Global Network

Sumitomo Heavy Industries, Ltd.

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● Photographs of machines and details may differ from actual products. ● Specifications subject to change without notice for performance improvement.

B034EN01-2309HG

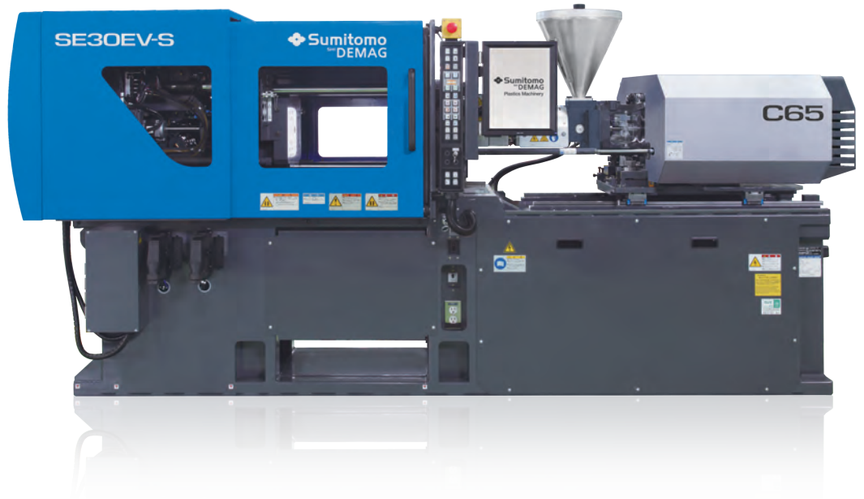
SE-EV-S
Lens

All-electric Injection Molding Machine for Lens

Sumitomo SHI DEMAG

SE-EV-S
Lens

All-electric Injection Molding Machine for Lens



Lineup

SE30EV-S	(300kN)
SE50EV-S	(500kN)

The machines in this series have acquired JIS B 6711:2021 (equivalent to ISO 20430:2020) certification.

We support the enhancement of our customers' corporate value through providing high performance, high quality, and safe injection molding machines.

www.shi.co.jp/plastics/

Sumitomo Heavy Industries, Ltd.

Excellent R&D and customer support system

At the Yokosuka Technology Labs, basic and elemental technologies are developed across divisional lines.

The Chiba Technology Center is equipped with the latest measuring instruments in order to better assist customers with their product development.

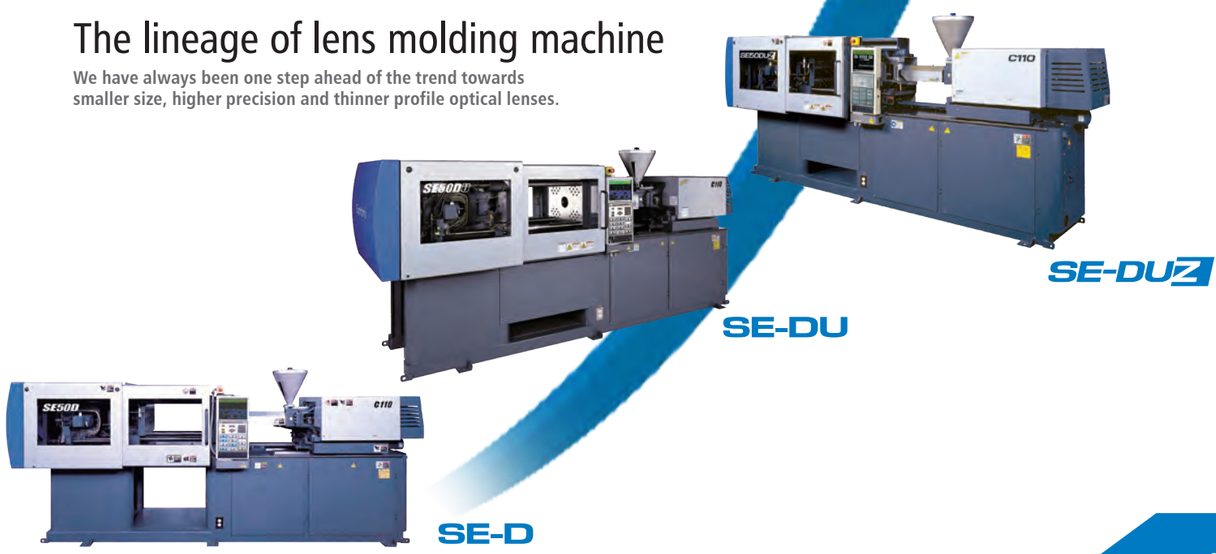
Introductory and intermediate level training classes are periodically imparted at business sites in Chiba, Japan and Suzhou and Dongguan, China. All sites have the latest molding machines for learning mass-production technologies.

The lens molding machine leads the lens molding of the next generation

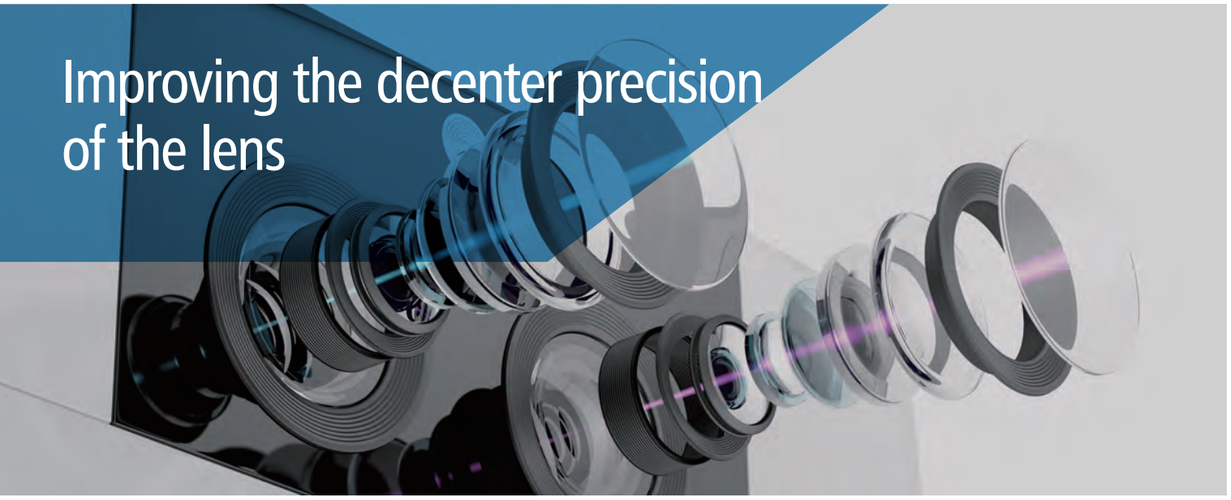
With the upgrade from the SE-EV-A series to the SE-EV-S series, the lens molding machines have also been upgraded to SE30EV-S Lens and SE50EV-S Lens. They have the ability to respond to the ever-evolving optical lens molding.

