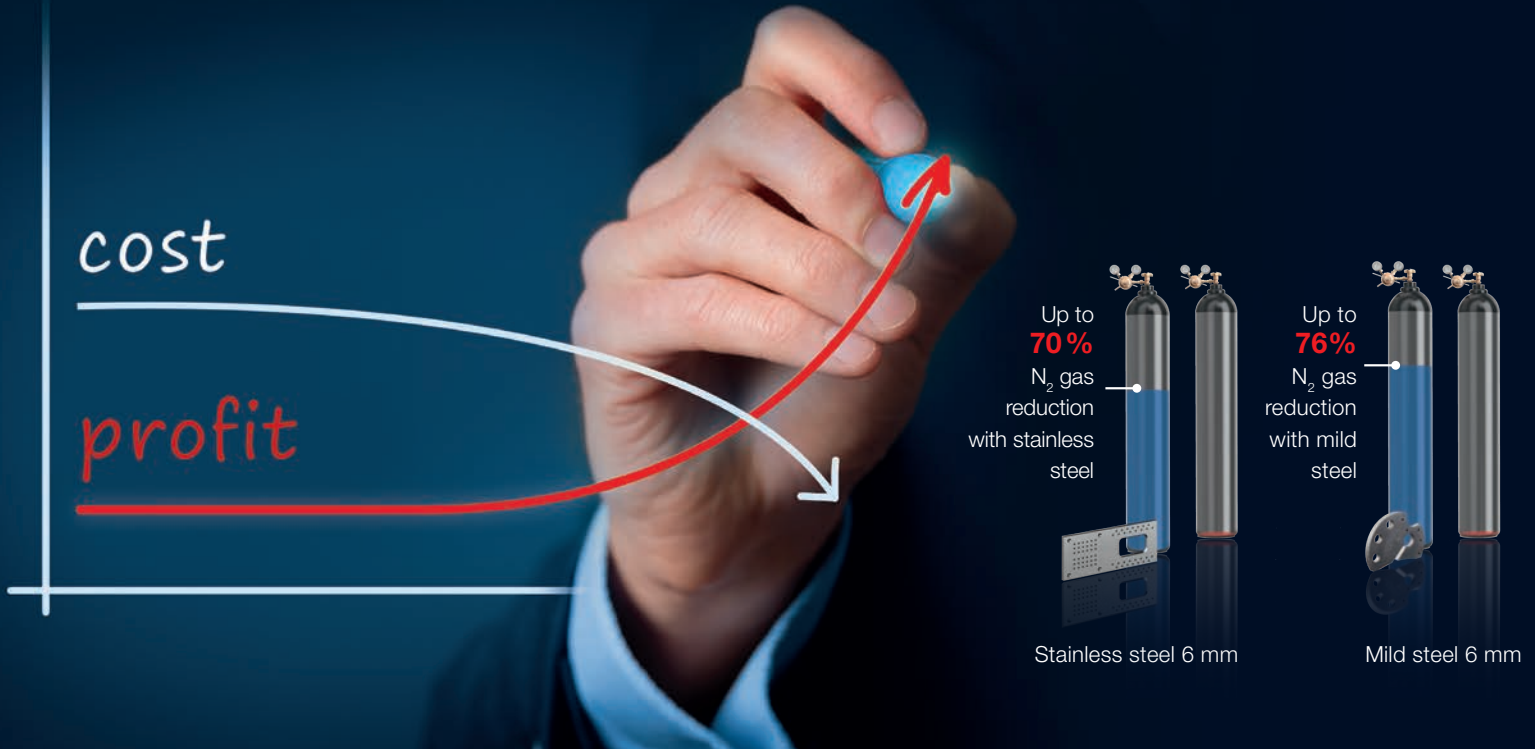
Magnetic damage reduction mechanism



The processing head held magnetically in position can be returned to its original position within seconds after a collision. This not only minimizes the risk of components being damaged in collisions, but also reduces the need to center the nozzle after an unexpected contact.

Have a look at the technology for the reduction of assist gas, that creates profits for you... and has other benefits as well.

- > No scratches on the material surface
- > Working from 1 to 25 mm



Advanced Gas Reduction Technology (AGR-eco).

