



MITSUBISHI
110ME&V
ELECTRIC INJECTION MOLDING MACHINE

MITSUBISHI

MITSUBISHI ELECTRIC INJECTION
MOLDING MACHINES

ME&V

SERIES

55/110/150/200/250/300

Realizing improved performance through constant evolution

Evolution of controller

- Pursuit of stable molding using MAC-VIII[†]
- Digitization of the molding technician's skills and techniques

Advances in the injection unit

- High-performance digital load cell mounted to realize high-precision plasticity measurement
- High-speed injection unit lineup for improved thin-wall/high-precision molding process control



New design injection unit

	Injection unit			Screw diameter (in)			
	High speed	Super-high speed	Ultra-high speed	0.63	0.71	0.79	0.94
55MEtV	0.7H	0.7U	1.5E	0.63	0.71	0.79	0.94
110MEtV	1.5H	1.5U	1.5E	0.79	0.94	1.10	1.26
150MEtV	2.5H	2.5U		0.94	1.10	1.26	1.42
200MEtV	3.5H			1.10	1.26	1.42	1.57
250MEtV	7H	7U		1.26	1.42	1.57	1.81 ^{※1}
300MEtV	10H			1.57	1.81		
	15H	15U		1.57	1.81	1.97	2.17
	20H			1.97	2.17	2.36 ^{※2}	
	30H	30U		2.17	2.36	2.68	

※1: It is not possible to install it in 110MEtV.

※2: It is not possible to install it in 200MEtV.

■ : Diameter of standard screw

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MEtV SERIES

Complete change to control and hardware. Realization of next-generation molding stability and ease of use.

Pursuit of greater stability of the molded product quality

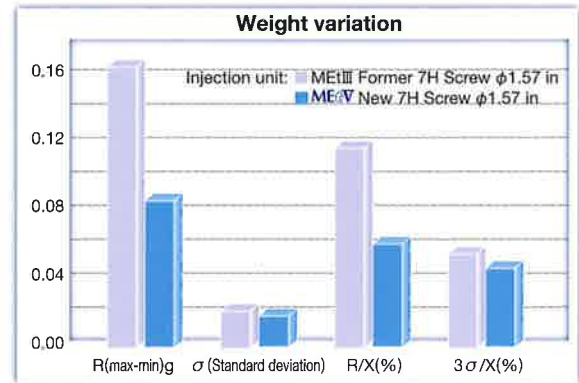
High-speed high-precision injection process motion control

A high-performance CPU provides a top-class control speed in the industry (5 times faster than before)

Major reductions in variations in “change points” of elements such as injection/holding pressure switching positions, time and pressure to realize further improvement in quality of the molded products.



High-performance CPU board



Molded product: Planter (Approx. 4.9 oz) Resin: HI-PS Molding cycle: 30s

Digitization of the molding technician's techniques and skills by MAC-VIII

V-mode control Variable response function

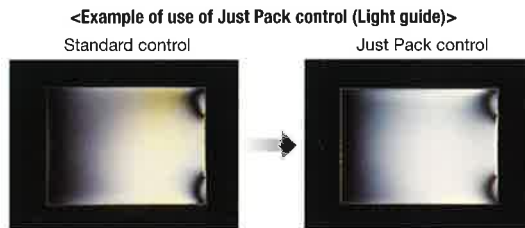
In addition to features such as multi-step speed control and speed slope control, we have added an automatic acceleration control function for injection and mold opening/closing. The complicated parameter settings of the past can be made easily by selecting a V-mode (acceleration/deceleration mode). (3 modes each available for injection and mold opening/closing)

Just Pack Control High-precision holding pressure control

Applying high-precision holding process control immediately after completion of the first injection process realizes greater smoothness of melt filling compared to previous controls. In addition, this feature reduces burr and effectively eliminates residual stress that can cause warping.



