

04/12/2023



MJ6-i Product Introduction

Matsui America

Aims of MJ6-i Development

- **The MJ6 is a new dryer that pursues the industry's No. 1 energy-saving function.**
- **Developed to exceed everyone's expectations.**
- **As a global Matsui, we will provide it to everyone with confidence.**

Lineup of MJ6-i

Further improvement of basic performance while preparing variations suitable for a wide range of usage environments.

List of Models

Models	MJ6-i	MJ5-i	MJ3
Hopper Capacity	-30 (50/30) 【1.76/66】	-150 (50/30) 【1.76/66】	-10 (18/10) 【0.88/33】
			-15 (27/15) 【0.88/33】
			-25 (42/25) 【1.4/55】
			-50 (83/50) 【3/110】
(L/kg) 【ft3/lb】	-50 (85/50) 【3/110】	-350 (100/60) 【3.53/132】	-75 (125/75) 【4.4/165】
			-100 (167/100) 【6/220】
			-150 (250/150) 【8.8/330】
			-200 (333/200) 【12/440】
	-75 (130/75) 【4.59/165】	-650 (200/120) 【7.06/264】	-300 (500/300) 【17.6/660】
			-135 (225/135) 【7.94/298】
			-1500 (500/300) 【17.6/661】
			-300 (500/300) 【17.6/661】

《When we start selling;》

Four models: 30, 50, 75, and 135

*MJ6-i-300 to be released in 2024
Until then, the MJ5-i-1500 will continue to be sold.

The existing machines were classified according to the expected tonnage of molding machines.

However, as they will be sold together with MJ3, the designation is changed to be based on hopper capacity.

*Values stated in the catalog

MJ6-i Technical Point

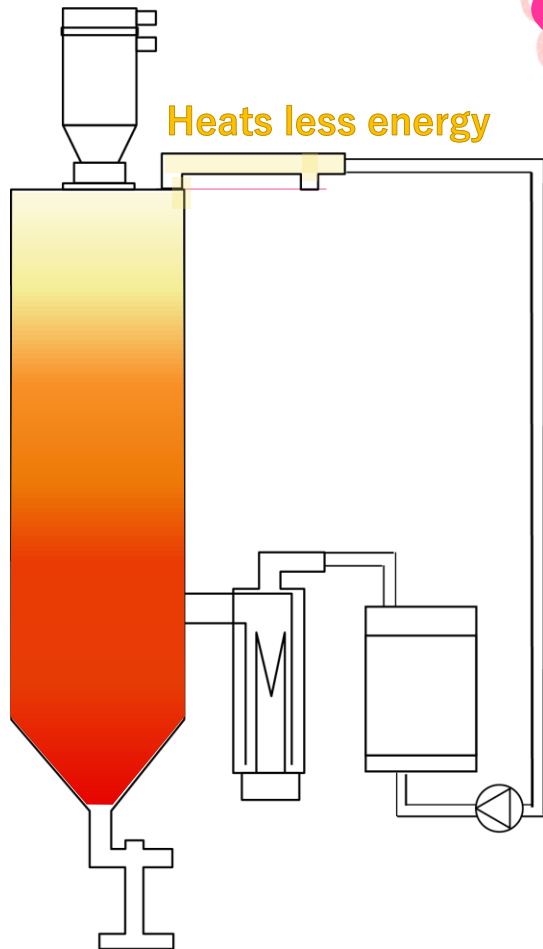


- 1** Optimization of drying capacity
- 2** Self-control function **i plas**
- 3** Exhausted heat is used to regenerate the honeycomb
- 4** Air purge to material conveying line by dehumidified air
- 5** Many other features

1 Optimization of drying capacity

The MJ6-i increases the resin drying volume per air flow rate and optimizes the drying capacity to achieve waste-free drying.

MJ6-i



Good

The heat energy that used to be discharged as drying exhaust is now used for resin drying, making efficient use of the heat energy!

Comparison between MJ6-i and MJ5-i

Models	Hopper capacity (kg/lb)	Models	Hopper capacity (kg)
	Max. drying capacity / (kg/h)/(lb/h)		Max. drying capacity (kg/h)
MJ6-i-30	30/66	MJ5-i-150	30
	13.5/29.7		15
MJ6-i-50	50/110	MJ5-i-350	60
	25/55.1		30
MJ6-i-75	75/165	MJ5-i-650	120
	38/83.7		60
MJ6-i-135	135/298		
	70/154.3		

2 Self-control function



The MJ6-i features an advanced self-control function and further energy savings.

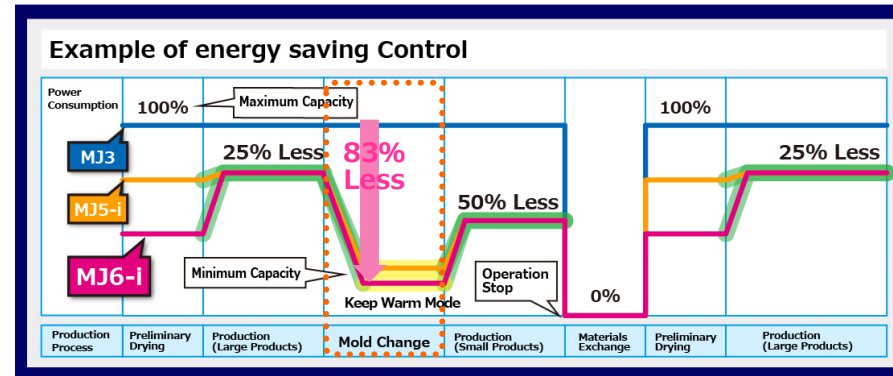
iplas is a generic name for devices with self-control functions. Automatically controls the current operating state to the appropriate operating state autonomously without changing operator settings. ("I"=intelligence)

MJ6-i



When the molding machine is stopped, it automatically shifts to the mode of keeping warm to reduce power consumption. (Up to 83% less consumption than conventional models)!

The operation method during the keep warm mode was changed from the interval method (ON/OFF operation) to the continuous method.



*Percentage reduction in power consumption is based on our test results. It varies depending on the customer's operating environment and conditions of use.

