SEEV-AHD

All-electric Middle-sized Molding Machine

Lineup

- SE220EV-AHD
- SE250EV-AHD
- SE280EV-AHD
- SE315EV-AHD
- SE350EV-AHD
- SE385EV-AHD
- SE450EV-AHD
- SE500EV-AHD

Sumitomo Heavy Industries, Ltd.

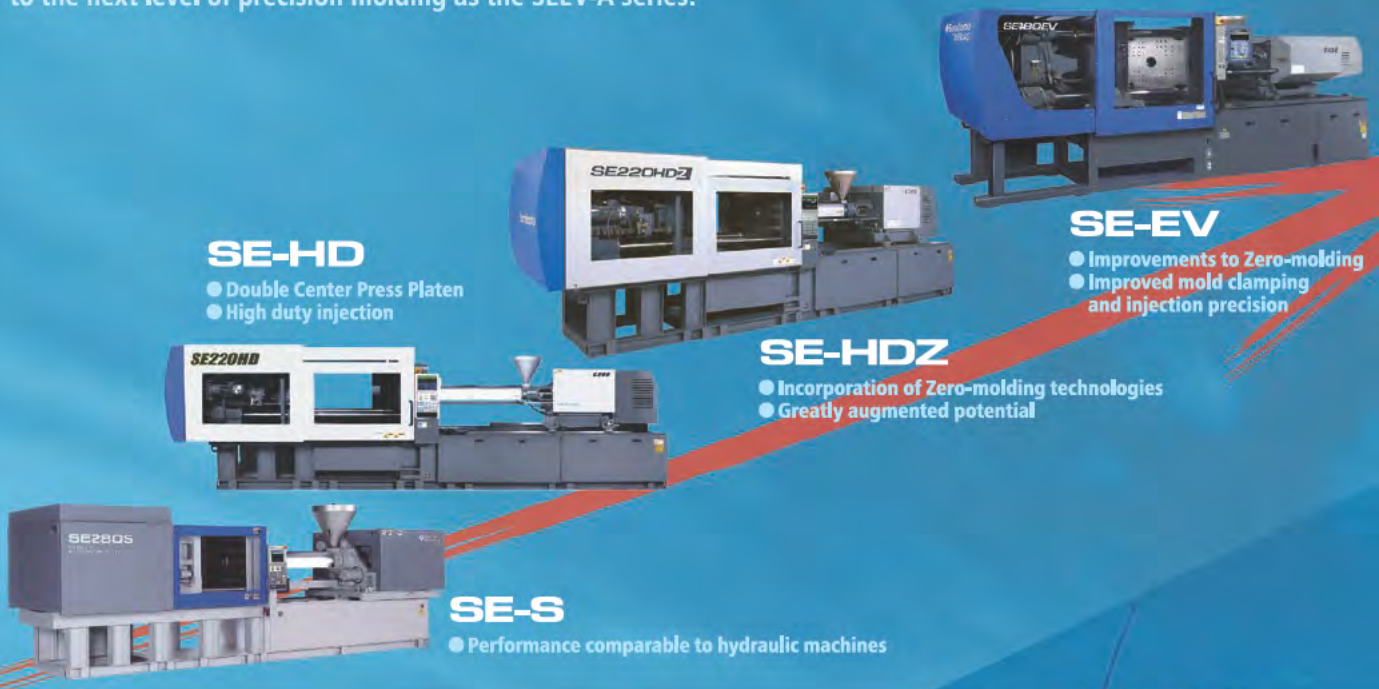
Taking molding to the next level.
The age of the "A" machine has begun.

Advanced

Sumitomo's new "A" line of all-electric IMMs

At Sumitomo, we have always sought to synergistically improve the hardware and software technologies of our all-electric injection molding machines.
Now, we have taken the SE-EV series that debuted as the bellwether of the age of innovation to the next level of precision molding as the SEEV-A series.

[Potential of all-electric IMMs]



SE-HD
- Double Center Press Platen
- High duty injection

SE-EV
- Improvements to Zero-molding
- Improved mold clamping and injection precision

SE-HDZ
- Incorporation of Zero-molding technologies
- Greatly augmented potential

SE-S
- Performance comparable to hydraulic machines

[Improvements to molding processes]

'Zero-molding

'Zero-molding

The motive force behind advanced molding technology

Zero-molding aims to bring loss, defects and fault vectors as close to zero as possible. We have pursued broader functioning and technological innovation that has enhanced the potential of our all electric molding machines.
All of these technologies are taking you to Zero-molding.

SEEV-AHD

- Development of Zero-molding applied technologies
- Machine performance that brings out the full potential of the latest version of Zero-molding system

Increased potential of the "A" line

Productivity

Less likelihood of defects
- Greater platen rigidity
- Improved surface pressure distribution
- Clamping force correction
- FFC molding

Low vibrations, increased cycling
- S-MOVE (New low vibration control)
- Greater platen rigidity

Shorter setup
- Purging for resin replacing
- Resin viscosity measurement

Higher efficiency
- Reduced mold maintenance
- Mold protection
- Core/Guide pin breakage prevention
- Low-inertia direct drive motor

Operability

Enhanced display operability
- Upgraded tabs
- Increased touch panel sensitivity
- Wider viewing angle

Expanded quality management
- Waveform-based OK/NG product evaluations
- Upgraded logs