The lineage of lens molding machine

We have always been one step ahead of the trend towards smaller size, higher precision and thinner profile optical lenses.



Improving the decenter precision of the lens

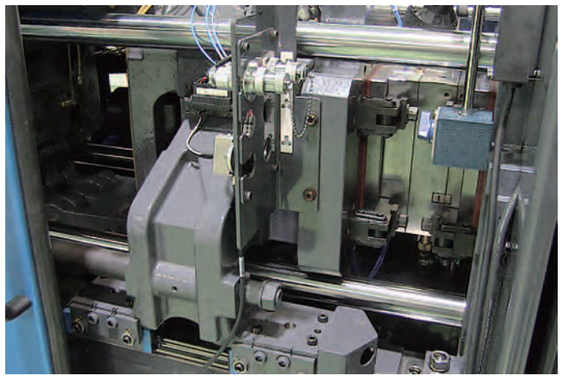


Keeps parallelism of platens

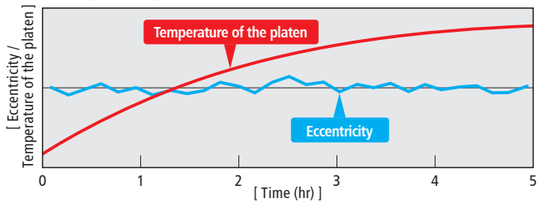
Thermal Free Platen

The lens machines employ specially structured Thermal Free Platen that minimize any irregular deformation due to heat, and improve parallelism and linearity.

PAT. pend. in Japan

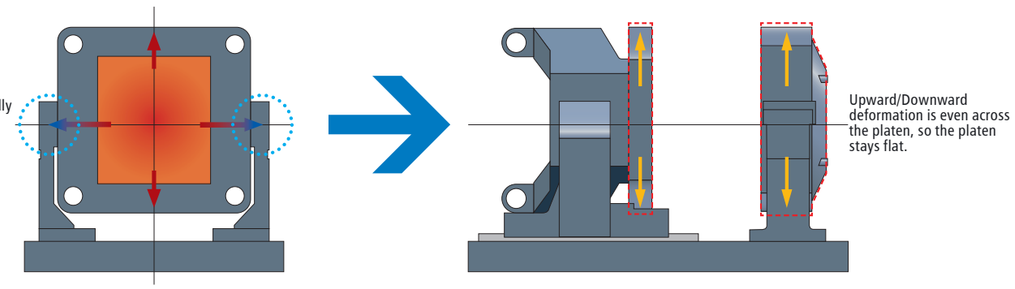


- Change in temperature of the Thermal Free Platen and eccentricity -



Thermal Free Platen

Heat propagates symmetrically upwards/downwards. Temperature is the same above and below the platen.



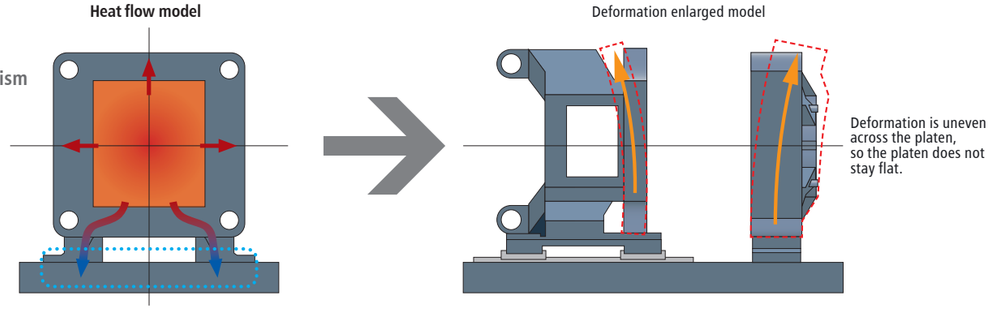
Heat flow model

Deformation enlarged model

Upward/Downward deformation is even across the platen, so the platen stays flat.

Conventional mechanism

Temperatures differ above and below the platen because heat propagated to the frame.

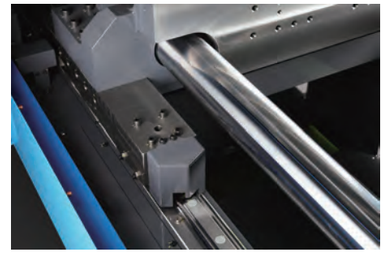


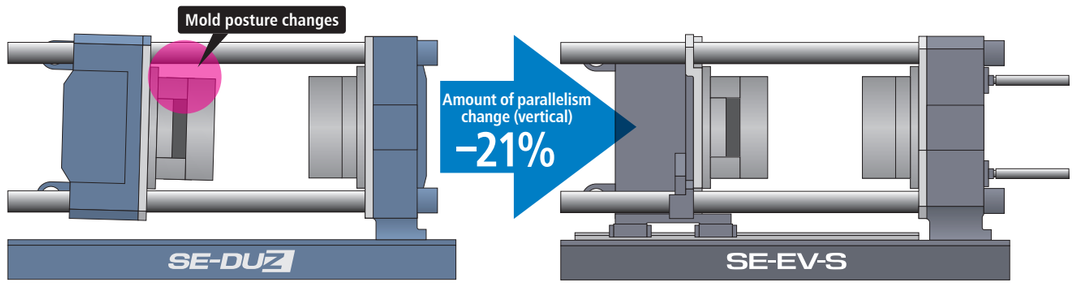
Deformation is uneven across the platen, so the platen does not stay flat.