2 Self-control function

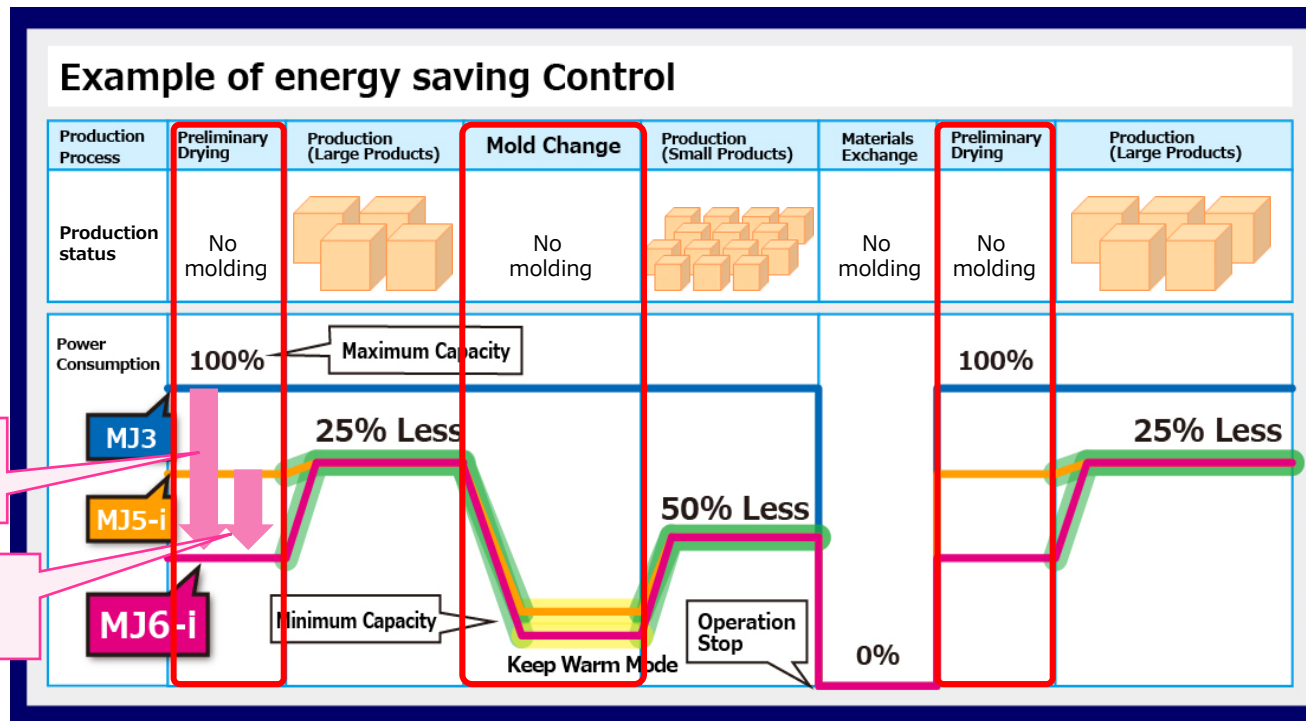


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i plas is a generic name for devices with self-control functions. Automatically controls the current operating state to the appropriate operating state autonomously without changing operator settings. ("I"=intelligence)



Reduced power consumption during pre-drying!



Up to 57% less than MJ3

Up to 33% less than MJ5-i

I want (molded) products.

Product = Profit

Machines use electricity even while not molding during pre-drying and mold change.

Cost (Electric Bill) Electrical Energy CO₂ Emissions

Costs and energy that cannot be converted into products should be minimized.

*Percentage reduction in power consumption is based on our test results. It varies depending on the customer's operating environment and conditions of use.
 In-house test environment: 60 Hz region
 Pre-drying time: 3 hours

3 Exhausted heat is used to regenerate the honeycomb

The heat exchanger of MJ6-i contributes to energy saving through effective use of heat energy!
(Same as MJ5-i)

MJ6-i



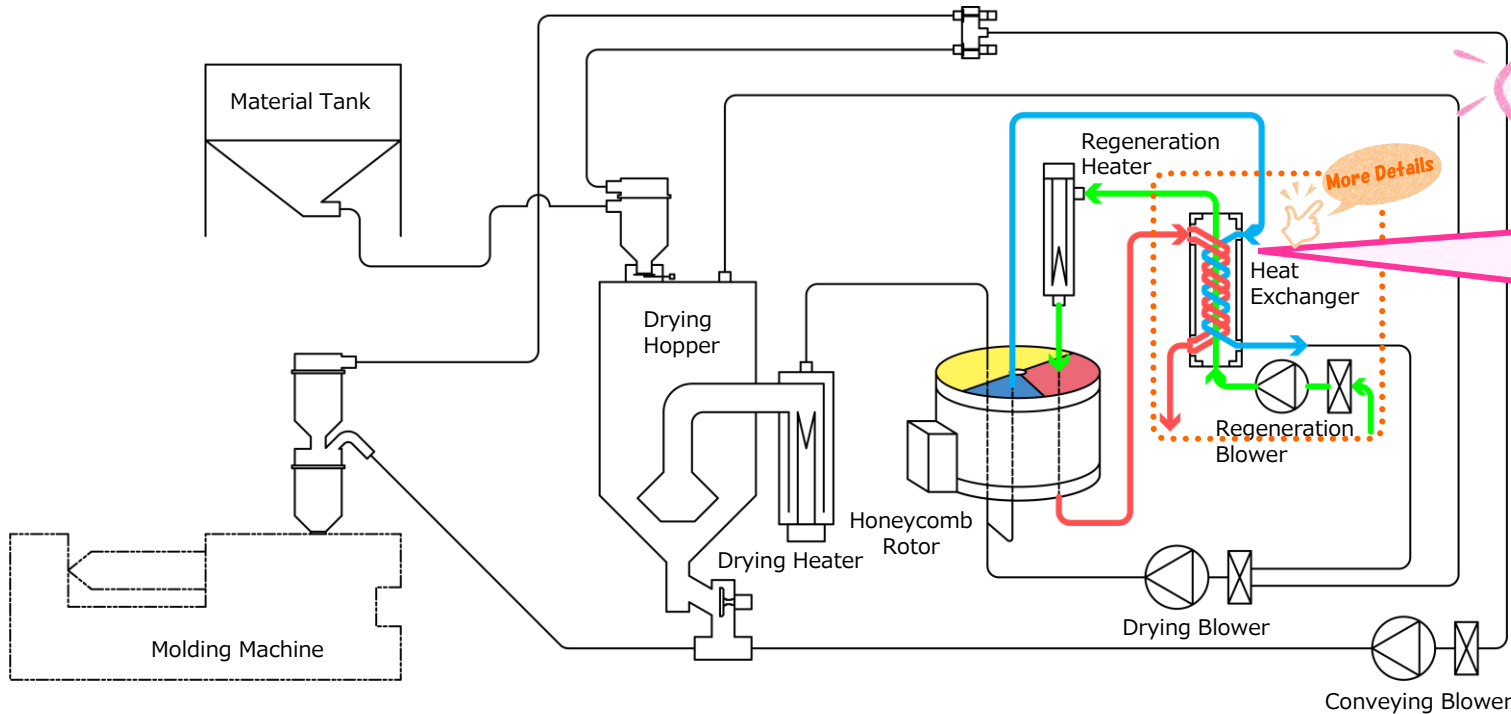
Preheat the regeneration heating air with waste heat to reduce the power consumption of regeneration heater!



