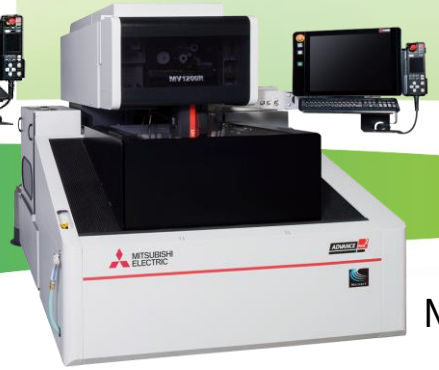
# Mitsubishi Electric EDM
# Green technology

Wire-cut EDM Systems

MP series



MV series

Die-sinker EDM Systems

SG series

SV-P series

**Mitsubishi Electric's EDMs contribute to reducing environmental impact**

# Environmental impact reduction effect by Mitsubishi Electric EDM

**Energy consumption reduction simulation using Mitsubishi Electric's latest technologies such as AI technology Maisart, power saving power supply, optical drive system, wake-up mode, iQ care Remote4U (dashboard function).**

## SV-P series

Japan Machinery Federation
39th Excellent Energy-Saving Equipment Japan Machinery Federation Chairman's Award

優秀省エネ機器・システム

2 Gr electrodes used/Steel□15mm hemispherical shape
Depth 20mm/Roughness Rz10um/Undersize 0.2

| | |
|---|---|
| **Annual consumption energy** | **11,000 kWh reduced** |
| **Annual CO2 emissions** | **5,600 Kg-CO2 reduced** |
| **Annual electric rate*1** | **Equivalent to ¥347,000 JPY** |

## MP series

Chunichi Shimbun,Co,Ltd
33rd Chunichi Industrial Technology Award
Economy, Industry and Technology Award

Φ0.20BS wire/Steel-thickness 20mm
□50mm Die/4 skims roughness Ra0.4um

| | |
|---|---|
| **Annual consumption energy** | **26,000 kWh reduced** |
| **Annual CO2 emissions** | **12,700 Kg-CO2 reduced** |
| **Annual electric rate*1** | **Equivalent to ¥794,000 JPY** |

**Annual CO2 emissions with 2 machines: 18,300 Kg-CO2 reduced**

Not include consumables reduced effects.

*1 ¥30.57 JPY/kWh
*2 Calculated by 2.3 kg (CO2 emissions per liter of gasoline vehicle traveling 10 km per liter)
*3 Calculated by 4,300 kWh (annual power consumption of general household)
*4 Calculated by 0.3 tons (CO2 absorption per cedar tree)

## CO2 emissions of 18,300 Kg-CO2 are ...

**Distance traveled by gasoline vehicle*2** **79,000km**

**Annual consumption by general household*3** **8.7 homes**

**Japanese cedar*4** **61 trees**

# Mitsubishi Electric contributes to reducing customers' CO2emissions

## Supply chain centered on customers' production plants
## Supply chain greenhouse gas emissions = Sum of each Scope 1 to 3 emission

Scope1 Direct emissions of greenhouse gases by businesses
Scope2 Indirect emissions associated with the use of electricity, heat and steam supplied by others
Scope3 Indirect emissions except for Scope 1 and 2

**Mitsubishi Electric**

Manufacturing and shipping for EDM

Scope1
Scope2
Scope3

**Customer's production plant**


Scope1
Fuel combustion
Scope3
Other indirect emissions

**Resources used in EDM**


# Mitsubishi Electric technologies contribute to reduction of greenhouse gas emissions

## Energy consumption reduced when using EDM ▶ Scope2

| | |
|---|---|
| Shorter machining time,Productivity improved | AI Technology Maisart |
| Equipment energy consumption reduced | Die-sinker EDM high speed low wear power supply<br>FP power supply<br>WEDM high speed electroless power supply<br>AE power supply<br>Optical drive system |
| Standby energy consumption reduced | Sleep mode |

Maisart
PFC
ODS Opt Drive System

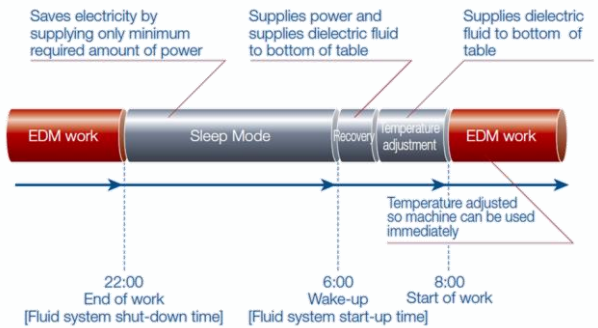
## ● Sleep mode

*only MV/MP

- Energy consumed is greatly reduced as result of using an automated pump-shut-off system.
- Restarts fluid system thermally, stabilizing machine for work.