Misoperation prevention
- Incorrect setting alerts
- Redesigned button layout

Environmental performance

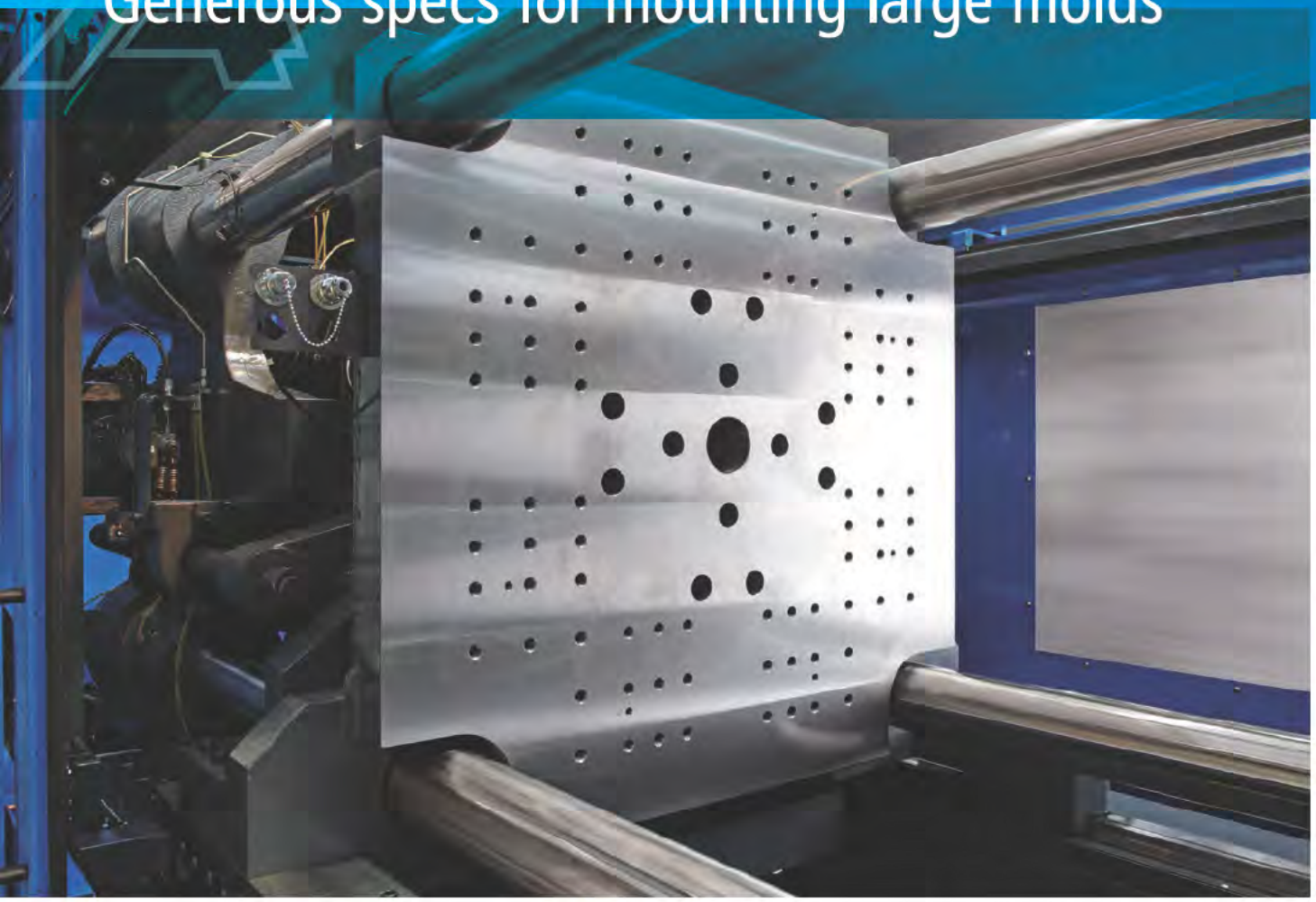
Energy-saving
- Linear guide
- Oil sealless
- LED backlit screen

Clean
- No-bushing tie bar
- No greasing required

Be Comfortable.