The exhaust air temperature to the outside of the machine is lowered. Therefore, the load on air conditioning equipment is reduced, leading to energy savings!



MATSUI technology also here



Honeycomb regeneration heating exhaust and honeycomb regeneration cooling exhaust pass through heat exchanger.

4 Air purge to material conveying line by dehumidified air

MJ6-i prevents molding defects by preventing reabsorption of moisture by the materials!
(Same as MJ5-i and other models)

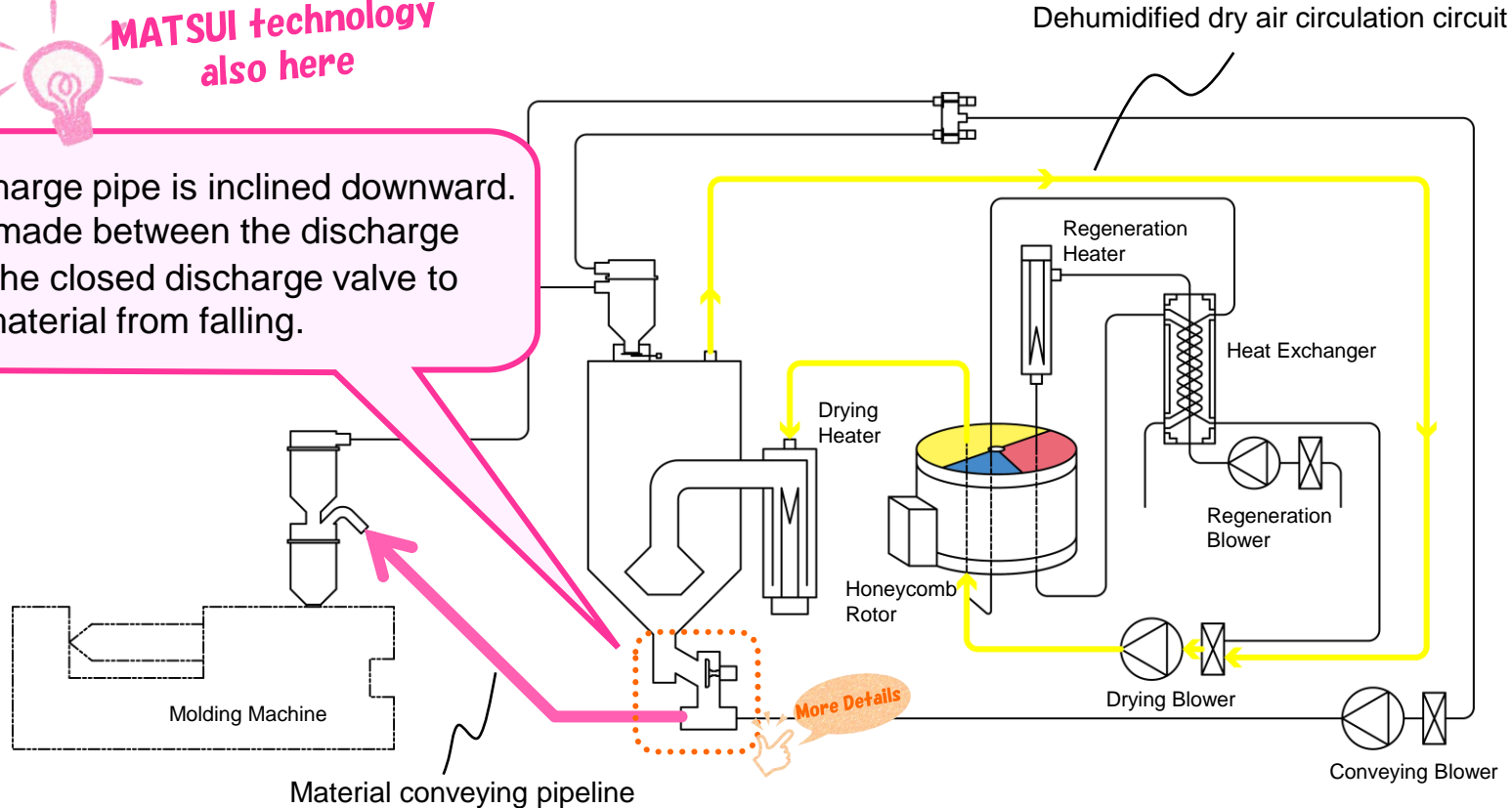
MJ6-i



Reabsorption of the material after drying and temperature drop are reduced by filling the material conveying line with dehumidified dry air before the conveying starts!



- The discharge pipe is inclined downward.
- A gap is made between the discharge port and the closed discharge valve to prevent material from falling.

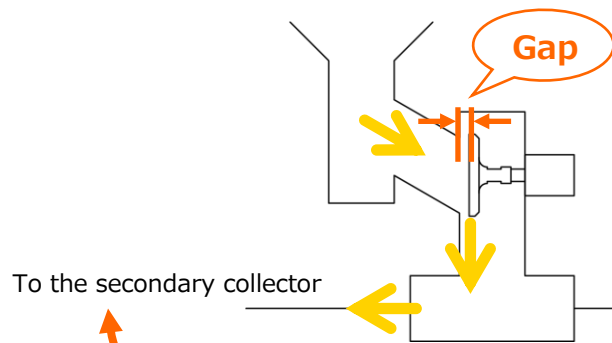


4 Air purge to material conveying line by dehumidified air



What does “filling the material conveying line with dehumidified dry air” mean?