Keeps linearity and parallelism of molds and prevents damages to the molds

Platen support and bush-less tie bar

**Even if installed a heavy mold, the mold open/close can be smooth while maintaining high parallel precision.
Provide 100% mold precision and prevent damage to the mold, such as pin stuck, etc.**

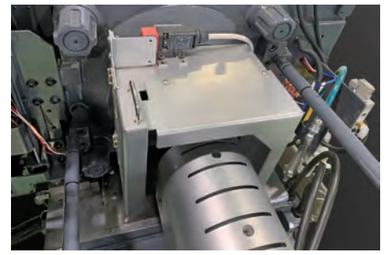


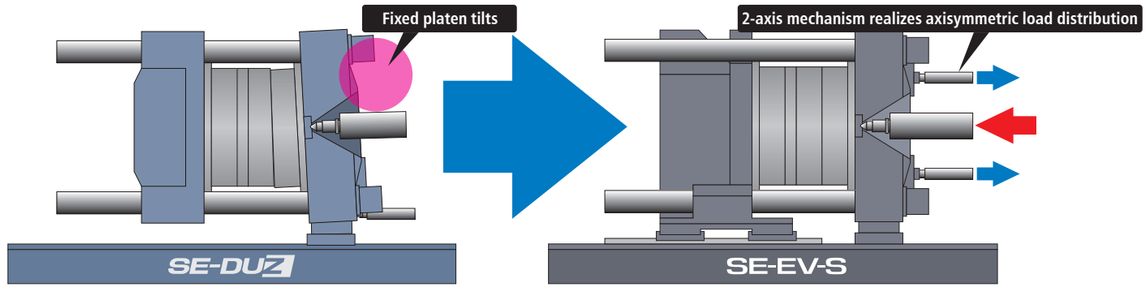


Prevents tilting of fixed platen

High precise nozzle contact

**The 2-axis support mechanism provides a load distribution centered on the nozzle.
Thus, it is possible to prevent the fixed platen from tilting during filling and holding pressure.**



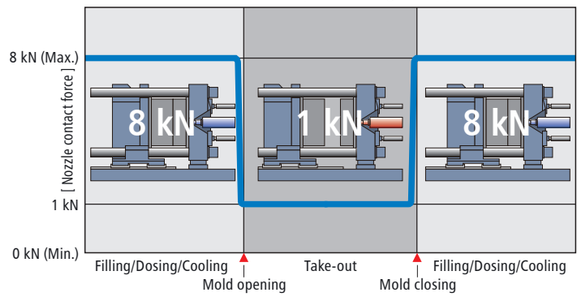


Prevents misalignment and galling

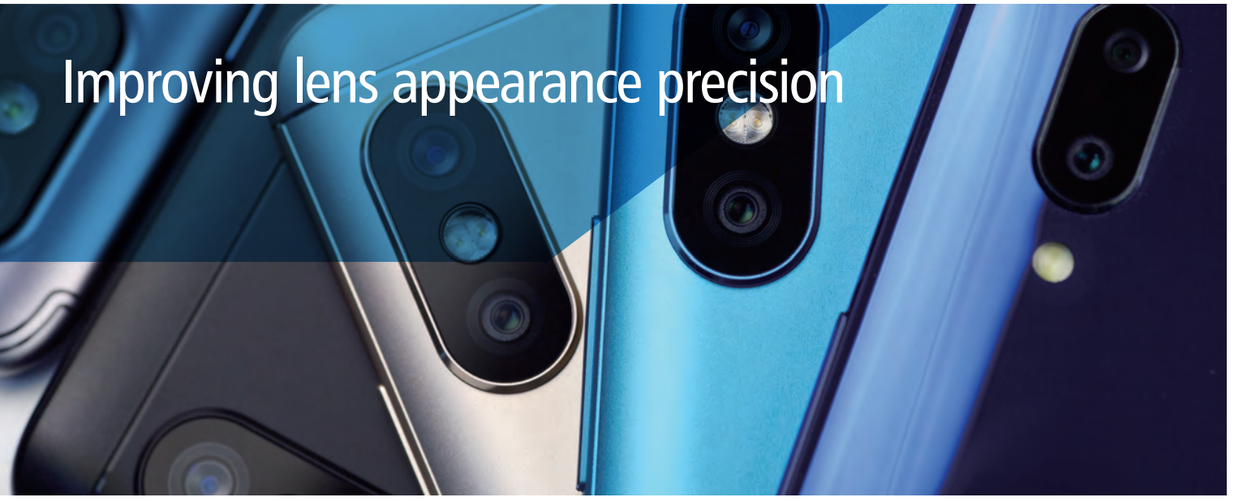
Nozzle contact force feedback control

**It controls pressure-boosting/depressurizing of the nozzle contact according to each process.
Since nozzle contact force can be set for each process, tilting of the fixed platen and deformation of the mold can be suppressed, and misalignment and pin galling can be prevented.**