Stress-free Molding and Optimized Production

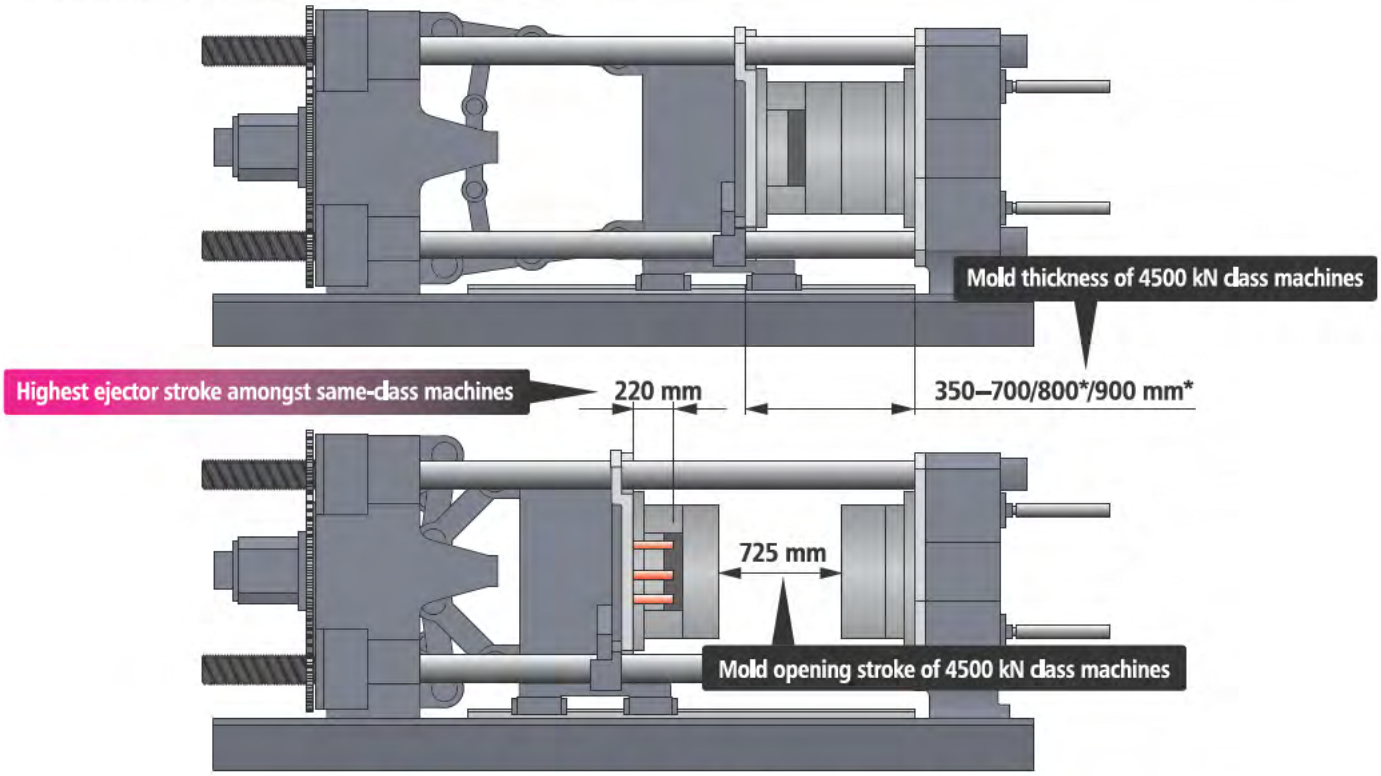
Generous specs for mounting large molds



Wider opening stroke, thickness range and ejector stroke

The mold closing stroke is 25 mm wider than on previous models and the mold thickness range can be extended (100/200 mm*) from the original minimum thickness. The ejector stroke is 220 mm with all models in the series and the largest amongst machines of the same class.

*Option. Only 100 mm extension is available on some models.

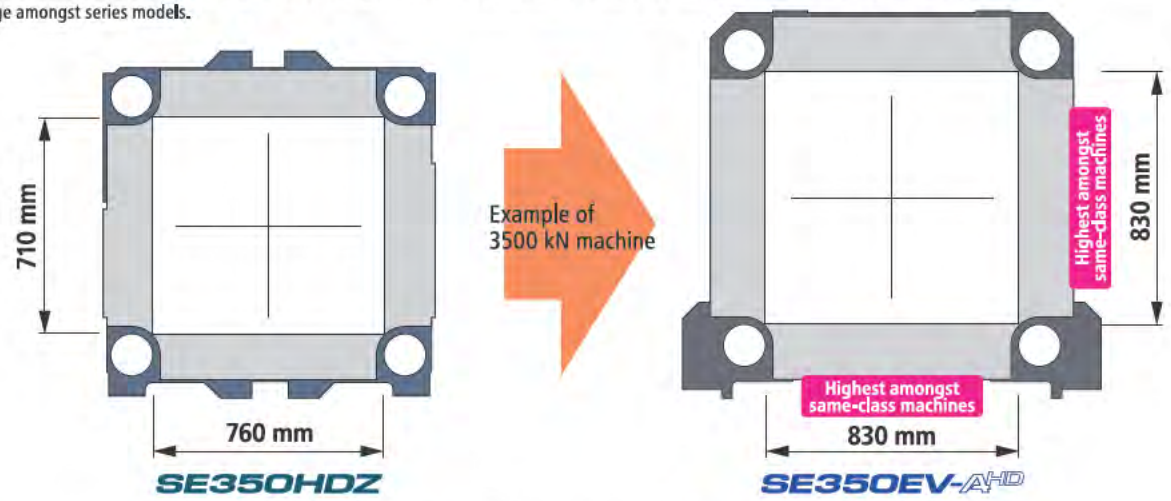


SE350EV-A-HD (Example of 3500 kN machine)

Wider tie-bar spacing

**Tie-bar spacing has been increased 8%* in the traverse direction and 15%* in the longitudinal direction from that of earlier models, and is the highest amongst machines of the same class.
And, the tie bars are in a square configuration that allows users to insert molds from the side.**

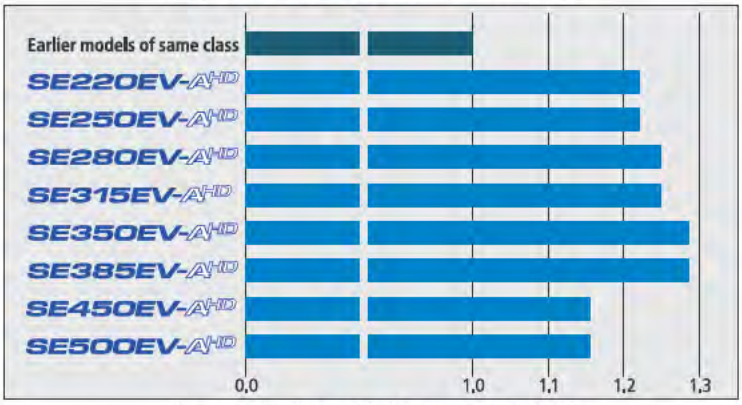
*Average amongst series models.



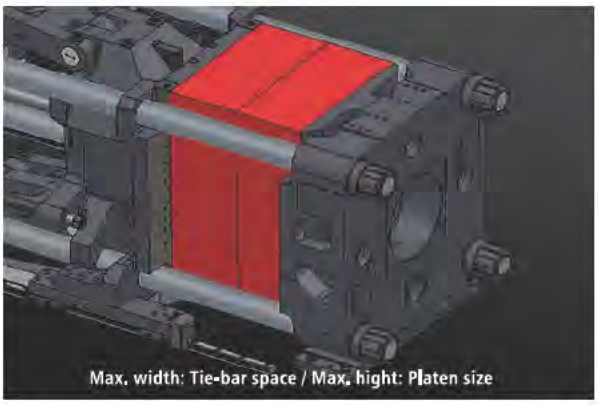
Greater support for heavy molds

**A stronger frame construction has increased the allowable maximum mold weight by 22%* over earlier models.
The SEEV-A series can accommodate larger molds both in terms of size and weight.** *Average amongst series models.