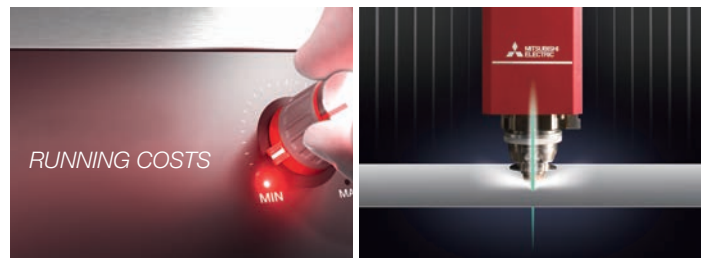
Lower Running Costs mean Higher Profits!

Higher productivity



Make higher profits by raising productivity. Increasing productivity by up to 26 % is achieved by shorter piercing times and higher cutting speeds due to the high beam quality of Mitsubishi Electric's own fiber laser source, but mainly also due to faster communication by the AI-assisted M800 CNC control.

Lower running costs



Make higher profits by reducing running costs. Reduced running costs are achieved by decreasing N₂ consumption by up to 76 %. This value can be achieved by using Mitsubishi Electric's original N₂ gas flow technology with the advantage of reducing consumption dramatically without the nozzle touching the material surface – meaning no scratches on the surface – and working with material from 1 to 25 mm thick.

The Mitsubishi Electric M800 CNC control

Intuitive, user-friendly

- > Extensive database of parameters for all common types of material
- > Online job scheduling and runtime estimator
- > Real-time condition adjustment and correction
- > Intelligent cutting assist
- > Real-time tracking of electrical and assist gas consumption



The Mitsubishi Electric M800 CNC Control.

Engineered for Ease and Reliability!

The intelligent and ergonomically adjustable M800 control offers a large sized 19" user interface. The operation is intuitive and user-friendly – similar to a smart phone. Touch screen, mouse and keyboard are available for 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 especially unexperienced operators but also provides good starting conditions for the experts. Each operator can customize the home screen and shortcuts. The possibility to adjust the processing conditions in real-time guarantee the best cutting quality. The intelligent cutting assist, but also the advanced help and maintenance screens help the operator to keep the cutting process and machine in premier condition.

Multi-touch display with gesture control



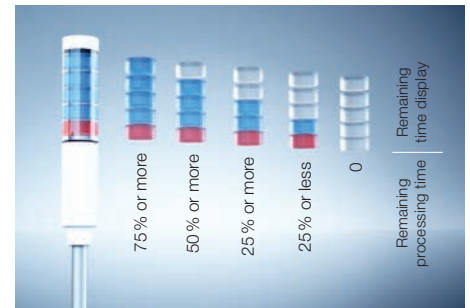
Simply swipe to the required screen. Graphics can be easily scaled.

Adapts to your needs



The home screen can be customized in just a few clicks. Simple multi-part nesting allows for quick reproduction of parts.

Staying on top of the process



During the cutting process the remaining time until the end of the program is shown on the display, and this is also indicated by the 5-lamp signal tower. This way the operator can always keep on top of the process – either at the machine or at a remote location.



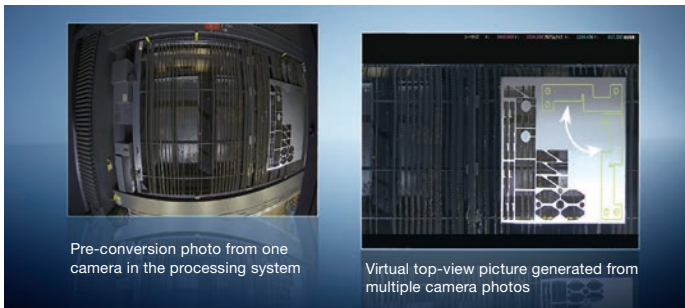
MEL's AR – eliminate the guesswork

- > Part cutting within seconds (drag, drop and press start)
- > Virtual top view picture generated from multiple camera photos
- > Simple multi-part nesting, part rotation and off-cut

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

Easy Remnant Sheet Utilization!