<Just Pack control screen>



<Example of use of Just Pack control (Light guide)>
Standard control Just Pack control

Reduction in thickness deviations and residual stress



The graph above shows a comparison of differences in the holding process after completion of the first injection process using standard and Just Pack controls. It can be seen that the pressure range shown in the pale blue segment is surplus to needs

Molding navigation function Molding condition input support/diagnostic function

Minimum settings required for molding can be set sequentially using the navigation function in accordance with basics. Not only users unfamiliar with Mitsubishi molding machines, but also experienced operators can reconfirm the basics of parameter settings.

<Clamping force/stroke calculation screen>



<Temperature setting screen>



<Mold opening/closing/ejector setting screen>



<Injection/recovery setting screen>



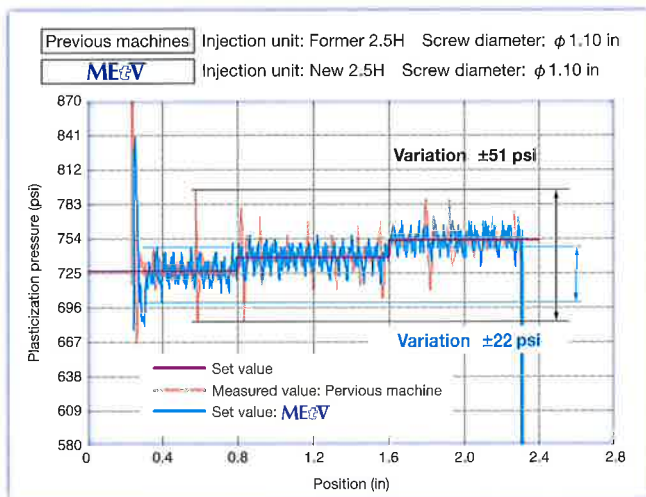
Realization of high-speed molding and high-precision injection

Outfitted with a high-performance digital load cell

Features high-performance digital load cell and low-friction guide mechanism to realize enhanced plasticization pressure resolution and high-precision plasticity measurement.

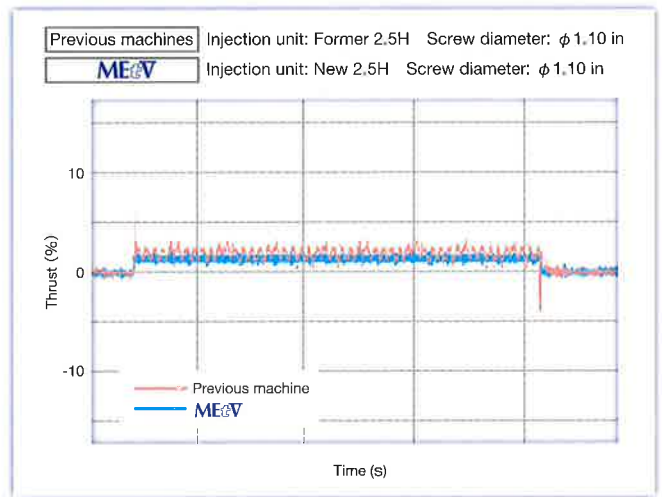
Stabilization of plasticization pressure

Featuring double the stability during 0.1-MPa-step plasticization pressure control compared to that of previous machines



Realization of low friction in sliding injection parts

Featuring double the injection shaft drive stability at low-speeds



Lineup of ultra-high-speed injection units also available

Lineup of high-speed and ultra-high-speed injection units also available for thin-wall and high-precision molding

Realization of the industry top-class injection acceleration performance to enhance transfer property in thin-wall and high-precision molding and improve the molding stability of thin-walled parts

Injection unit	Max. injection speed	Acceleration time	Deceleration time	Acceleration
1.5E	27.6 in/s	19 ms	16 ms	3.76G
1.5U	19.7 in/s	23 ms	19 ms	2.22G