**Reduction per hour**

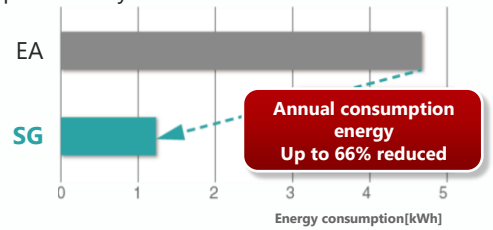
Annual consumption energy **2.13kWh**
Annual CO2 emissions **1.04kg –CO2**




## ● Energy consumption reduced

### Conventional EA vs SG — Die-sinker EDM

Combination of AI technology Maisart and high-speed, low-wear FP power supply realizes both machining accuracy and productivity.



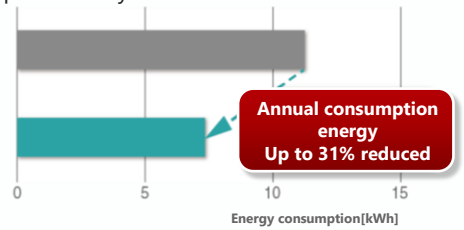

2 Gr electrodes/Steel□15mm hemispherical shape
Depth 20mm/roughness Rz10um/undersize 0.2

**Reduction per cycle**

Annual consumption energy **3.01kWh**
Annual CO2 emissions **1.48kg –CO2**

### Conventional FA vs MV-R — Wire EDM

Combination of AI technology Maisart ,high-speed electroless AE power supply and optical drive system realizes both machining accuracy and productivity.




Φ0.20BS wire/Steel-thickness 20mm
□50mm Die/4 skims roughness Ra0.4um

**Reduction per cycle**

Annual consumption energy **2.77kWh**
Annual CO2 emissions **1.36kg –CO2**

# Mitsubishi Electric contributes to effective use of Resources

## Extending the life of consumables related to Category 11 and reducing operating costs

Scope1 Direct emissions of greenhouse gases by businesses
Scope2 Indirect emissions associated with the use of electricity, heat and steam supplied by others
Scope3 Indirect emissions except for Scope 1 and 2