- Comparison of allowable maximum mold weight -

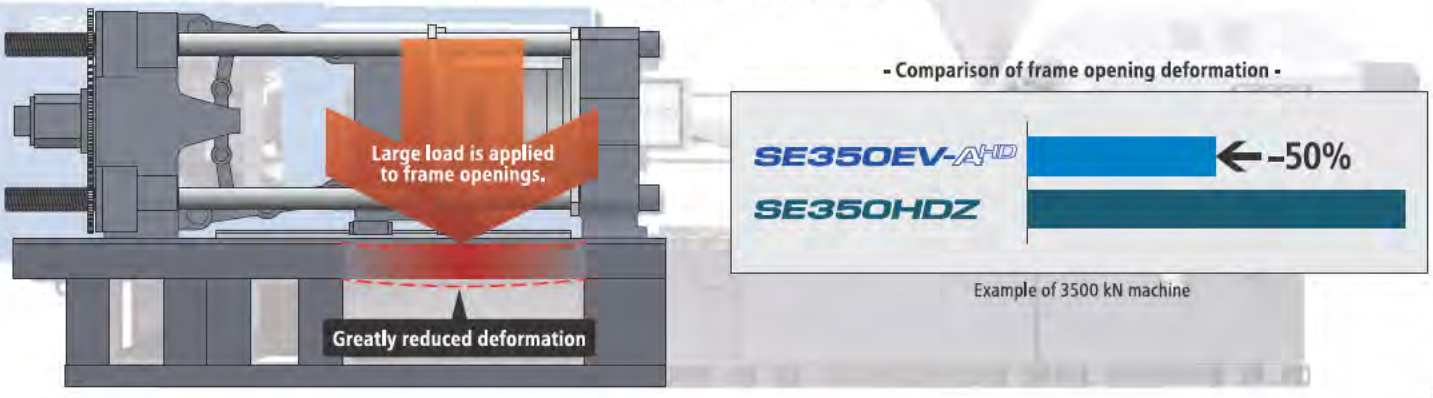


Assuming all earlier models of the same class to be 1.0

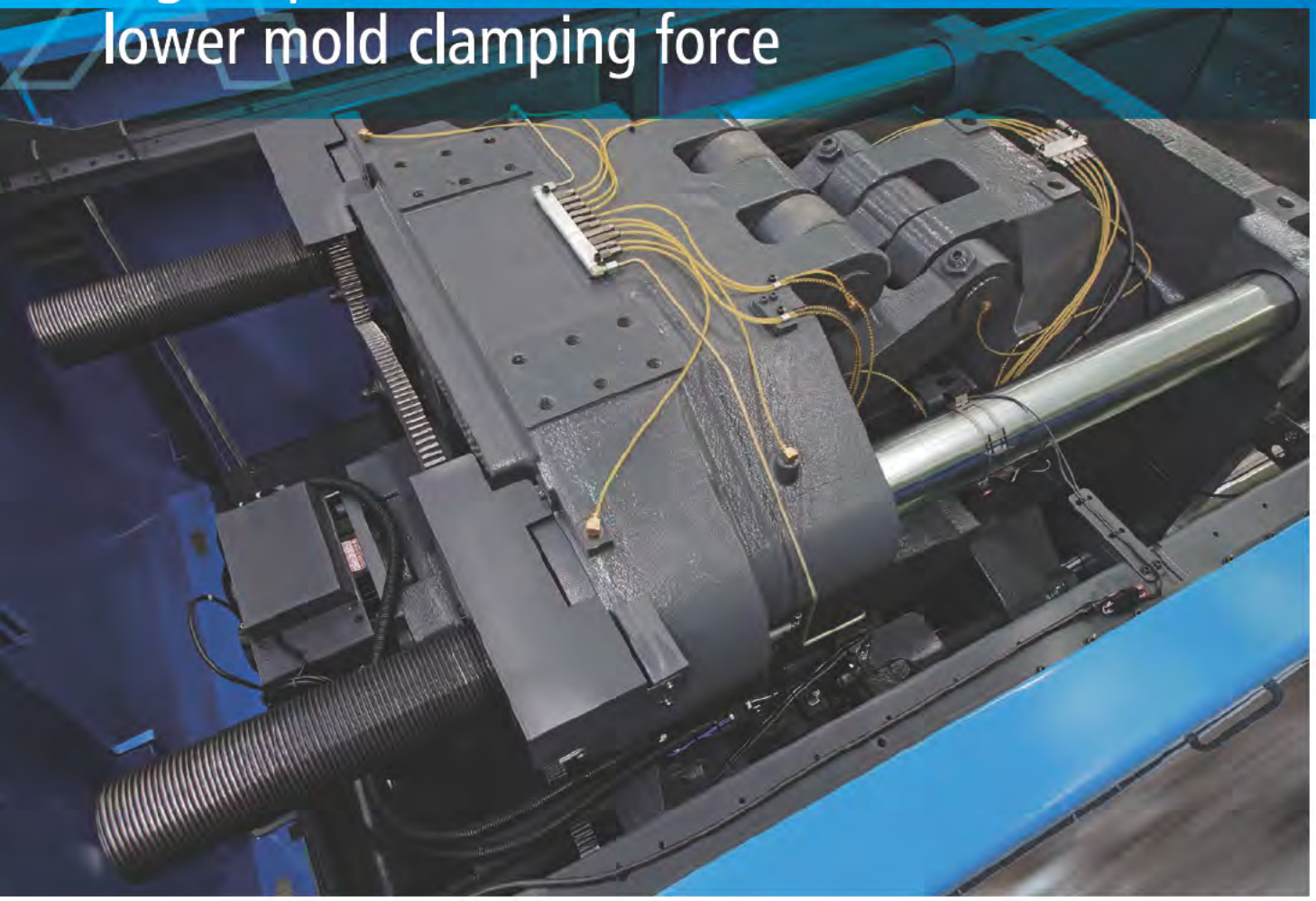


Stronger frame

**The stronger frame of the SEEV-A series decreases deformation in frame openings by 50%, which is important since this deformation affects mold posture when the mold is closed.
Linearity has also been improved to prevent wear and breakage in guide pins.**