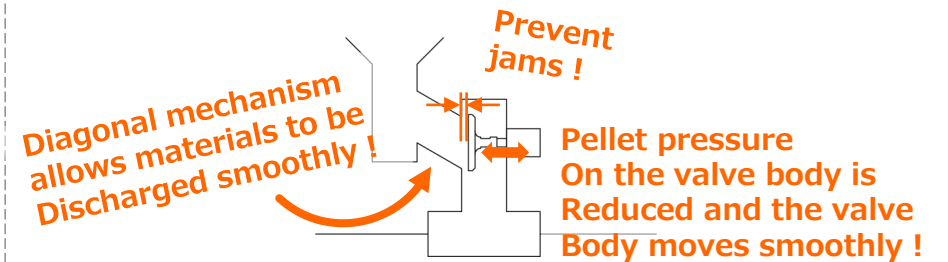
Push damper



A portion of the dehumidified dry air, supplied to the drying hopper, flows into the material conveying pipeline through a gap between the discharge port.

Dehumidifying air flows into pipeline also during drying, so dew point of the material transport pipeline continues to be low **even before the conveying starts.**

~Other expected effects!~



[Reference] When APH is used for the collector, the dew point is -30 to -40°C(actual value)
The material did not reabsorb at in-house test using PET

Energy saving data

It is possible to calculate and quantify the energy saving effect of MJ6 compared to general-purpose machines.

- ❑ Power consumption
- ❑ Co2 emissions
- ❑ Electricity charges

To : ABC Plastic

Matsui America

2022/03/10

Energy saving exchange comparison

: Manual input, selection field
 : automatic calculation

1. Operating conditions

Power-supply voltage(V)	230
Daily driving time (hours)	24
Operating days per month (days)	22
Electricity charge per kWh (\$)	20
drying capacity (kg/h)	15.0

2. Comparison of power consumption

	Energy saving model	Supported general-purpose model
Energy-saving model	MJ6-i-50	General
Materials used	ABS	
drying temperature(°C)	80	
Max drying capacity (kg/h)	25.0	
power consumption(kW)	1.768151156	3.365510882
Dehumidification method	Honeycomb method	Honeycomb method
Transport integrated type	Integrated type	Integrated type
Annual power consumption(kWh)	11203.00572	21323.87695
CO2 amount per year (t)	5.074961592	9.659716259
electricity bill for the year(\$)	224,060	426,478

CO2 emission factor (alternative value)	0.000453
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※1 The above values are a guideline and are not guaranteed values.

Please note that it will change depending on the usage conditions.

※2 Substitute values are used for emission factors.

The emission factor varies depending on the electric power company and menu used.

For the latest information, please refer to each country's website.

<https://ghg-santeikohyo.env.go.jp/calc>

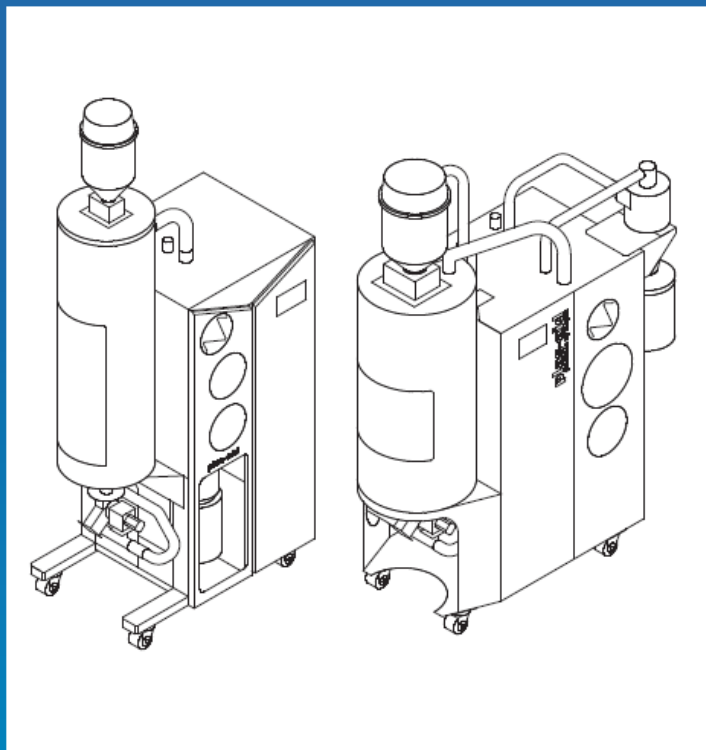
※3 It's just the amount of greenhouse gas emissions for power consumption.

Greenhouse gases associated with compressor air and cooling water are not included.

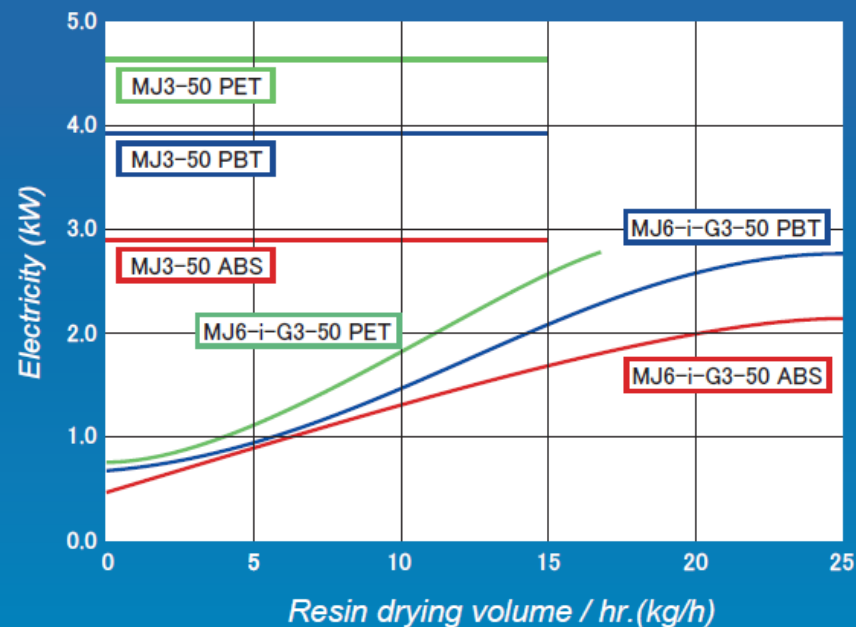
※4The power consumption of the MJ6-i varies depending on usage conditions.