- Nozzle contact force profile during mold open/close -



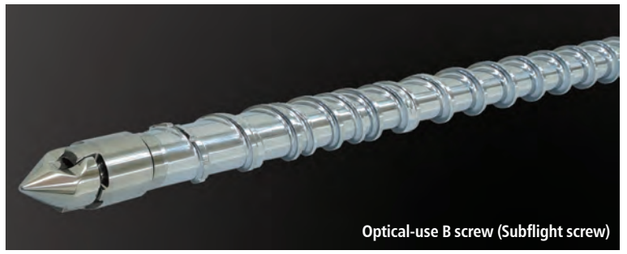
Improving lens appearance precision



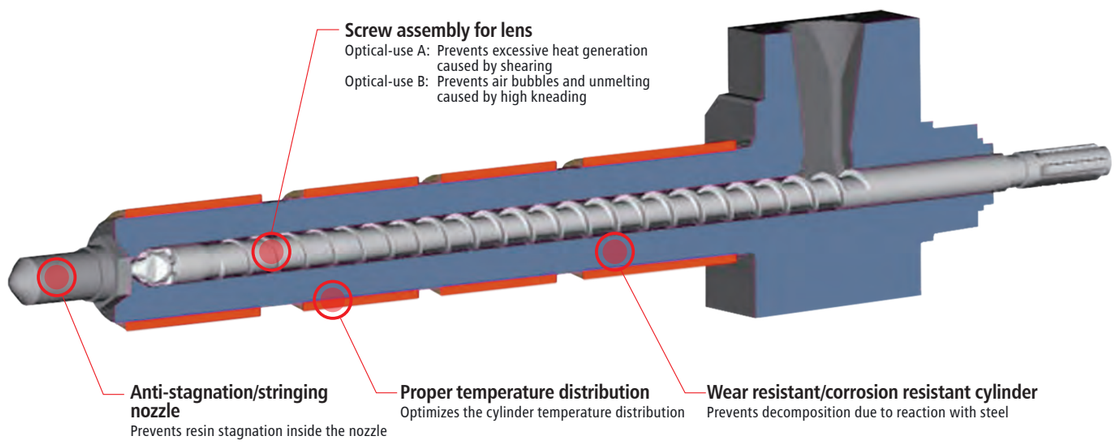
Optimal design for optical molding

Screw assembly for lens

We offers two types of screw assemblies designed specifically for optical molding.
Optical-use A keeps shearing force low to prevent resin from carbonization. It works with all transparent resins but is particularly effective in COC molding.
Optical-use B is configured for extensive kneading (subflight) to prevent air bubbles and incomplete melting. It is effective for molding COP and PC lenses.



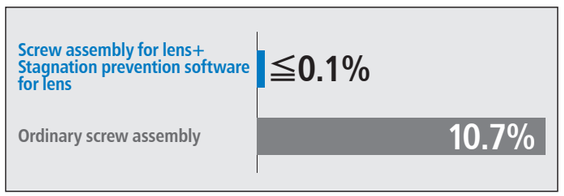
Optical-use B screw (Subflight screw)



Resin	COC		COP, PC	
Defectiveness	Black spots	White spots/Air bubbles	Black spots	White spots/Air bubbles
Optical-use A	◎	○	○	○
Optical-use B	○	◎	○	◎

◎ Excellent ○ Good

- Comparison of defective rates -



Plasticizing unit: C35 / Screw dia.: 18 mm / Resin: APEL 5514ML
According to the conditions set by us when using optical-use A screw assembly

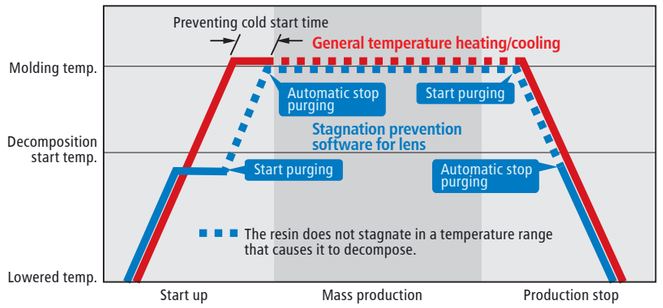
Prevents defects caused by resin stagnation

Stagnation prevention software for lenses

This is a purging control software to prevent resin stagnation in the cylinder during the temperature range where the resin decomposes.
It is effective in preventing black spots when the screw stops due to maintenance.

PAT. pend. in Japan

- Model for raising/lowering temperature -

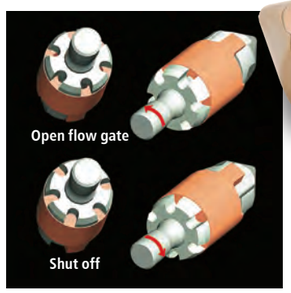


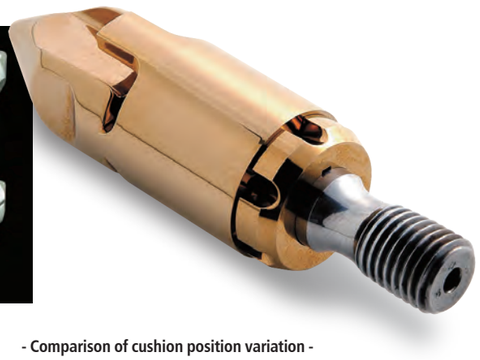
Enables more stable filling

SK Control+ Density correction

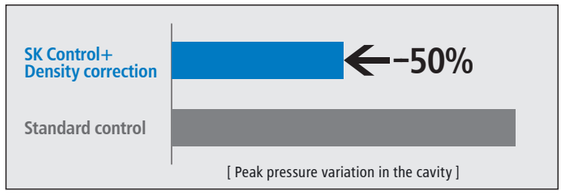
With a screw head equipped with a high-precision backflow prevention mechanism, performs density correction after dosing. In addition to suppressing variations in mold internal pressure and improving stability, it is also effective in preventing air bubbles.

PAT. pend. in Japan (SK Control) Optional

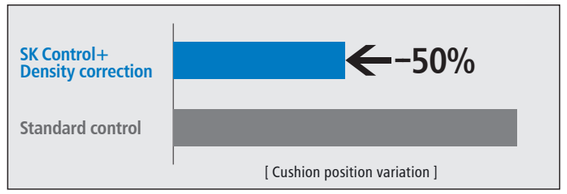




- Comparison of peak pressure variation in the cavity -



- Comparison of cushion position variation -

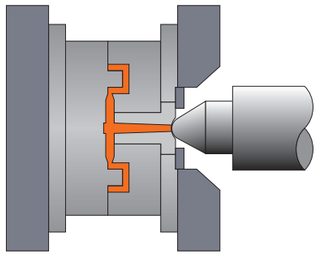


Eliminates stringing and nozzle clogging

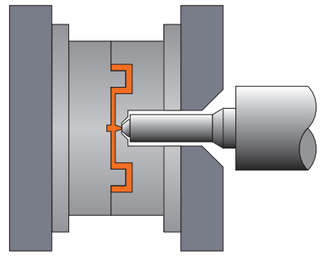
FTC II Nozzle for lens

The FTC II Nozzle for lens stabilizes the temperature distribution with 2-zone temperature control.
By optimizing the temperature of the nozzle, the range of molding conditions can be expanded.
It is easier to adjust the nozzle temperature condition and eliminates the stringing and clogging of the nozzle simultaneously.

