The in-built formula for short piercing times.

$$E = h \cdot f, p = \frac{h}{\lambda}, c = \lambda \cdot f, P = \frac{E}{t}$$

$$f = \frac{c}{\lambda} = \frac{3 \cdot 10^{8} m/s}{1,07 \cdot 10^{-6} m} = 2,8 \cdot 10^{14} s^{-1}$$

$$E = h \cdot f = 6,6 \cdot 10^{-34} Js \cdot 2,8 \cdot 10^{14} s^{-1} = 1,85 \cdot 10^{-19} J$$

$$p = \frac{h}{\lambda} = \frac{6,6 \cdot 10^{-34} Js}{1,07 \cdot 10^{-6} m} = 6,2 \cdot 10^{-28} Hy$$

Pulse energy 150J

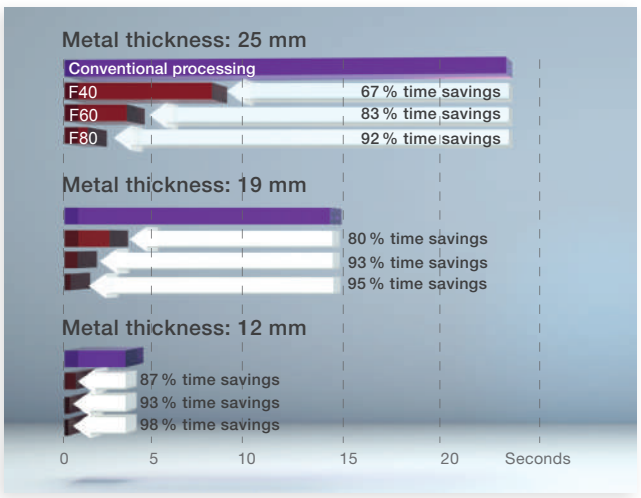
$$\frac{150 J}{1,85 \cdot 10^{-19} J} = 8,1 \cdot 10^{20} \text{ photons per pulse}$$

Billions of extra photons.

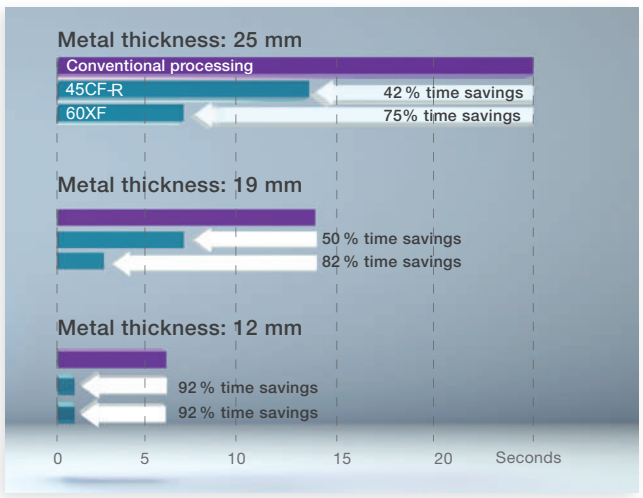
Up to 98 % shorter piercing time for mild steel.

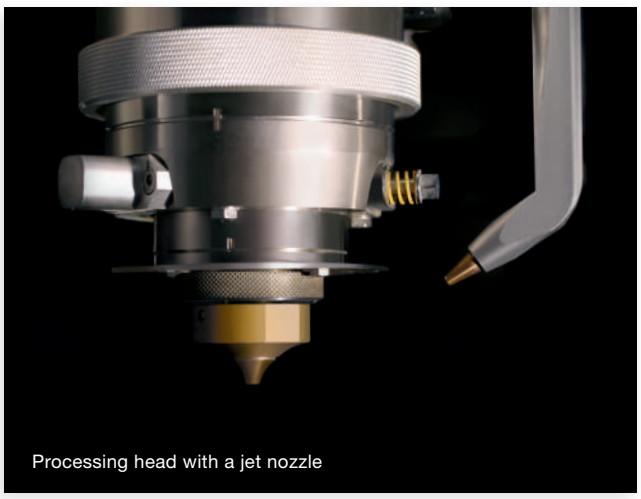
Shorter piercing time for medium-thick and thick sheet metal
Thanks to the skilful combination of high-energy pulse peaks and a jet nozzle, piercing times can be reduced by up to 98 %. In the last few years, the metal thickness suitable for high-peak piercing has increased from 8 to 25 mm.