Virtual top-view picture



Pre-conversion photo from one camera in the processing system

Virtual top-view picture generated from multiple camera photos

After placing the remnant sheet somewhere within the working area, a virtual top-view picture can be taken by using multiple cameras within the processing system.

Easy placing and nesting



Afterwards single parts or nestings can be placed on the remnant sheet. This makes sure that the parts really fit on the designated remnant sheet. Just press start to cut the required parts or nestings.

Laser-Automation – Get the Maximum out of your laser system

- > Increased productivity
- > Short payback period
- > Automatic parts sorting
- > Easy programming in 4 clicks



Automation to Boost Output!

Compact and Modular Systems.

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

Automation-ready!

You don't know what will await you in a few years' time and want to start on a small scale? No problem – our automation solutions can be retrofitted at any time. Your laser cutting system can thus grow with your needs.

ASTES4ModularAutomationSystem



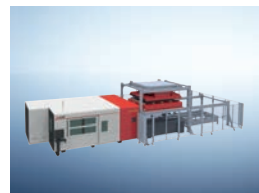
From the SkyWay cross loading/unloading system to the fully automated high speed sorting cell with an integrated storage system. In modular steps – according to your needs.

ASTES4Sort



The fully automated sorting cell which fully adapts to your specific requirements.

ASTES4Linear



The linear loading/unloading system. Automation with minimum space requirement.

ASTES4XC



The compact tower automation system. Longer processing without operation intervention.



CAD/CAM Software

Many laser cutting systems are never able to cut through this chain.

Do you already know which machines from which manufacturers you will be using in, say, ten years' time? And do you really want to have to work with several CAD/CAM systems as soon as you use machines from different manufacturers?

With the independent CAD/CAM systems you create programs for machines and equipment from different manufacturers. This way you purchase not just a software package but also a good deal of freedom.

There are plenty of Software Packages.

And You Choose the One that Suits You.



Choosing the right CAD/CAM system is the key to cost-effective operation of your laser cutting system. But should it be a simple system that concentrates on the basics? Or rather the all-round program with ERP integration and integrated production planning system for programming everything from the laser cutting system to the press brake?

Whatever CAD/CAM system serves your needs best, the choice is entirely yours, as our systems are multi-lingual. We neither limit nor block the use of the many possibilities that programs of independent software publishers offer.

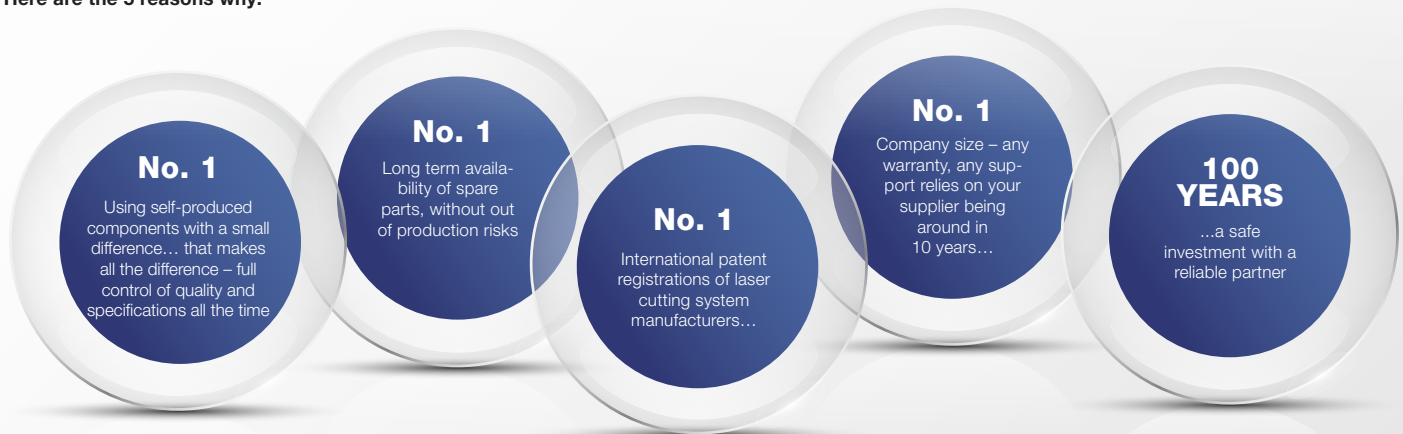


If you need the laser cutting system only for a few years... a Mitsubishi Electric machine might not be the right choice. If you look for lifespan, reliability and real value for money... we welcome you as a satisfied customer.