Optional

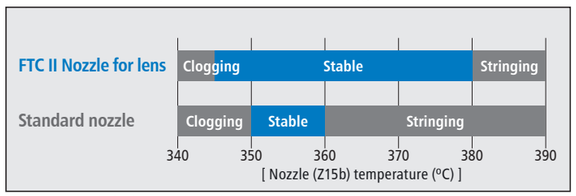


Standard nozzle



FTCII Nozzle for lens

- Comparison of applicable molding conditions -



The FTC II Nozzle for lens works with a wider scope of molding conditions that do not cause stringing or clogging, so molding conditions can be set more easily.

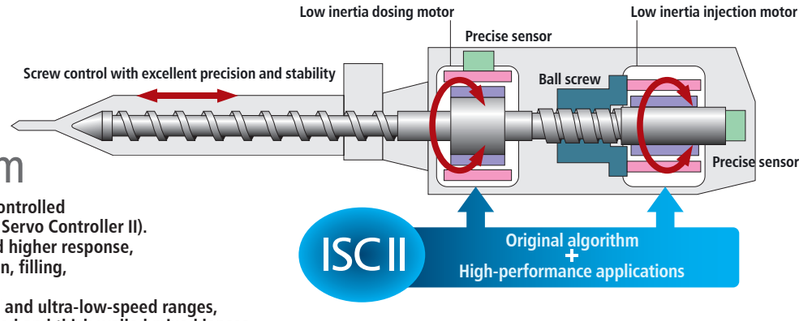
Improving lens thinning

Excellent low-speed injection control

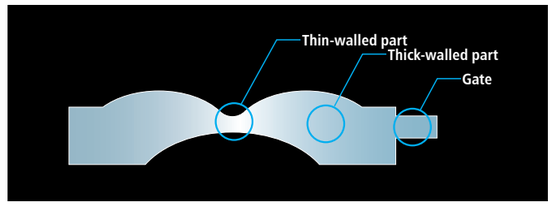
The direct drive system

Originally-developed low-inertia servomotor is controlled by an up-to-date control system ISCII (Intelligent Servo Controller II). It enables screw control with higher accuracy and higher response, and realizes more precise and stable plasticization, filling, and holding pressure processes. It has excellent controllability in both high-speed and ultra-low-speed ranges, to realize precise and stable molding of thin-walled and thick-walled mixed lenses.

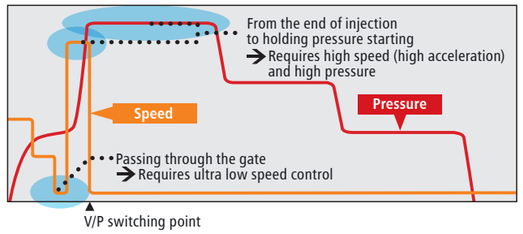
PAT. pend. in Japan



- Thin-walled and thick-walled mixed lens example (Cross section) -



- Injection controllability of lens molding -



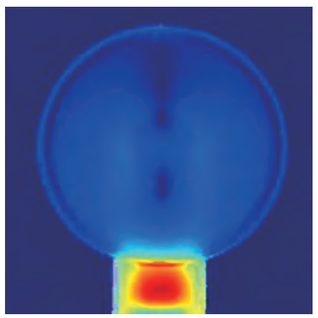
Compatible with thinner lenses

High precise ejector compression

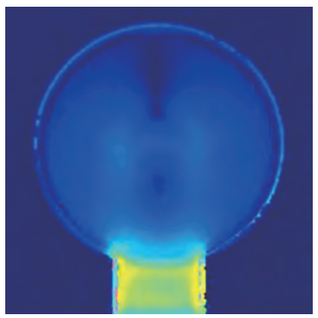
During the filling process, cavities are compressed by the ejector so that cavities are more evenly filled. It achieves low birefringence lens molding with minimal residual stress. Moreover, high-precise positioning in units of 1 μm ensures stable surface precision and supports thinner molding.

Optional

- Comparison of residual stress using polarized photography -



Ordinal molding



The ejector compression

Support next-generation lens molding

Various quality control functions

Achieves higher quality control

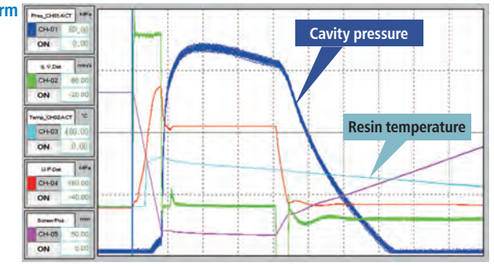
Quality Control Package

It can read signals from external sensors (flowmeter, cavity pressure sensors, etc.) through the dedicated connector with analog signals, so actual values can be recorded and monitored on the waveform screen or the logging screen. This application package provides superior quality control.

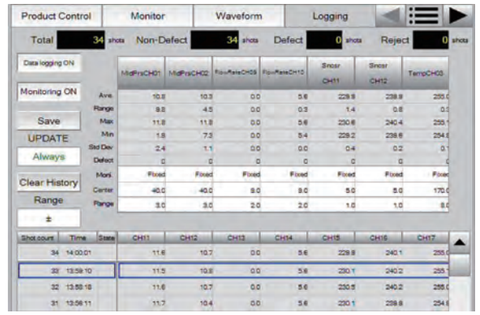
●"Cavity Pressure", "Flowrate", "Temperature" and "Sensor" can be selected on waveform and logging items.

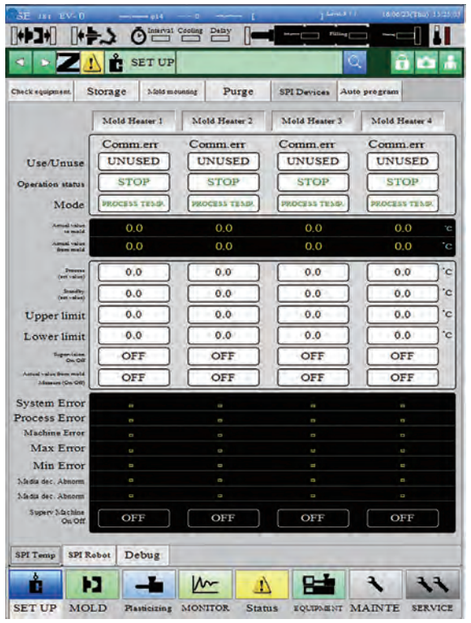
Optional

Waveform



Logging





Control and monitor mold temperature controller on IMM

SPICCP Communication for the Mold Temperature Controller

By connecting the molding machine and the mold temperature controller through SPICCP, the mold temperature controller can be operated from the molding machine. Not only does it shorten the time to setup conditions, but it also prevents careless mistakes.