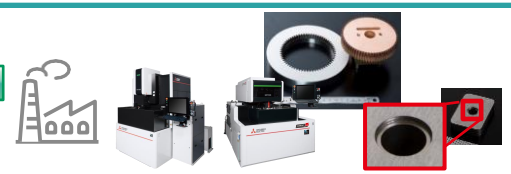
**Mitsubishi Electric**

Manufacturing and shipping for EDM

Scope1
Scope2
Scope3

**Customer's production plant**

Scope2



Use of electricity
Use of EDM

Scope1
Fuel combustion
Scope3
Other indirect emissions

**Resources used in EDM**

Graphite | Wire electrode | Filter | Ion exchange resin

## Mitsubishi Electric technologies connected to effective use of resources

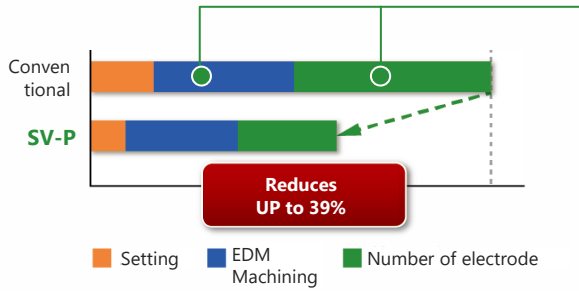
### Efficient use of consumables

**Graphite electrode wear by optimization control IDPM3 up to 90% reduced**

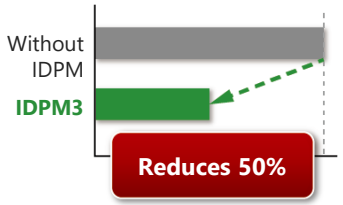
**Die-sinker EDM**

■IDPM3 Electrode wear

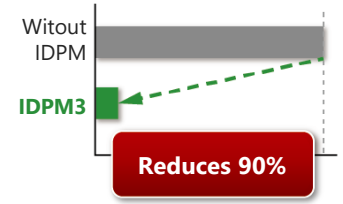

■Production cost




Machining time comparison




Electrode wear comparison



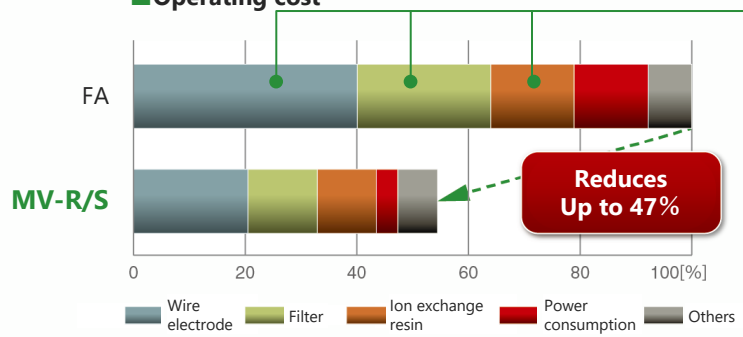

| | |
|---|---|
| Reduce electrode wear | IDPM3 |
| Reduced use of 3 major wire-EDM consumables | Shape control power supply Digital AE Ⅱ<br>Filtration flow switching |
| Visualization of consumables usage time .<br>Appropriate inventory management | Dashboard function (In Japan) |

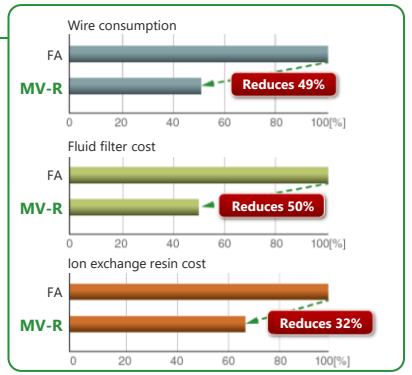
Maisart
PFC
iQCare Remote4U

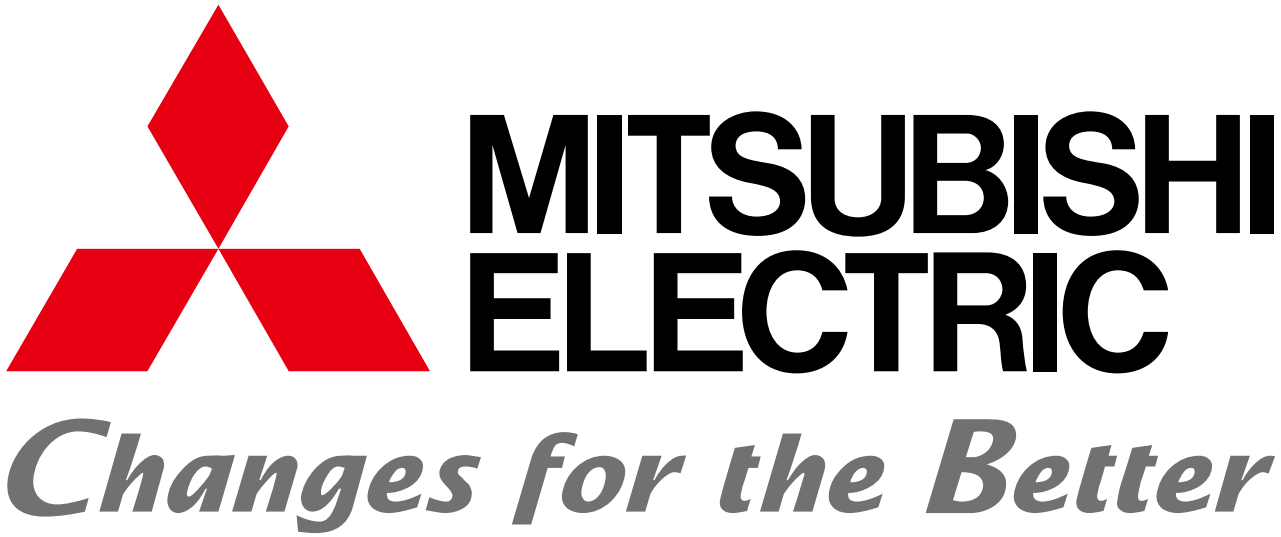
**Wire EDM**

**Up to 47% reduction in wire electrode, machining fluid filter, ion exchange resin, electricity consumption, etc., which account for approximately 90% of operating costs**

■Operating cost

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