Only one Chance to Safeguard your Investment...

Use it Wisely...

This page probably only exists in a Mitsubishi Electric brochure... Here are the 5 reasons why:



Key components produced by Mitsubishi Electric



Laser sources



Laser processing heads



CNC controls



Servo motors



Servo amplifiers



Frequency inverters



Power switches



Smart & Remote Service

Expert assistance when you need it. The experienced engineer can gain a precise impression via remote-connection and your smartphone/tablet camera to provide targeted help. This makes diagnosis secure, fast and precise – wherever you are. Secure connection, without additional software installation – browser-based, fast and travel-expense-free.

World Class Service!

For the most demanding customers...

Installation, training & application support

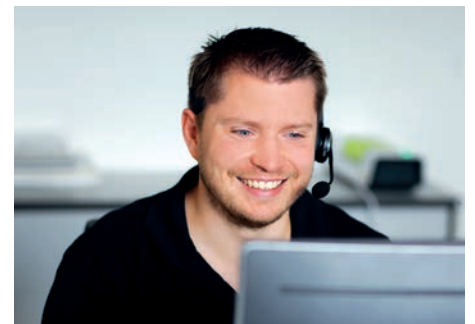


To get a good start, everything must already be right when the laser cutting system is installed. Our experienced engineers ensure a professional installation. Users get operating and application training to acquire the necessary skills. Immediately after installation and at any time in the future if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

Telephone & on-site service



Our service team consisting of our service helpdesk and field service engineers ensures your long-term success. Be it assistance over the phone, by email or personally on your site, you always receive reliable service from Mitsubishi Electric.





98.7 %
of the spare parts available in Europe

Delivery within 24 hours
ex Düsseldorf warehouse

167,000
parts at the Düsseldorf warehouse

Consumables and Spare Parts.

We are there for you – not only throughout Europe.

Quality control

Consumables and accessories for laser technology are thoroughly inspected before release for sale and are subject to continuous quality control. Mitsubishi Electric imposes exacting standards on itself and its suppliers.

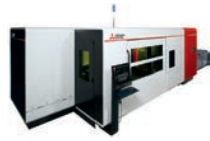
Availability & shipment

167,000 parts are stocked for you at our warehouse in Düsseldorf. You usually receive your parts within a working day (shipment via forwarding agents excluded). Shipment by courier and collection by the customer are also possible.