●Please contact us to confirm available temperature controller manufacturers and cable types.

Optional

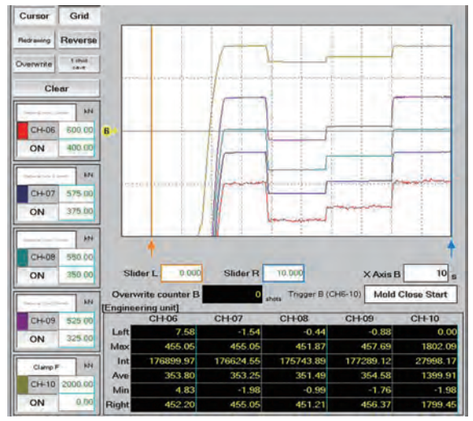
Improves the precision of quality control

Tie bar force balance monitor

Equipped with a clamp force sensor on every tie bars and each axial force is displayed in real time. It can be combined with waveform display/logging/monitoring functions to improve the precision of quality control. You can check changes over time, which is effective for maintenance management.

PAT. pend. in Japan (Clamp force censor)

Optional



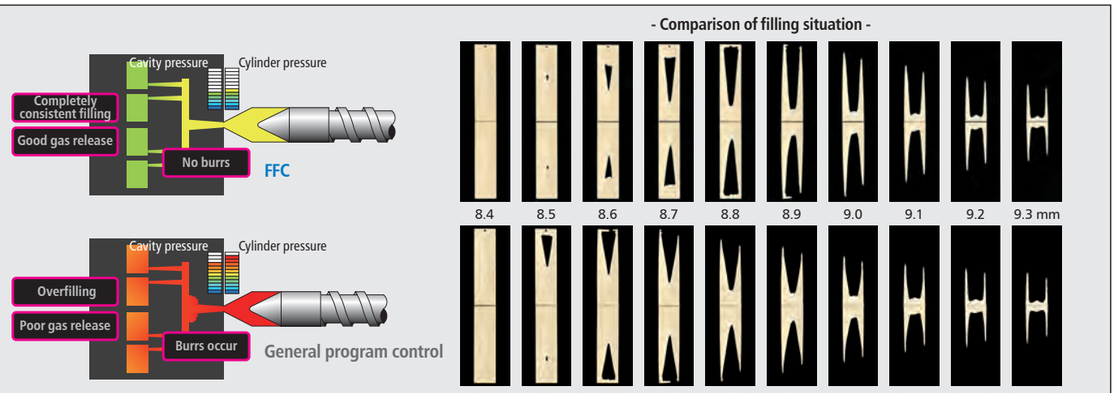
Improving performance of the lens module

Superior cavity balance

FFC Flow Front Control

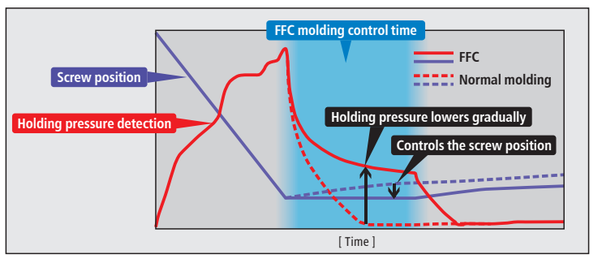
**Screw control before and after V-P switch over enables low-pressure, smooth, and complete filling.
It improves the cavity balance and eliminates burrs and short shot at the same time.**

PAT. pend. in Japan

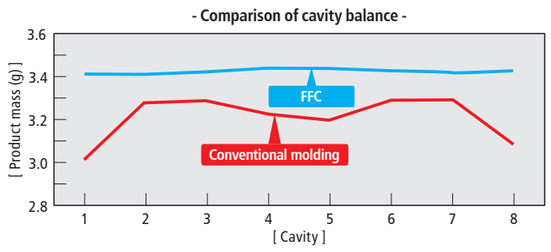


- Comparison of filling situation -

Using a test piece (2 cavities) to confirm the filling performance by changing the V/P switching position.
Both cavities were evenly filled when using FFC (Top pictures).



- Comparison of cavity balance -

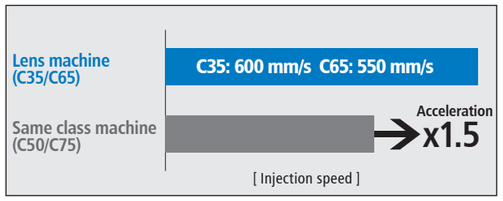


Supports advanced lens molding

High-speed, high-response injection unit

**The lens machine is equipped with a dedicated injection unit
that has excellent ultra-low speed controllability for precise lens molding,
and high-speed, high-response injection performance.
The superior performance unique to the direct drive enables precise screw control.**

- Comparison of injection speed -

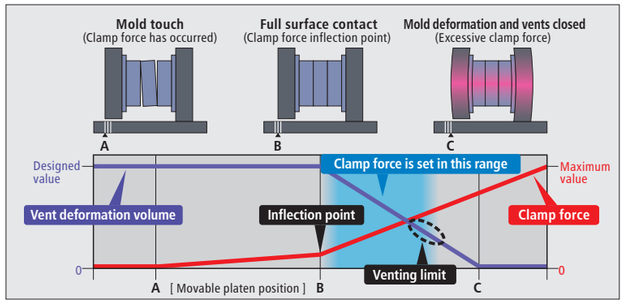


Better vent effects by reducing the clamp force

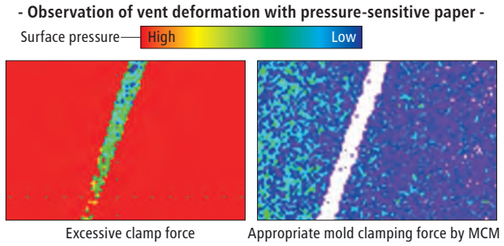
MCM Minimum Clamping Molding

**The clamp force with requisite minimum and best surface pressure balance
is realized by optimization of clamping precision and surface pressure.**