Energy saving data

The Energy Savings Impact of the MJ6 versus the MJ3 Dryer:



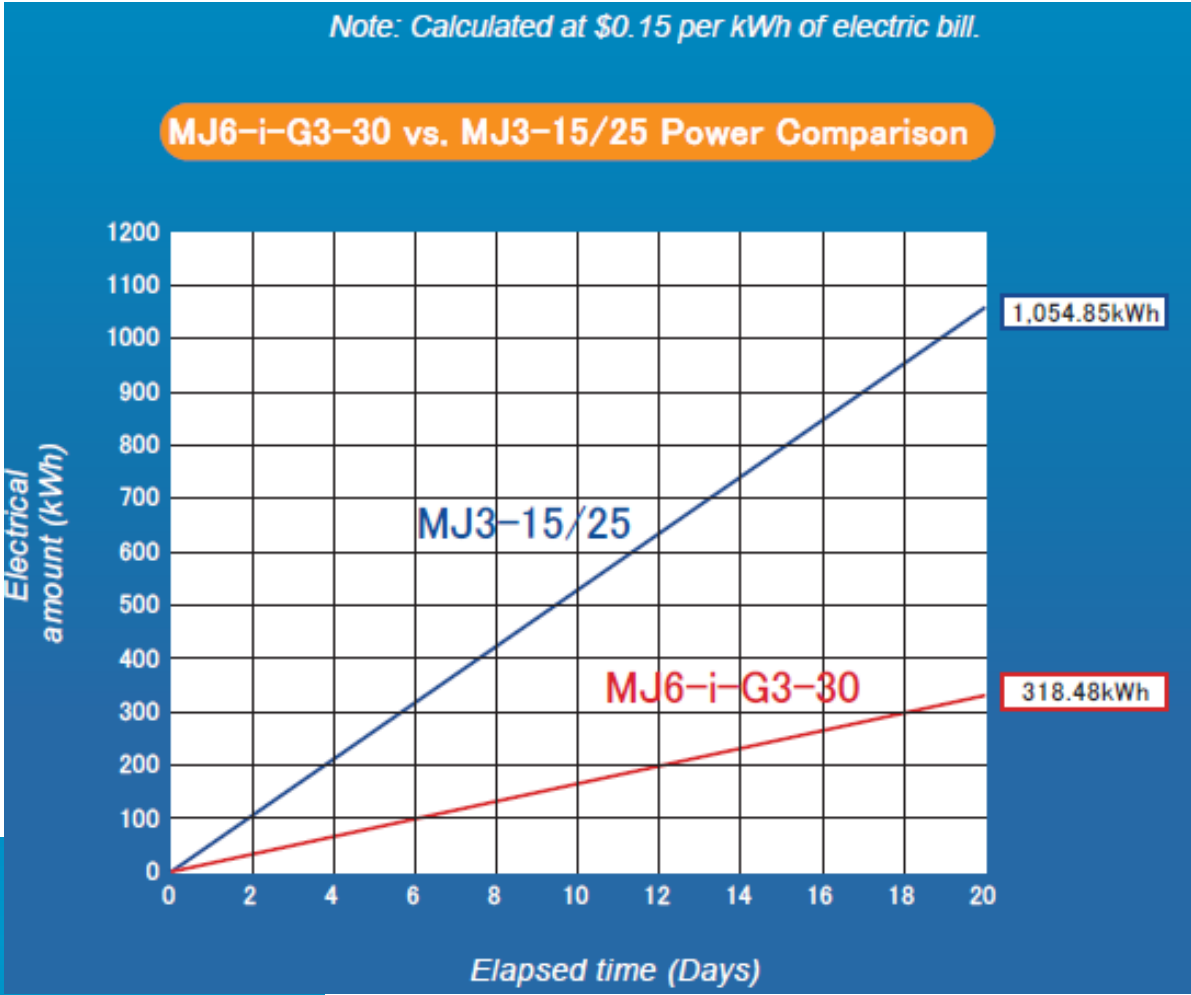
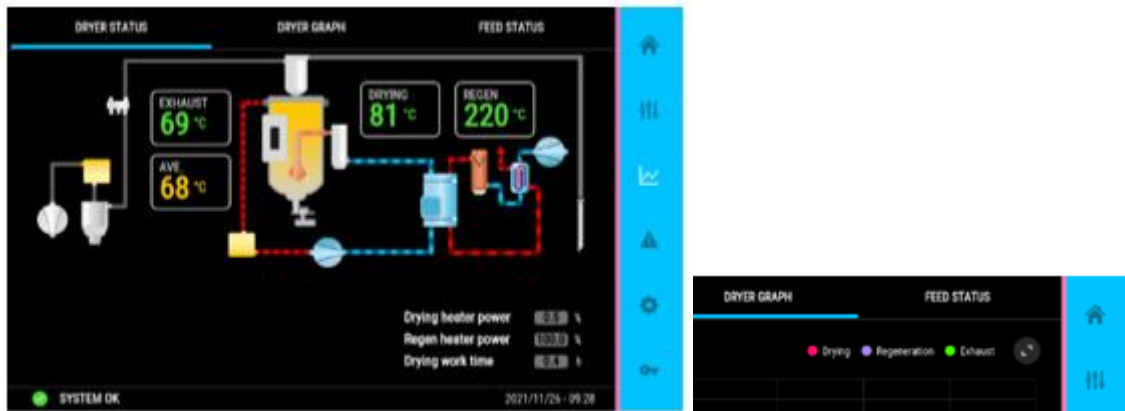
Power Comparison by Drying Temperature (MJ6-i-G3-50 & MJ3-50)



Reference

The MJ3-50 requires approx. 4 kw of electricity per hour to dry 15kg (33 lbs.) /hr. of resin at 266 F, while the MJ6-i-G3-50 requires only approx. 2.1 kw of electricity to dry 15kg (33 lbs.) /hr. of resin at 266 F.

Energy saving data



Calculate the Energy-Savings Impact:

The graph below assumes that the unit is operating 20 days per month.

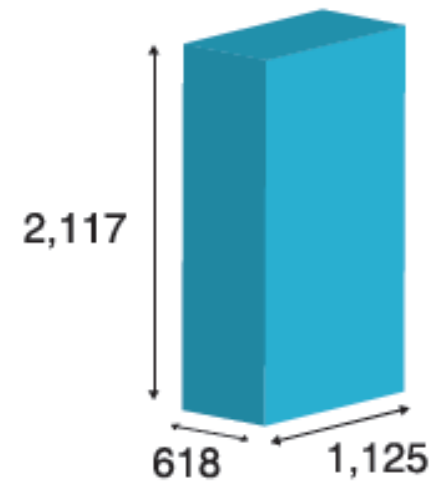
12 months × (1,054.85-318.48) × \$0.15 = \$1,325.00 / yr.!