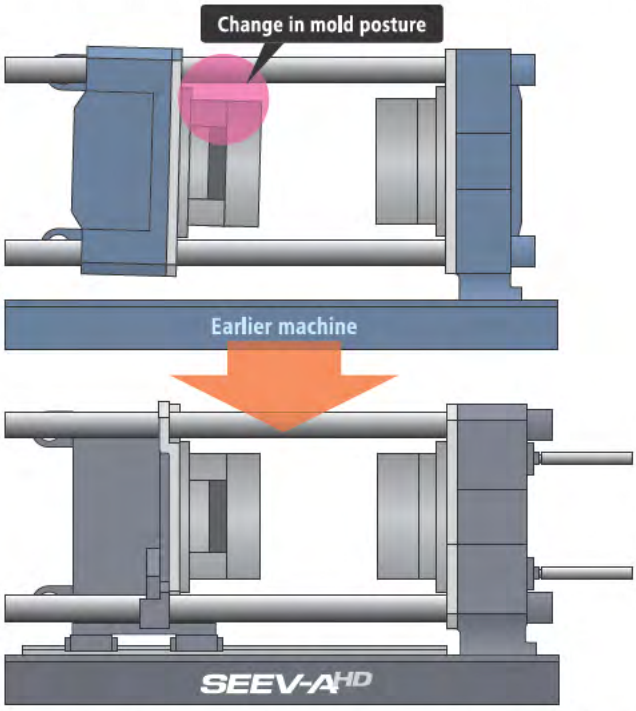


Higher precision that consents lower mold clamping force



Linear guide platen support and no-bushing tie-bar

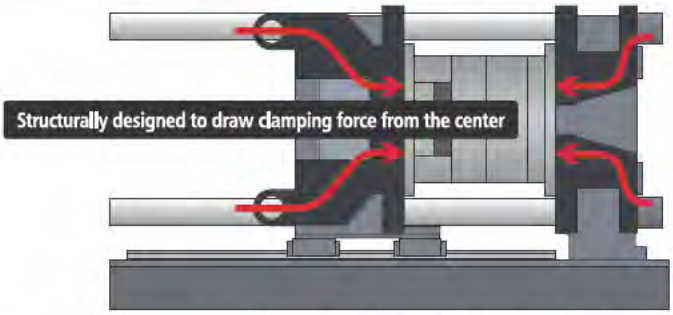
**Even heavy molds open and close smoothly and parallelism is maintained to a high degree of accuracy.
The tie-bar is assembled entirely without bushings,
therefore the production environment stays clean and free from splattering grease.**



Changes in mold posture while the mold is opening have been reduced by 50%.
Even large heavy molds maintain a high degree of parallelism
when opening and closing.

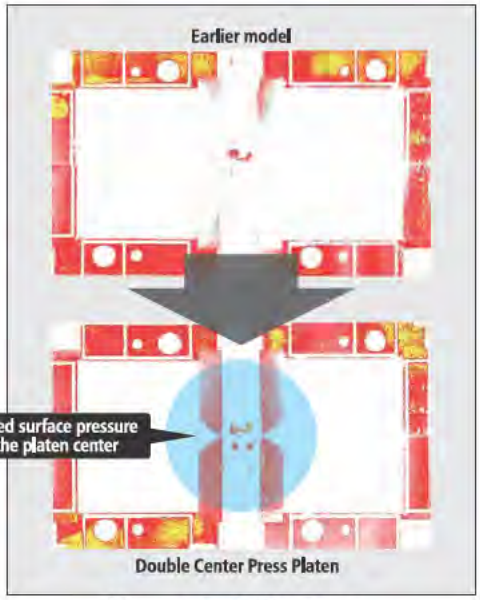
Double Center Press Platen

Center Press Platen that evenly distribute the surface pressure applied to molds come standard on both the movable and stationary sides. And, a newly designed structure further reduces the surface pressure inconsistencies at the center of the platens.



The surface pressure distribution at the platen center has been further improved.
This improvement reduces the surface pressure inconsistencies inside the mold by 15%.

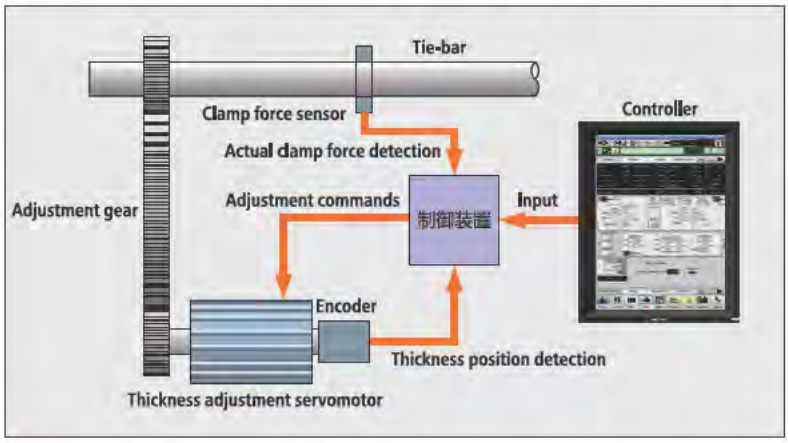
- Comparison of surface pressure inconsistencies -