PAT. pend. in Japan



- Observation of vent deformation with pressure-sensitive paper -



Excessive clamp force | Appropriate mold clamping force by MCM

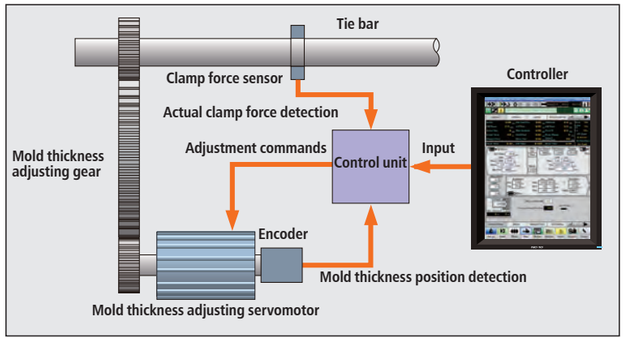
Vent deformation and venting function without working if excessive clamp force.

Staying constant clamp force in mass production

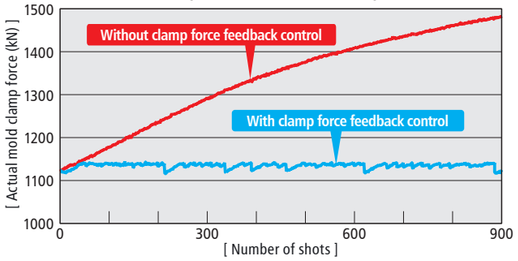
Mold clamp force feedback control

**The mold clamp force tends to increase due to thermal expansion of molds in mass production.
The lens machine provides constant mold clamp force by correcting the mold thickness based on the actually value.**

PAT. pend. in Japan



- Actual clamp force transition in mass production -

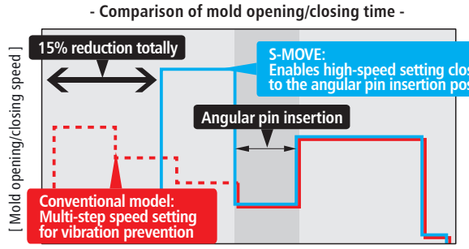


Lesser cycle time

Acceleration/deceleration control with vibration suppression S-MOVE

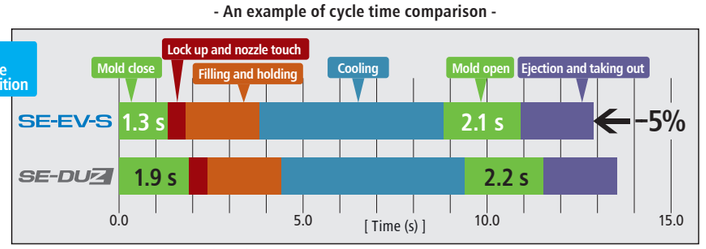
Smooth speed patterns in acceleration/deceleration achieved vibration suppression and faster clamp movement.

- Comparison of mold opening/closing time -



Example of mold with angular pins

- An example of cycle time comparison -



S-MOVE reduces the mold open/close time.

Standard Equipment

Plasticizing and injection unit
1. Injection program control (multi-stage control)
2. Holding pressure program control (multi-stage control)
3. Screw pull back (after holding/after dosing)
4. Digital display of screw position (0.01 mm setting)
5. Holding time 0.01 seconds setting
6. V/P switchover function (pressure/position)
7. Filling delay timer
8. Automatic pursing device with interlock (when the interlock function is unused/when the injection unit backward end)
9. Heating cylinder temperature control 5 zones *2
10. Heating cylinder temperature switching function (molding/lowered temperature/pursing)
11. Standard capacity heater
12. Screw cold start prevention function (with interlock variable timer and minimum melting time display)
13. Remote setting function for sprue break stroke (reverse timing selection with delay timer, nozzle contact detection, movement time setting)
14. Digital display of screw rotation speed
15. Purging cover device (with limit switch)
16. Injection unit swivel device (with nozzle alignment adjustment mechanism)
17. Remaining cooling time display
18. Dosing start delay timer
19. Speed rise time selection during injection/holding pressure (10 modes)
20. Speed setting during holding pressure
21. Screw pull back delay control function
22. Synchro dosing function
23. Screw reverse rotation control function
24. Independent temperature control device of nozzle
25. Standard energy saving heating cylinder cover (two-layer structure)
26. Water cooling jacket temperature control device
27. Mold open operation function during dosing (shut off nozzle drive control)
28. Filling pressure multi-stage control function
29. Resin retention prevention function
30. One-touch manual dosing
31. Stainless steel purge resin saucer
32. Plating resin inlet of cooling water jacket
33. Purge function to prevent resin residence
34. Lens use control
35. Deceleration pattern of V/P switchover (slow landing) (only for SE30EV-S)
36. High-efficiency nozzle control
37. Nozzle surface processing plating

Control unit
1. 15-inch TFT color LCD screen
2. Touch panel type setting input device
3. Molding condition storage function
4. Operation support function
5. Molding support function
6. Waveform display function (waveform memory function, display value reading function, data storage by trigger, etc.)
7. Screen hard copy function
8. Take-out robot connection circuit 1
9. Screen switching function in up to 15 languages
10. Maintenance management function (inspection time, grease greasing time, item, operation method display)
11. Automatic start/stop function (lowered temperature/heater start/molding machine stop) *1
12. Process display function
13. SSR heater drive circuit
14. Industrial unit input function (speed, position, pressure and rotation speed)
15. Molding machine status output signal (5 CH) *1
16. USB connection circuit (memory)
17. Molding conditions protection
18. Abnormal processing selection function
19. Initial reject/short stop reject function
20. Change screen color scheme function
21. Numerical and character input keypad layout change function (select from 2 types)
22. Take-out robot entry permission signal
23. Clean control cabinet (only for SE30EV-S)
24. OPC UA server