5 Other features

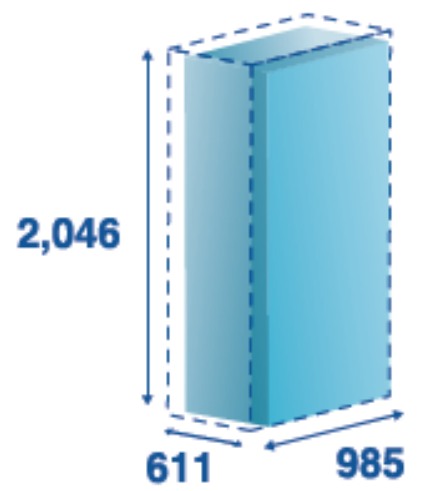
Space-saving compared to the conventional model

Downsized the main unit while maintaining its basic performance and functionality by reconsidering the internal layout. Greatly contributes to space efficiency in the work sites.

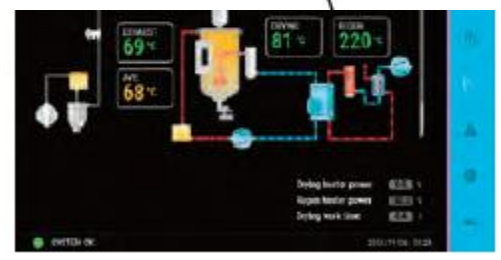
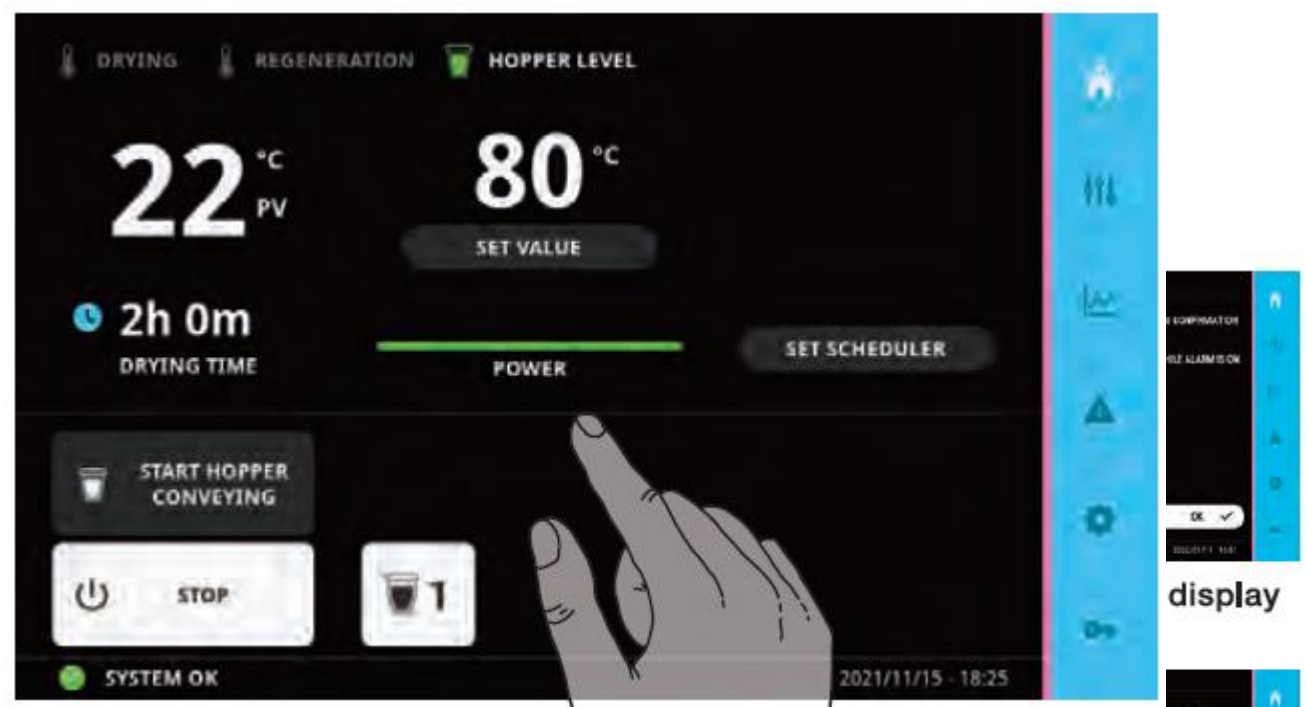
Conventional Model MJ5-i



New Model MJ6-i



An interface design allows intuitive operation



Drying status display



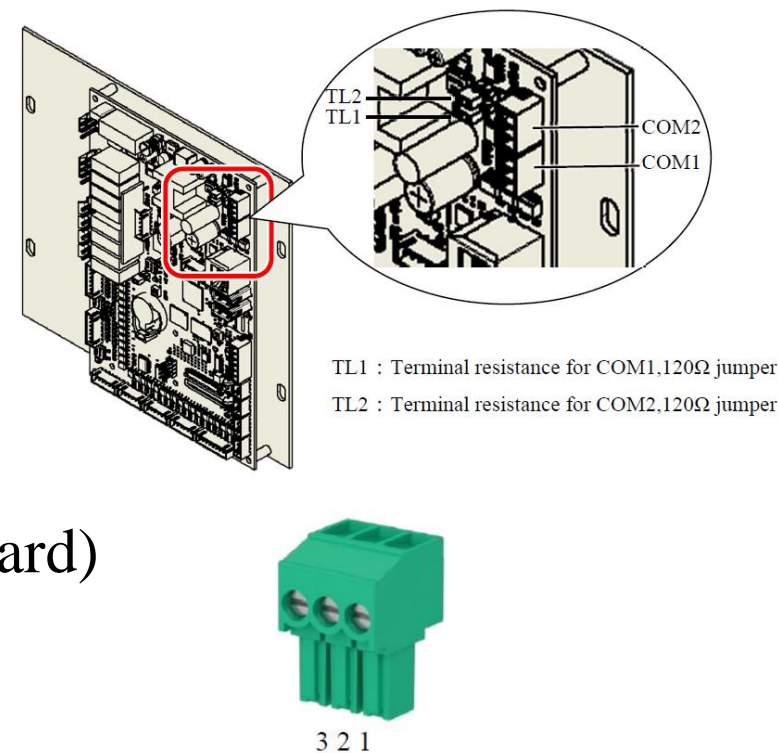
Timer setting display

5 Other features

Communication specifications (standard equipment)

*Terminal block extension is an option.