Fiber



Cross-Flow




Processing head with a jet nozzle

Costs of conventional CO_2 laser

High maintenance costs

- Electrode wear
- Glass tubes
- Many mirrors
- Gas turbine at over 700 km/h

High laser gas consumption

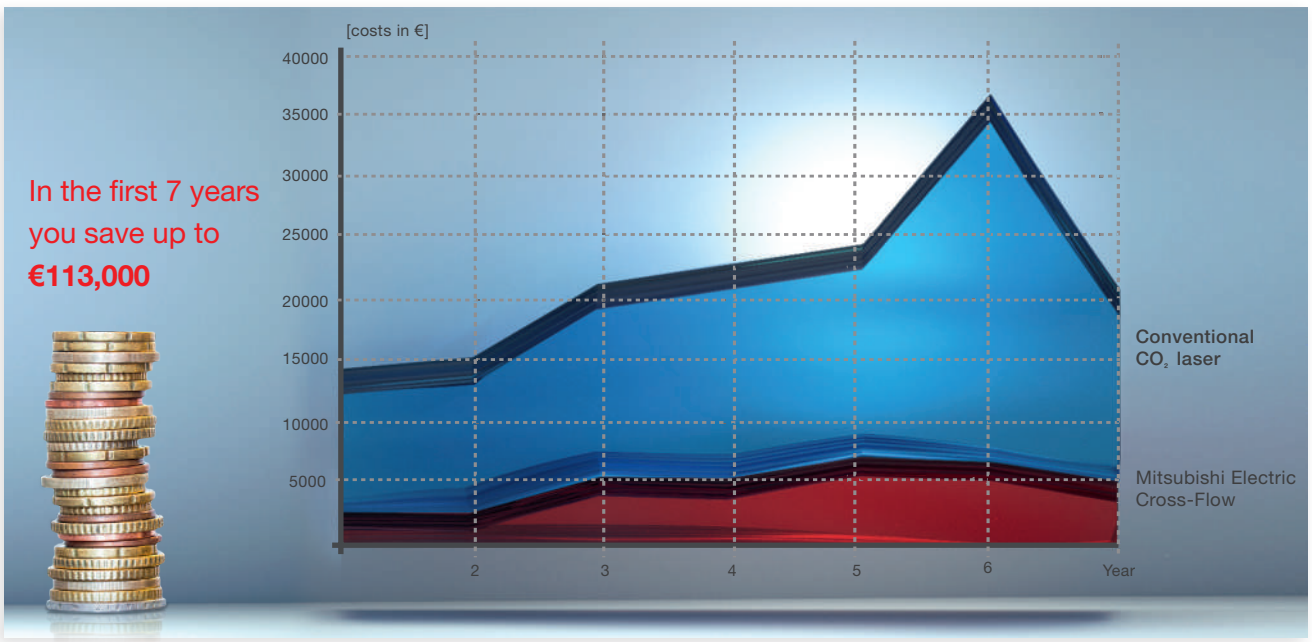
Conventional CO_2 laser systems are maintenance-intensive and expensive.

Cross-Flow

Achieving more with less.

Cross-Flow scores with the components it does without.