<Ultra-high-speed ball screw>

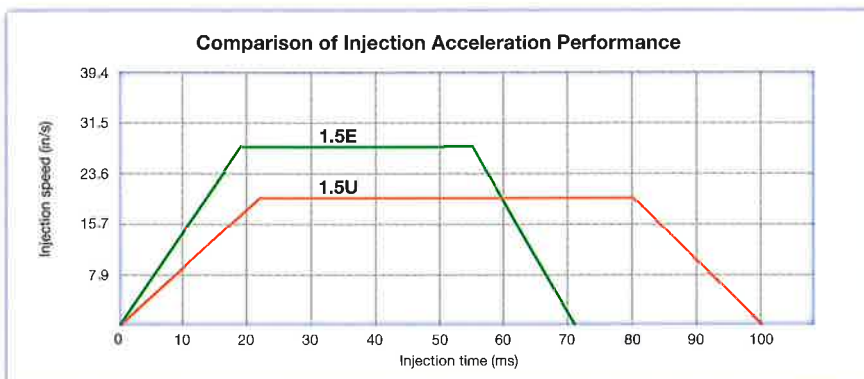


Uses dedicated ball screw compatible with high loads

<High-power rate triple motor>



Mounted with 3 specially-developed high-torque, low inertia motors



Newly-developed V-clamp system also used in MEtV

V-clamp that realizes uniform clamping force distribution and Slim platen move one step closer to the ideal clamping mechanism



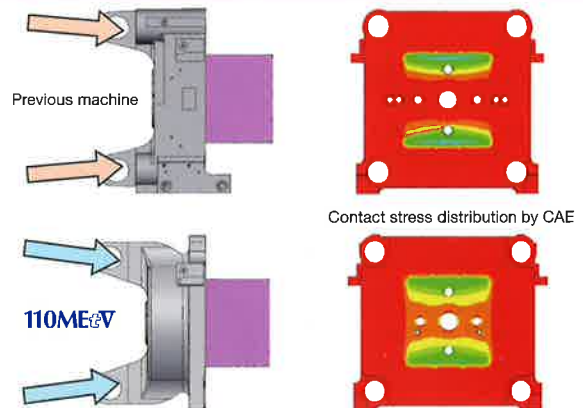
The new V-shaped toggle incorporates advanced technology and enhances the center press effect

We have rewritten history of the toggle clamping mechanism that is the essential part of the core technology. Optimization of the toggle shape requires endless simulations that combine elements such as angle and arm length. This is where we have incorporated advanced technology. The ideal is to increase maximum speed and decrease strokes with the same power as that of previous machines. Under countless design conditions, we have made use of newly-developed motion analysis software to dramatically reduce development period and, as a result, we have been able to realize early incorporation of the new clamping mechanism into the MEtV Series. The V-clamp is arranged in a V shape with greater tilt angles compared to conventional clamps. Even greater mold clamping uniformity can be realized by the center press effect, contributing to enhancement of both the quality and yield of molded products.

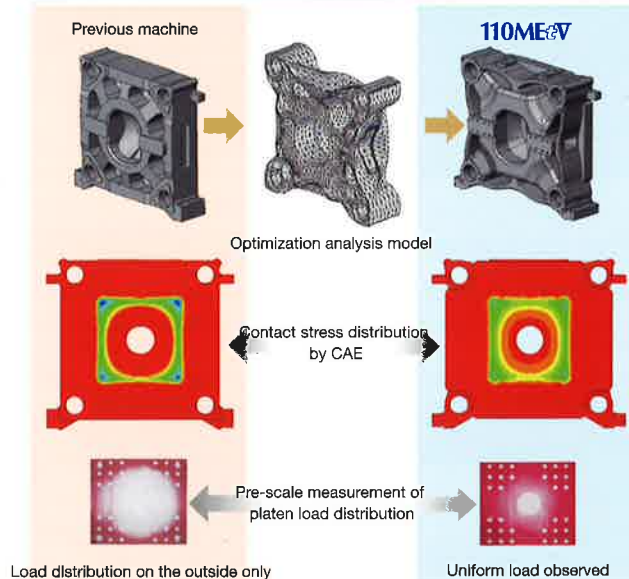
Slim, highly-rigid platen realized by development techniques that enables optimization analysis of previous machines

We have also improved the performance of the platen. We created an optimization analysis model based on design data from previous machines. We have succeeded in developing a new platen features a wide platen specification coupled with a slim and rigid design. This ideal platen provides high movement efficiency and uniformly transmits clamping force to the die, contributing to both energy conservation and quality enhancement.