- ❑ Communication points : 1
- ❑ Port : EIA spec. follow RS-485
- ❑ Communication speed : 4800bps、 9600bps、
19200bps、 38400bps
- ❑ Corresponding communication protocol :
SPICCP Ver4.0(ANSI-X3.28 subtype 2.4D1standard)
MODBUS-RTU
- ❑ Terminal resistance : built in (120Ω)



The communication connector for COM2 is attached to the board as standard.
Please make a direct connection to this connector.

MJ6-i Specifications

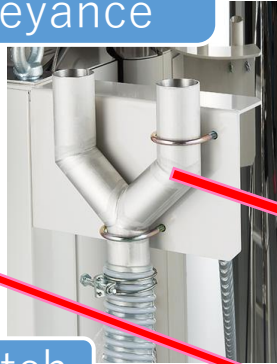
Model		MJ6-i-G3-30	MJ6-i-G3-50	MJ6-i-G3-75	MJ6-i-G3-135	
Drying Hopper	L	50	85	130	225	
Dew-point	Ambient Condition: Temperature 30°C Relative Humidity 75% (DP+25°C) Air Inflow: 10%	※-40 to -60°C (minimum)				
Operating Temp.	°C	70~160 [At ambient temperature of 10°C to 35°C]				
Drying Blower	Output kW	0.28		0.42	1.15	
RegenerationBlower	Output kW	0.28			0.42	
Drying Heater	Capacity kW	200V 50/60Hz	2.1		2.4	5.4
		220V 60Hz	2.5		2.9	6.5
		230V 60Hz	2.3		2.6	5.4
		380V 50/60Hz	2.1		2.4	5.4
		400V 50/60Hz	2.3		2.7	6
		415V 50/60Hz	2.5		2.9	6.4
		460V 60Hz	2.3		2.6	5.9
Regeneration Heater	Capacity kW	200V 50/60Hz	1	1.5	2.1	3.1
		220V 60Hz	1.2	1.8	2.5	3.8
		230V 60Hz	1.1	1.7	2.3	3.1
		380V 50/60Hz	1	1.5	2.1	3.1
		400V 50/60Hz	1.1	1.7	2.3	3.4
		415V 50/60Hz	1.2	1.8	2.5	3.7
		460V 60Hz	1.1	1.6	2.3	3.4
Absorption Tower Motor	Output W	25				
Dimension	W (mm)	985	993	1068	1387	
	D (mm)	611	611	611	631	
	H (mm)	2046	2369	2369	2626	
Product Weight (kg)		265	275	290	395	

MJ6-i Options

Secondary side two Directional conveyance



Lower limit level switch



Clear Lid For feeder



Clear dust cup



DIGI-PECA

GAS Processor



Alarm light(Red)