Cuts maintenance costs by up to 77 %

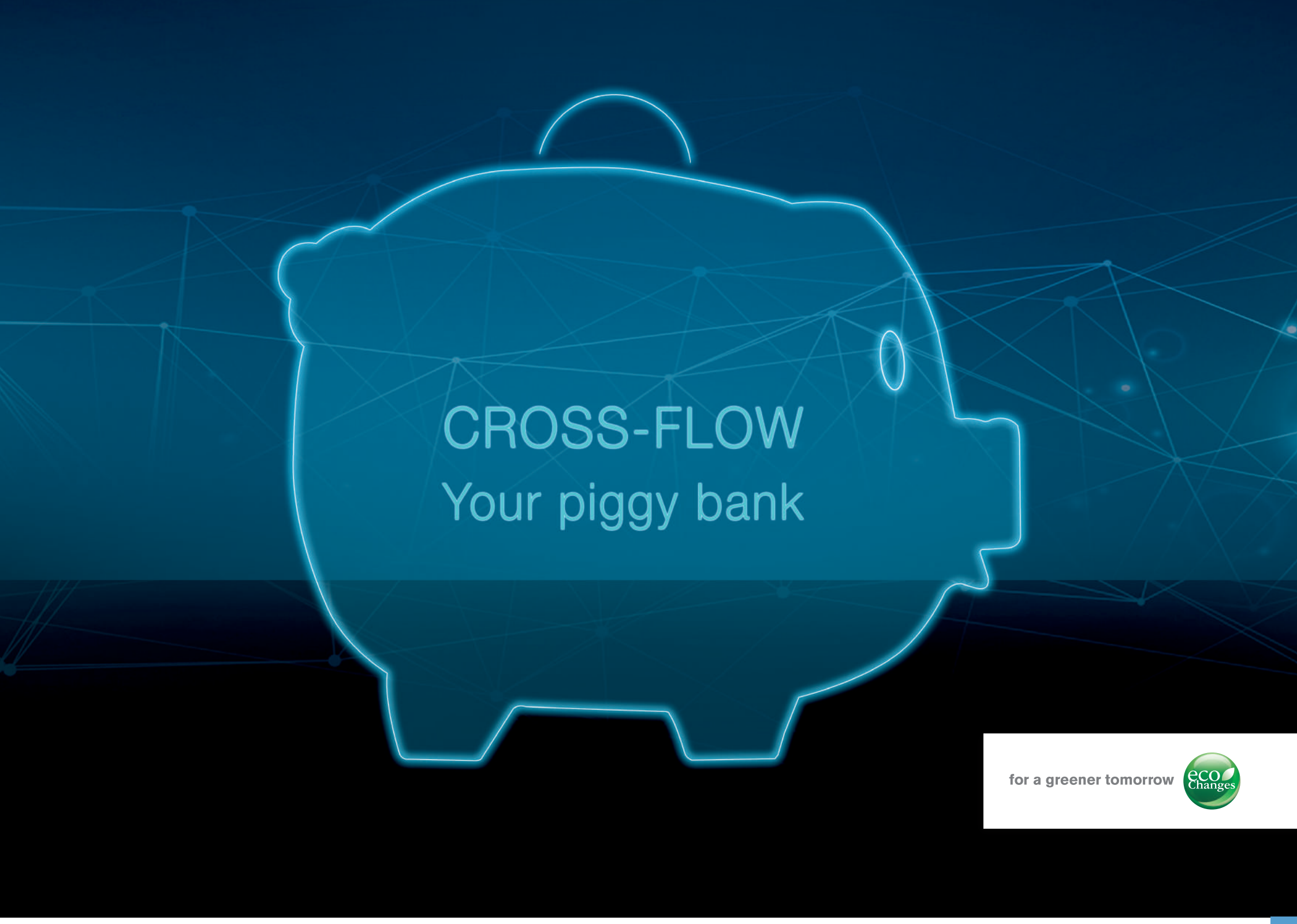


Patented.

The Cross-Flow resonator developed by Mitsubishi Electric needs maintenance less often than conventional CO_2 resonators. In addition, the resonator itself contains far fewer wear parts. As a result, maintenance costs are up to 77 % lower than for conventional CO_2 lasers.

Because of the gas-sealed resonator, the laser gas is replaced not continuously, but only once per day. This reduces laser gas consumption dramatically.