Measurement using impact paper

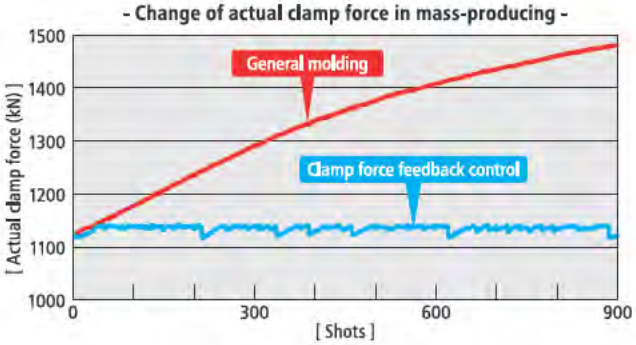
Clamp force feedback control

A high performance servomotor that enables feedback control to within ±1% is employed to move the mold in the thickness direction. As a result, the machine remains unaffected by the thermal expansion of the mold, therefore mass-production proceeds at the specified clamp force.



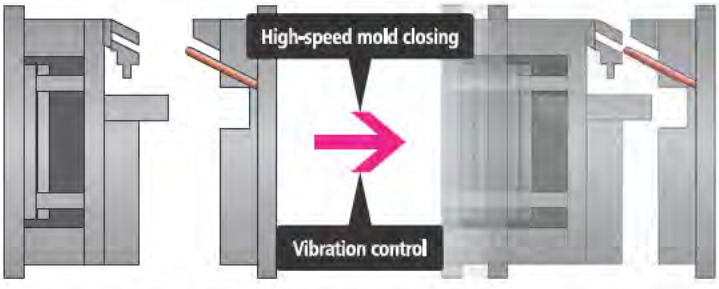
- Comparison of surface pressure inconsistencies -

- Change of actual clamp force in mass-producing -



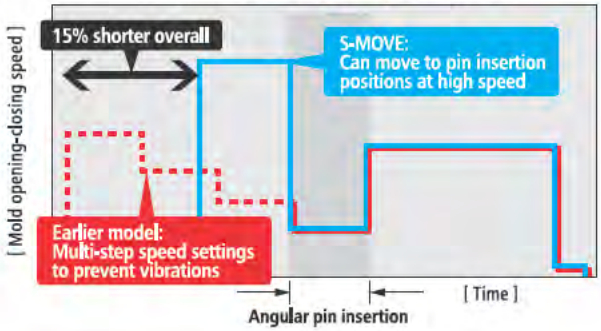
Vibration control via S-MOVE

S-MOVE generates a smooth speed pattern during motor acceleration and deceleration, therefore vibrations have been reduced by 50% from that of earlier models.



Thanks to S-MOVE vibration control, users can move molds with angular pins close to the insertion positions at higher speed settings than on earlier models.

- Comparison of mold opening-closing times -



Injection unit that increases capacity

Screw selection according to high injection capacity

A large diameter screw has been added to screw options for the C1100HD and higher capacity plasticizing units. It is used for products that require high injection capacity.

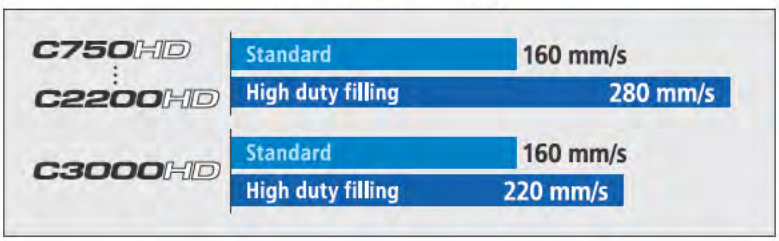
	Screw diameter (mm)	Max. injection pressure (MPa)	Theoretical injection capacity (cm^3)
C750HD	45	215	337
	50	174	416
C1100HD	50	230	510
	56	187	640
	63	148	810
C1600HD	56	230	714
	63	188	904
	71	148	1148
C2200HD	63	216	997
	71	188	1266
	80	148	1608
C3000HD	71	216	1425
	80	187	1809
	90	148	2290

High duty filling specification for thin-walled products

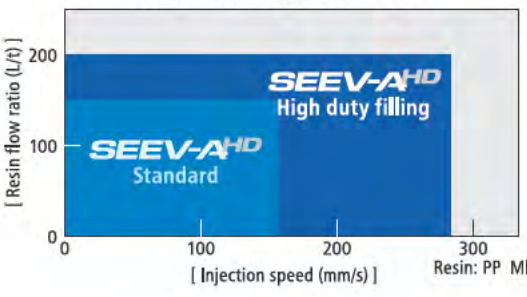
High duty filling specification* models that greatly raises the max. injection speed are part of the lineup. The high-speed injection enables stable precision molding of thin-walled products.

*Option

- Maximum injection speed -



- Comparison of applicable ranges -



Bringing defects, loss and faults to zero

'Zero-molding

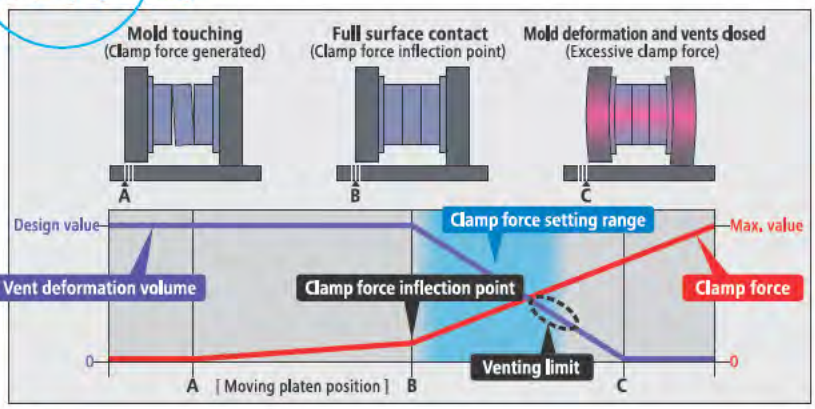
SEEV-AHD

Zero-molding is an integrated application that reduces defects, loss and faults as close to zero as possible. It consists of three elemental technologies in MCM, FFC and SPS.