After cooler(water cooling)
Drying temperature
140°F/60°C~



Capacity Control



Dew-point sensor



MJ6-i Options

Standard



MVH-3

Secondary side **one** Directional conveyance

Option



MVH-3

Secondary side **two** Directional conveyance

Special Option

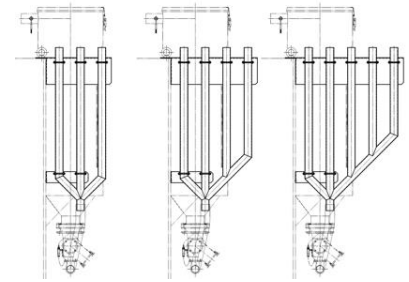


MVH-3

MVH-3

MVH-3

Secondary side **three to five** Directional conveyance



Option

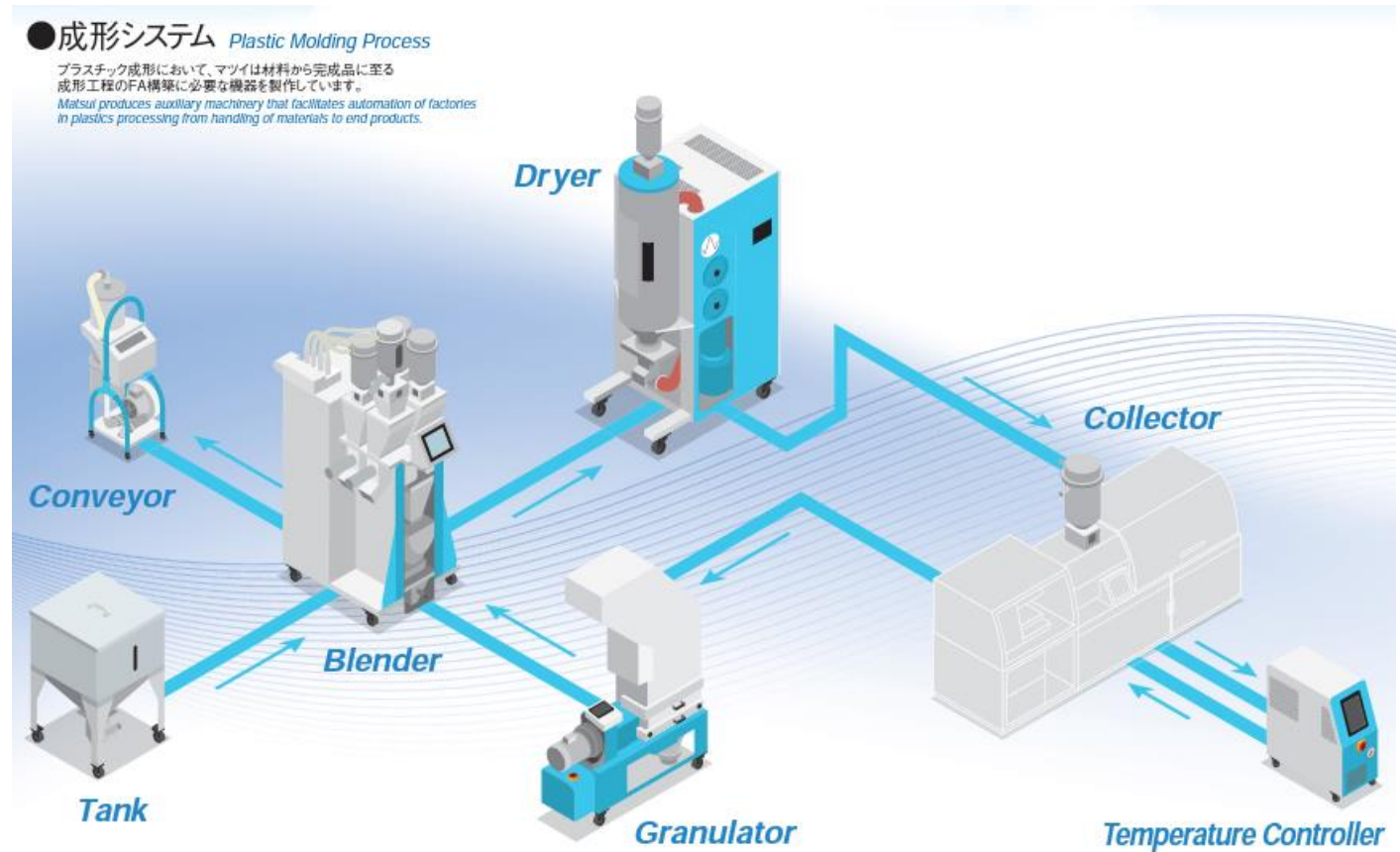
Matsui Support & Solutions

Other Matsui equipment

This year, we will hold regular study sessions on the web about the characteristics of MATSUI equipment.

By all means, please understand the features of MATSUI equipment, including dryers, and expand sales.

Details will be announced separately.



Pre-clear



Eco Preclear2

Coming soon
Water softener
(for cooling
towers)

Sweeper

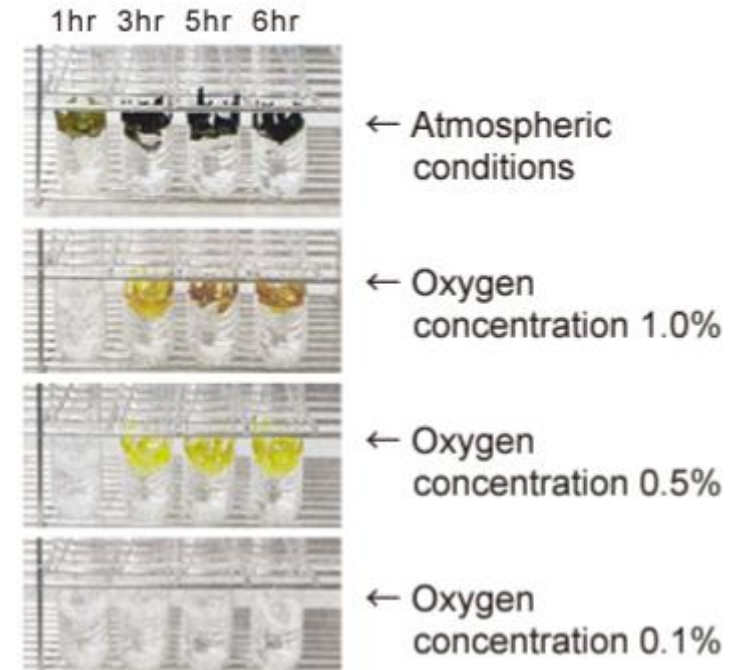


Highly effective to prevent blocking of the soft resins!
Can be attached to the standard product!

Compact Thermal Conduction Dryer + N2 generator



Oxidation yellowing test (test material: COP)



Prevents black spots, burns, and white spot defects

ARV-38



For optical component materials.
It can also be used in clean rooms.

ARV-OPT



ARV-50



It can be used in a recycling system using a high-speed Granulator.
Capacity Max about 1000 kg/h
(Max about 2,200 lb/h)

MSE-38



Magic catch

MC5-G3-HH

High temperature type (water)
(180°C / 356°F)



■ Features

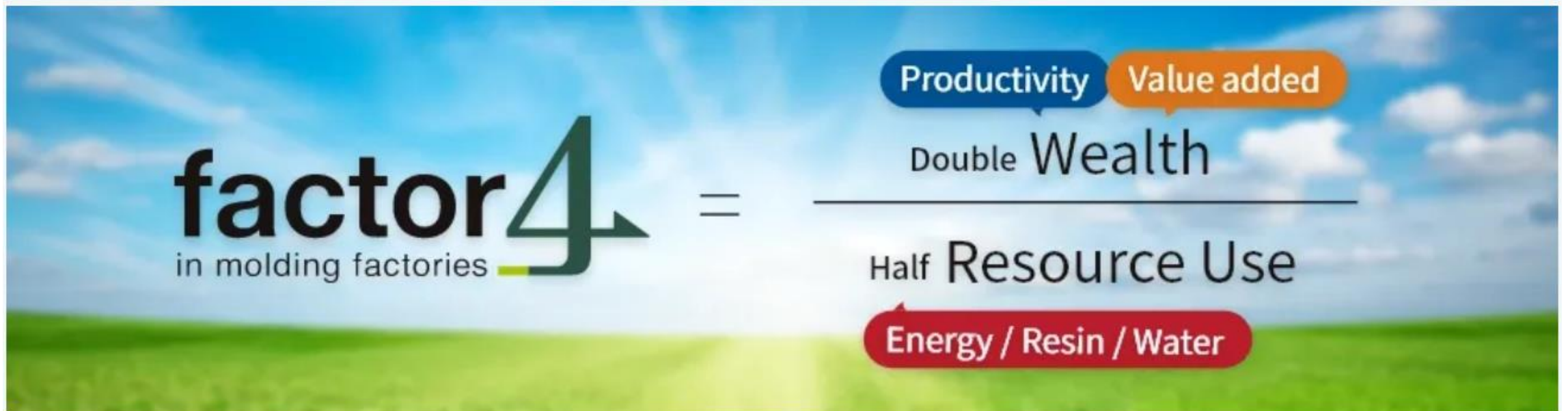
- Water supply automatic adjustment
- Adopt new booster pump
- Indirect cooling

Having the structure capable of separating cooling water and circulating water and being less susceptible to water quality, the influence on molds, etc. by scales and impurities is reduced.



It is very useful for high-temperature materials such as BEV connectors, engine compartments, motor-related parts, and medical devices.

Matsui Support & Solutions



It aims to increase the “productivity of resources” by four times by doubling existing wealth while halving resource use.

Thank you for your attention.