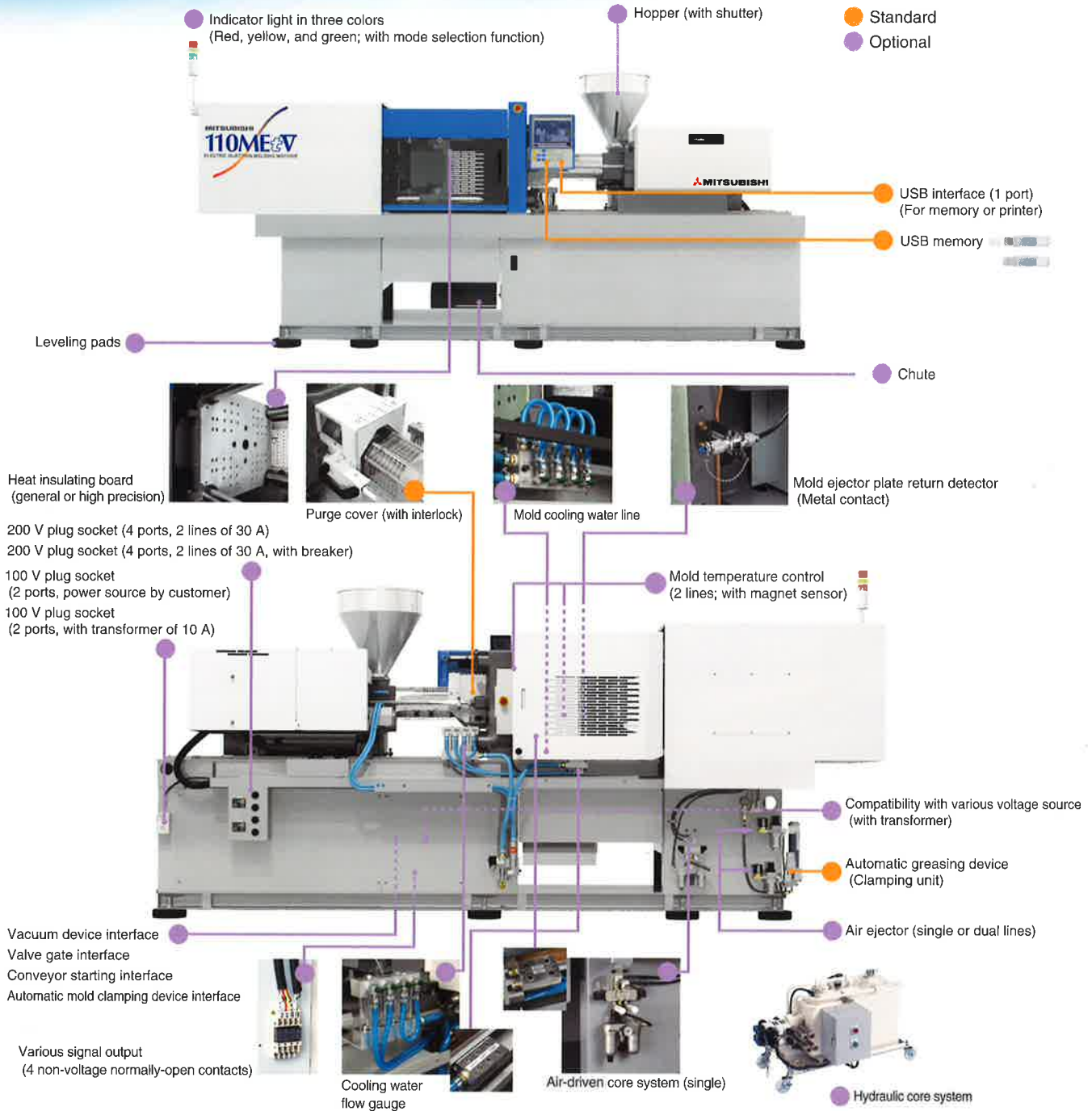
Moveable platen analysis



Fixed platen analysis



Standard/Optional Equipment



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Specifications are subject to change without prior notice.

Printed in Japan