Oops! Nobody told me about that.



for a greener tomorrow

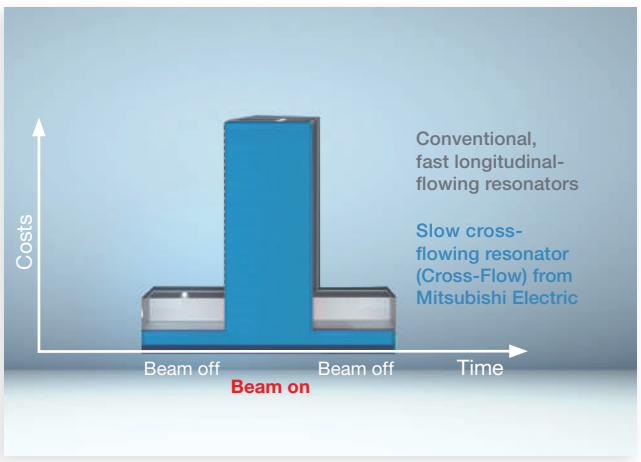
Energy savings.

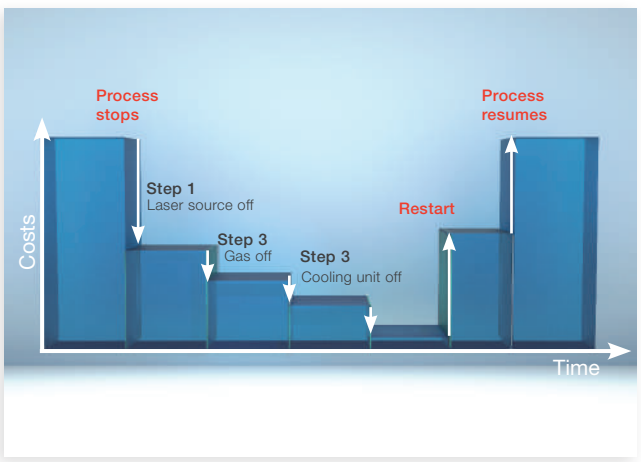
Combines economy with top-quality cuts.

Just-on-time discharge method
The just-on-time discharge method reduces power consumption whenever the laser beam is switched off.

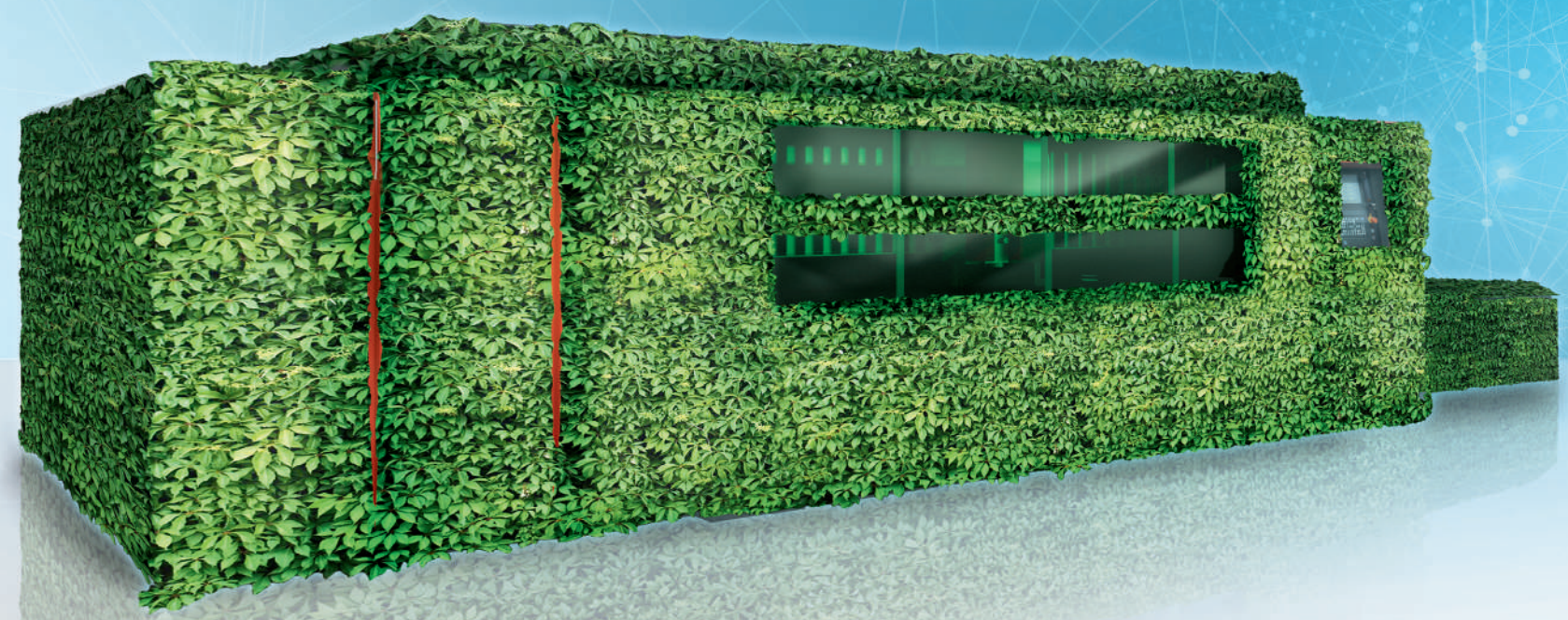
Cutting operating costs with energy-saving control and drive units
Energy savings have been achieved with perfectly matched Mitsubishi Electric control and drive units.

