MITSUBISHI ELECTRIC
Changes for the Better

Automating the World
For a Sustainable Future.

MANUFACTURING MADE SUSTAINABLE

Our vision for the future enabled by factory automation

The Mitsubishi Electric Group has had a proven an environmental plan since 1993. As a leading factory automation manufacturer, supporting a diverse range of manufacturing industries throughout the world. We are committed to helping those markets achieve sustainable manufacturing by providing advanced energy-saving solutions and utilising our automation technology to help address decarbonisation issues and labour shortages.

Issues:

- **Sustainable use and development of resources**
- **Impact of climate change**
- **The need to tackle air, water and soil pollution**

Advanced technology, superior performance and cutting-edge features unleash untapped energy saving possibilities diverse industries

Energy saving products. The MELSERVO series is a range of high-performance AC servos that achieved the '2020 Excellence in Energy-Saving Equipment and Systems Award' from Japan's Director-General of the Agency for Natural Resources and Energy. The award was in recognition of its energy saving capabilities.

A contributing factor to this achievement was the incorporation of high-resolution encoders, which aid in achieving stable control by minimising torque fluctuations.

The amplifiers boast rapid response times which contribute to the reduction of machine cycle durations, thereby resulting in energy conservation.

Tackling Co_2 emissions. Our servo motors deliver performance and precision by employing synchronous motors. This attains efficiencies with a Power Factor (PF) of 92%.

The MELSERVO amplifiers are designed, integrating state-of-the-art technology to enhance their energy efficiency.

Notably, the introduction of a novel SiC power module - a hybrid of Si-IGBT & SiC diode – improves the efficiency compared to using separate components.

The 'DC bus', responsible for storing electrical energy, has undergone a 20% capacity increase, resulting in an additional 20% of regenerative energy from the servo motor being conserved as electrical energy. This prevents dissipation as heat.

The option to adopt a shared DC BUS is available. This facilitates the distribution of electrical energy amongst multiple servo motors which enables the reuse of the regenerative energy generated by the entire system.

When surplus electricity is generated, it can be utilised internally. The MR-CV converter employs a regenerative power supply system, allowing excess regenerated power, which might otherwise be wasted, to be redirected back into the supply for use in other systems.

Energy savings in our own facilities.

- **We optimise the control of clean and temperature-controlled rooms**
- **We maintain a continuous energy monitoring system for our manufacturing processes**
- **Our primary focus lies in enhancing the efficiency of production equipment and lines**
- **We are resolutely committed to achieving full plastic waste utilisation by 2035**

Our commitment to reducing energy consumption encompasses various aspects of production utilities, including air conditioning, exhaust air systems, and water usage.

This is achieved through a number of innovative methods including airless, steamless, and waste heat management, surpassing conventional electrification practices.

To further advance sustainable energy practices, we expand our reliance on renewable energy sources, incorporating carbon offset energy solutions.

Helping to reduce the impact on our planet. Minimising the utilisation of materials in the manufacturing process plays a pivotal role in diminishing the depletion of resources from our planet. This objective is achievable across all phases of the manufacturing workflow.

Mitsubishi Electric products exemplify this principle by being designed to consume fewer raw materials.

An example of this is our latest servo motor designs, which are engineered to utilise 30% less iron and raw earth magnets.

The meticulous design approach extends to reducing wiring requirements. This helps to conserve materials during the machinery assembly process.

Our initiatives as a manufacturer

- **Long-term environmental plan with specific short-term activity targets every three**
- **Long-term 'Environmental Vision 2050'**
- **Current Environmental Plan 2023 with indicators and targets for reducing environmental impact**
- **Achieve reduction of environmental**

Reduction of environmental impact through our business activities			
Category	**Indicator**	**Environmental Plan 2023 goals**	**FY2021 results**
CO_2 emissions reduced by our group	CO^2 emissions	Compared to FY2013 reduced by **30%** or more	Reduced by **19%**
Improving the effective utilisation rate of plastic waste	Effective utilisation rate of plastic waste (Japan)	**90%** or more	**89.6%**
Effective use of water	Water usage per unit of sales at high-risk sites	Reduced by **4%** or more compared to FY2019	Reduced by **24%**

To find out how Mitsubishi Electric can automate the world for a sustainable future, visit gb.mitsubishielectric.com/fa

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Specifications subject to change.