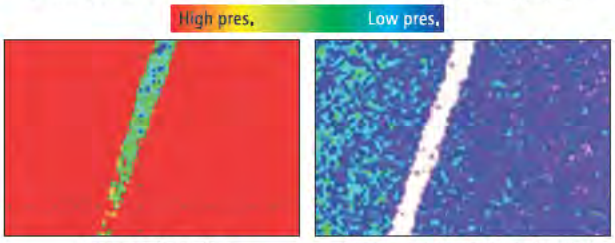
MCM
Minimum Clamping Molding

Less maintenance and longer lasting molds by utilizing a venting effect

The best balance between the minimum required clamp force and surface pressure distribution can be obtained in mold clamping, owing to technologies that improve clamping precision and evenly distribute the surface pressure applied to molds.



- Observation of vent deformation volume using impact paper -



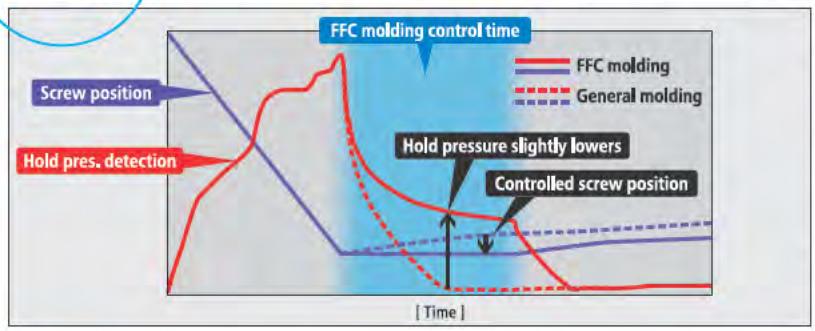
Excessive clamp force | Appropriate clamp force via MCM

A high clamp force changes the vent deformation volume whereby keeping air and gas from escaping.

FFC
Flow Front Control

Smooth low-pressure filling and improved cavity balance by good gas release

All cavities are smoothly and completely filled under low pressure because the speed and pressure before and after V-P switching are controlled at a high response rate. This both improves cavity balance and eliminates burrs and short shots at the same time.



- Filling comparison at same injection pressure -

Molded product: Wheel cap (ϕ381 mm) Resin: PC+ABS

General molding | FFC molding

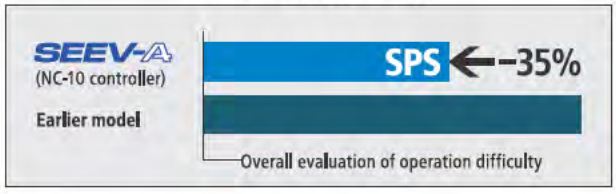
Cavities can be completely filled without raising the injection pressure.

SPS
Simple Process Setting

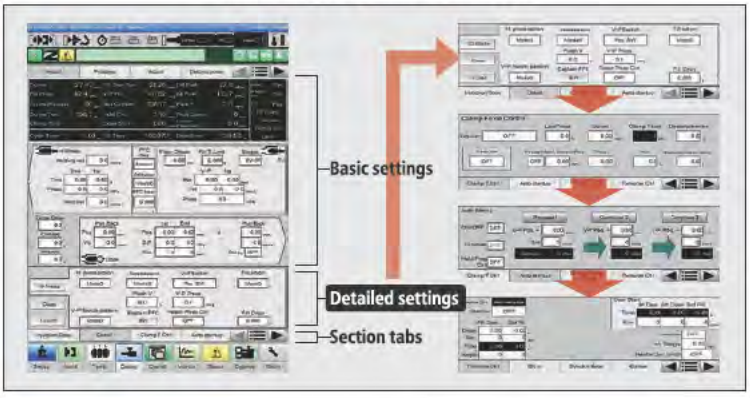
Simple, mistake-free setup and shorter operating time

Since tedious setup is unnecessary, the high performance of the SEEV-A series can be fully mastered by production engineers and general operators alike

- Comparison of operability -



- Plasticizing setup window (Example) -



A controller that speedily and ergonomically links operators to the machine

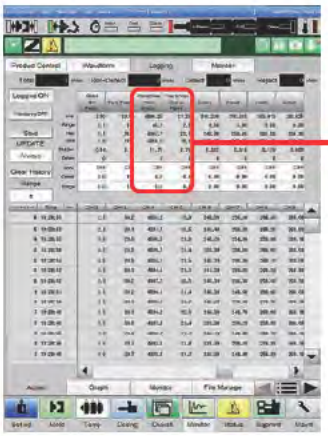
NC-10 controller with advanced interface

The new NC-10 controller is housed in a human-centered design case and touts a large 15-inch color LCD panel that ensures a wide horizontal viewing angle, and a high degree of sensitivity that allows operation by light touches. And, in the interest of enhanced ease of use, the software features various means of user support, including waveform displays and quality control evaluations.

Waveform displays and quality control support

Waveform information can be logged to improve the accuracy of quality control evaluations.