ECO mode
During idling, the intelligent ECO mode switches step-by-step into standby. In standby mode, costs can thus be cut by up to 99 %. Reactivation of the laser system takes no more than 3 minutes.





So that's how to save energy!



for a greener tomorrow eco Changes

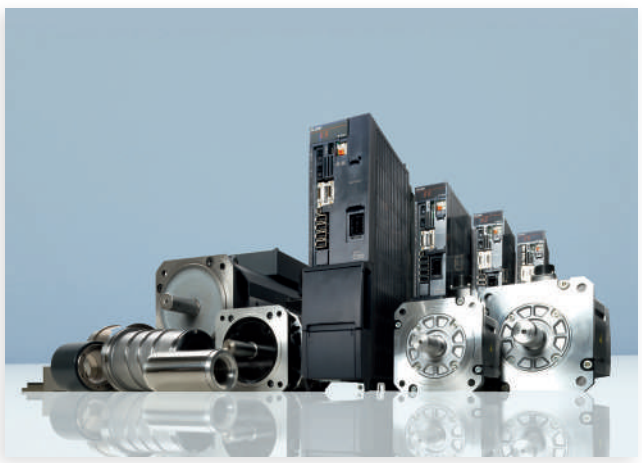
Give your electricity meter a break.

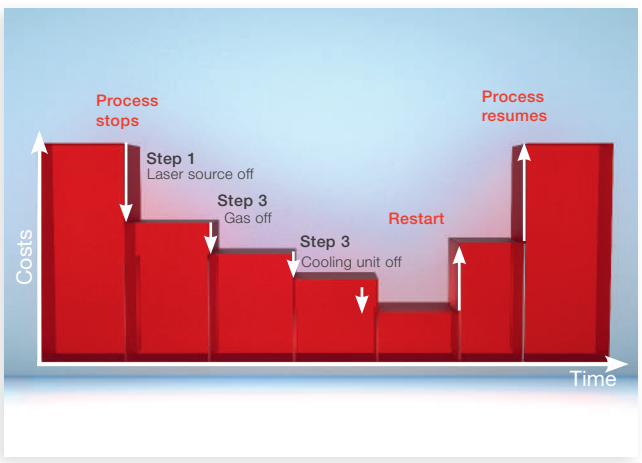
Up to 50 % efficiency!

Miracle of efficiency
Owing to the high conversion efficiency of the Fiber laser, you can slash your electricity bill. The energy efficiency achieves values of between 40 and 50 % – exceptional for laser technology.

Cutting operating costs with energy-saving control and drive units
Energy savings have been achieved with perfectly matched Mitsubishi Electric control and drive units.

ECO mode
During idling, the intelligent ECO mode switches step-by-step into standby. In standby mode, costs can thus be cut by up to 70 %. Reactivation of the laser system takes approx. one minute.





Less electricity, lower costs.