GX-F Series

ML3015GX-F

ML4020GX-F



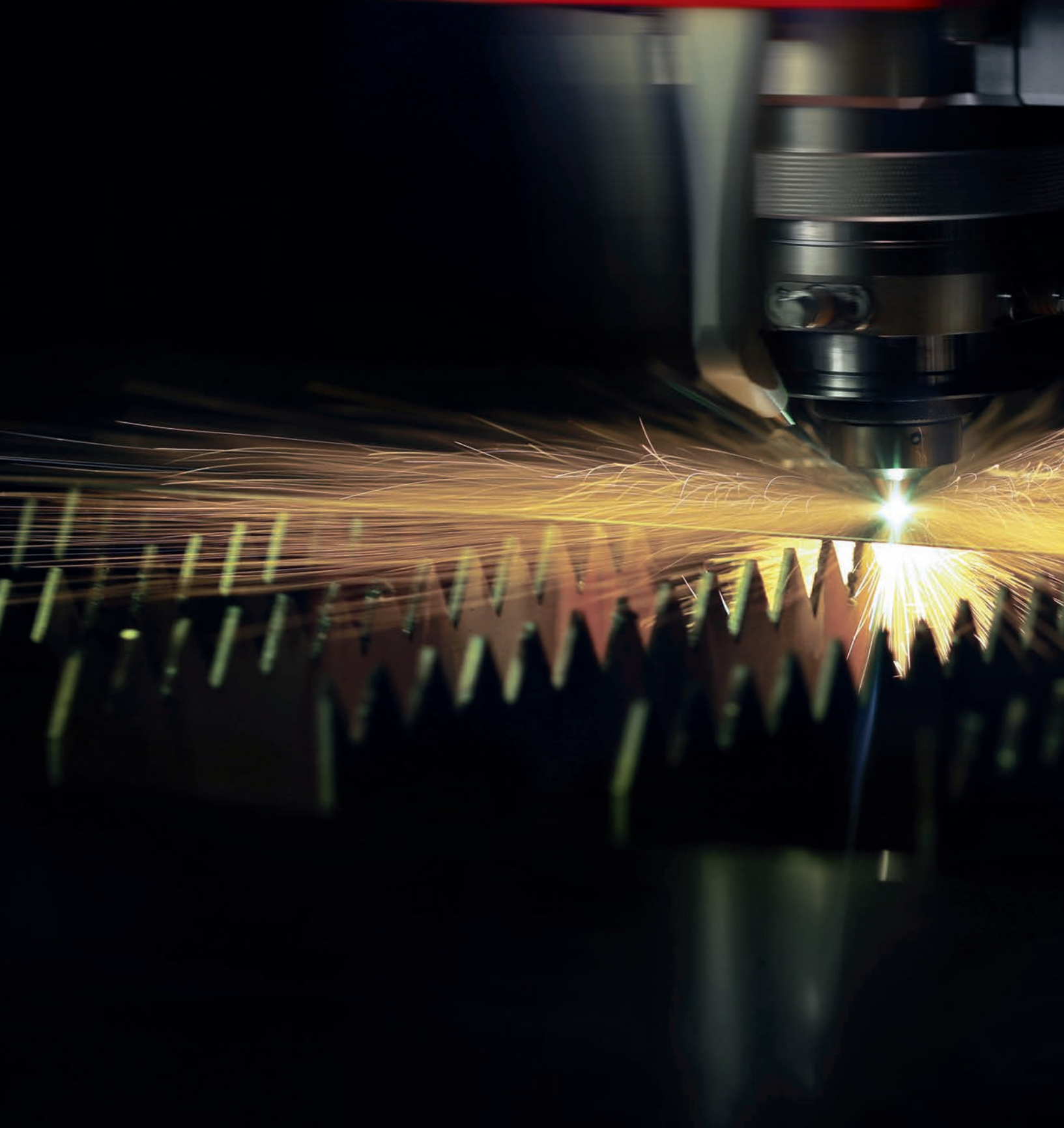
Machine Specifications			
Machine Design		Flying optics	
Control		Mitsubishi-Electric M800 – 19" Multi-Touch-Screen	
Axis Stroke	X-Axis	3,100 mm	4,100 mm
	Y-Axis	1,565 mm	2,100 mm
	Z-Axis	120 mm	
Rapid Feed Rate		Max. 170 m/min simultaneous	
Repeat Accuracy		+/- 0.01 mm	
Max. Sheet Size		3,050 x 1,525 mm	4,050 x 2,060 mm
Max. Weight Per Sheet		950 kg	1,650 kg
Table Pass 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	
Available Laser Types		F40/F60/F80/F100	
Available Laser Output Power (CW)		4/6/8/10 kW	
Processing head		ZoomHead	
Delivery Method		Fiber Cable	

Cutting Thickness	GX-F40	GX-F60	GX-F80	GX-F100
Material	Nominal / Maximum Cutting Thickness (mm)			
Mild Steel	25 / 28	25 / 30	25 / 30	25 / 30
Stainless Steel	20 / 22	25 / 30	25 / 30	25 / 30
Aluminum Alloy	20 / 22	25 / 30	25 / 30	25 / 30
Brass	12 / 14	15 / 18	15 / 18	20 / 22
Copper	6 / 8	10 / 12	12 / 15	15 / 18

All the values mentioned in this brochure are based on a certain power of the laser source and on the condition of the machine, environment, operator skills and required parts quality. The maximum cutting thickness is limited by the maximum weight per sheet. Please be aware that the achievable values could be different due to the costs for energy, gas, service and others in your specific country/region.

 MITSUBISHI
ELECTRIC





Partner



MITSUBISHI ELECTRIC EUROPE B.V.

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