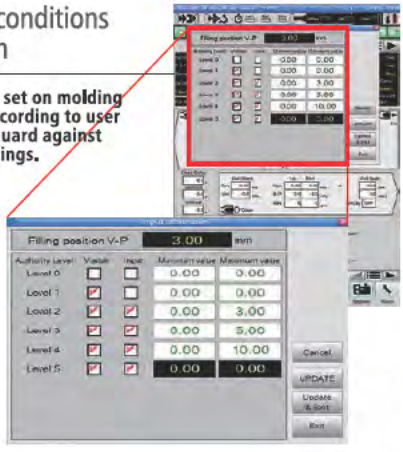
Statistical calculations made on waveform windows



Enhanced evaluation accuracy of monitored products on logging windows

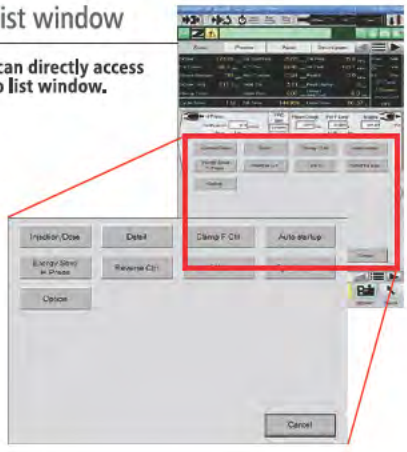
Molding conditions protection

Limits can be set on molding conditions according to user level to safeguard against incorrect settings.



Tab list window

Users can directly access the tab list window.



Language selection

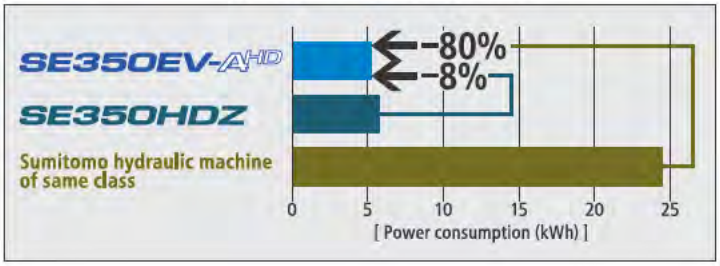
NC-10 supports 15 languages including English, Spanish, Portuguese, Japanese, Chinese (Simplified/Traditional), Korean and more.

Improved environmental performance

Energy-savings in multiple ways

Power consumption has been further reduced in comparison with earlier all electric machines via the lower clamp force achieved with Zero-molding and the improved mechanical efficiency derived from low-friction mechanisms like the linear guide platen support.

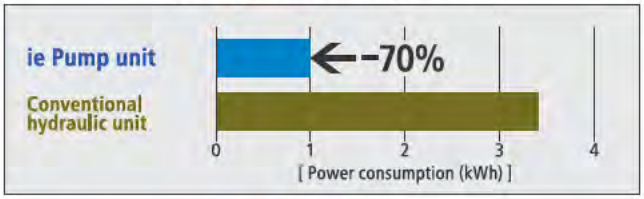
- Power consumption comparison -

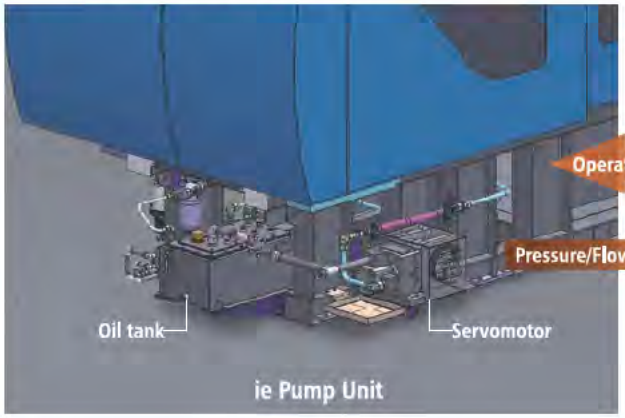


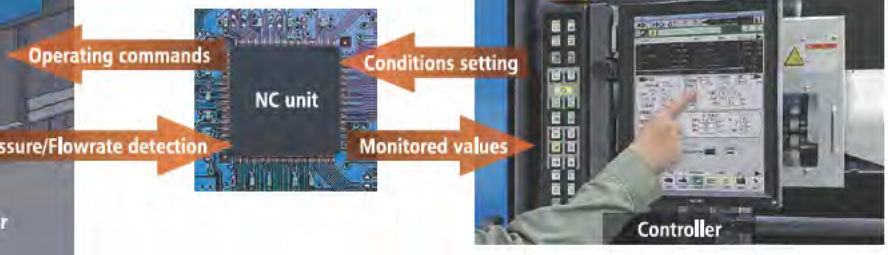
ie Pump Unit for even greater energy-savings

The ie Pump Unit greatly reduces power consumption compared to conventional hydraulic units that use a core tractor drive.

- Power consumption comparison -





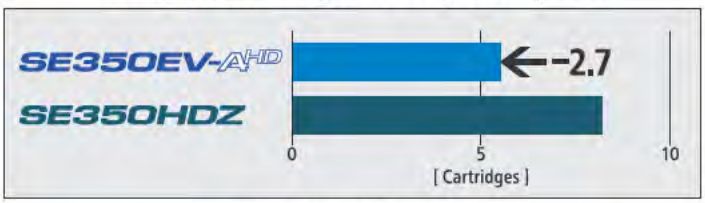


- The ie Pump Unit is optional. Both the pump unit and drive circuit must be selected as a set.
- Plans are to make the ie Pump Unit available in November 2015.

Reduced waste to protect the environment

An optimized resin supply system reduces grease consumption. Consequently, less grease needs to be discarded, so the machine is environment-friendly. At the same time, the resin supply system requires less maintenance, which effectively enhances operating efficiency.

- Comparison of annual grease cartridge consumption -



Annual running time: 6000 hr Cycle: 20.0 s

Sumitomo Global Network

Sumitomo Heavy Industries, Ltd.

Plastics Machinery Div.

SEEV-AHD

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QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001 RvA C 024 MGMT.SYS.

MS JAB CM007

KHK ISO 14001 99ER-0020

Chiba Works has acquired ISO9001 and ISO14001 certification.

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