Monitor unit
1. Actual value display function
2. Heater breakage monitoring device
3. Peripheral equipment monitoring function (3 ch) *1
4. Abnormality monitoring function (maximum cushion, minimum cushion, filling pressure, mold protection, cycle time, dosing time)
5. Abnormality monitoring condition automatic setting function
6. Abnormal history display function (abnormal item/occurrence time display)
7. Quality control function (actual value statistics, various graphs, 100,000 shots saved data confirmation)
8. Production number management function (molded product discrimination function, automatic production completion, stocker feed signal, data logging, production counter with reset)
9. Auto start function (heater, external output signal)
10. Heating cylinder temperature monitoring function (all zones)
11. Self diagnosis function
12. Abnormal alarm buzzer
13. Shot counter
14. Processing function when cycle monitoring is abnormal (heater processing mode change)
15. Overall Screen
16. Prevent forgetting to set monitoring
17. Ejector protrusion torque monitoring function
18. Maintenance time notification function (maintenance time notification based on the number of shots/elapsed time)
19. Injection pressure monitoring function (5 points)
20. Cycle analysis function

Mold clamping unit
1. Mold opening/closing position and speed program control function (5-stage/3-stage switching)
2. Mold protection function
3. Low pressure mold clamping function
4. Mold opening/closing pause function
5. Clamping force setting
6. Mold height setting
7. Ejector remote setting function (2-speed control, pressure, stroke, delay timer, multiple time protrusions)
8. Current value input function (ejector protrusion position)
9. Current value input function (mold open limit position)
10. Clamping mode selection function (lock up)
11. Ejector ejection interlock (only possible at mold opening end position in manual mode)
12. Ejector ejection during mold opening
13. Ejector ejection during mold closing
14. Ejector plate return signal (input signal to molding machine, metal outlet connection) * 1
15. Mold opening/closing signal (spear control signal) *1
16. Valve gate drive circuit device (control circuit only) *1
17. Mold installation standby mode (low-speed mold opening/closing)
18. Safety door with polycarbonate window
19. Emergency stop button (operation side/non-operation side)
20. Safety door with polycarbonate window
21. Screw holes for mounting the take-out robot
22. Grease centralized greasing device for mold clamping/injection unit
23. Clamping safety system (electrical/mechanical)
24. Mold opening/closing low vibration or high speed mode selection function
25. Movable platen support device (linear guide type)
26. Product drop confirmation connection circuit *1
27. Multi-toggle function (multi-stage clamping force setting)
28. Tie bar plating specification
29. Ejector unit with brake
30. S-MOVE function (low vibration control)
31. Ejector standby position function
32. Control device for mold installation space with servo motor
33. Dust-proof cover on top of toggle (fixed type)
34. Dry cycle mode function
35. High rigidity platen device
36. Super high precision mold clamping unit (center support type)
37. High rigidity mold clamping adjustment

Others
1. Auto grease supply unit (cartridge grease type)
2. Three-directional ejection frame
3. Mold cooling water block device (2 systems) (Flow meter and valve are options.)
4. Standard spare parts (hook for hosting machine, fuse, air filter)

*1 All input and output signals are no-voltage contact signals. Power is not supplied with output signals.
*2 The number of zone varies depending on the screw diameter and screw type.
*3 All input signals are no-voltage contact signals. All output signals are 24 V DC signals.
*4 All input and output signals are 24 V DC signals.
*5 The ejector stroke will be shortened, and maximum ejector speed slows down.
*6 The overall machine length and maximum mold height are larger by 50 mm.
● Specifications are subject to change without notice for performance improvement.
● Standard specification model of the SE-EV-S lens machine complies with the safety standards of Japan, China and the nations of Southeast Asia.
It can also be modified to comply with the safety standards of Korea (KCs Mark), USA, Brazil, the nations of Oceania and Canada. For more information, contact us.

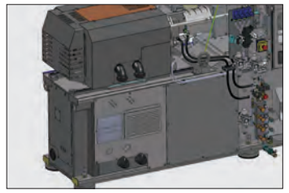
Standard Equipment

Zero-molding features	
1. Zero-molding main screen: Simple process setting	18. Zero-molding: Clamping force feed back function
2. Zero-molding main screen : Production monitor (production number/process/abnormality/actual results)	19. Clamping force multi-stage control function (cross-head position control)
3. Specifications/function confirmation screen (standard functions/optional functions/abnormality handling/specification list/monitoring device)	20. Multi-toggle function (Gas vent function/Deformation prevention function)
4. Minimum mold clamping force detection function (automatic measurement)	21. Zero-molding: Molding condition support monitor function (peak clamping force, pack pressure, status display)
5. Setup support: Mold installation screen (mold height, mold contact, clamping force, mold open/close in preparations, ejector setting)	22. Actual value monitor switching function (actual/process/power/waveform/temperature graph)
6. Setup support: Mold condition setting screen (open/close, ejector multi-stage setting)	23. Monitoring setting: Function to automatically set all at once
7. Setup support: Mold opening limit/ejector protrusion position teaching function (current value input)	24. Molding condition access restriction function (condition range, screen display, password function)
8. Setup support: Protection setting screen (mold protection, ejector protection)	25. Automatic condition change function for molding start (by short shot method)
9. Setup support: Multi-purging function (gate purging, resin replacement purging, slight time stop purging, low-viscosity resin purging, resin viscosity measurement)	26. Protection: Screw protection function
10. Setup support: Temperature condition reference/calling function	27. Energy saving mode function of holding pressure (with automatic power-saving control function)
11. Setup support: Resin residence alarm/monitoring function	28. Waveform display function: Simple display by process (injection, holding pressure, dosing, mold opening, mold closing, ejector, mold height)
12. Setup support: Nozzle/heating cylinder temperature rise mode function (step/nozzle delay/process temperature control)	29. Waveform display function: Waveform save completion message
13. Zero-molding Molding condition setting screen: Z-Screen (filling, holding pressure, dosing, time, temperature, mold clamping force)	30. Waveform display function: Automatic waveform save function (always/trigger/abnormal)
14. Zero-molding: FFC control (with guidance function)	31. Quality control function: Waveform monitoring function
15. Zero-molding: FFC control, mode setting function	32. Quality control function: Molding process monitor logging function (temperature, temperature control output, peak clamping force, pack pressure)
16. Zero-molding: Function to check the filling position and short shot position by flow front check	33. Production control function: Function to set the number of cavities and manage the number of products
17. Screw reversal decompression control function	34. Production control function: Operation status management function (operating time, motor load factor, power consumption monitor)

Control unit 23

Clean control cabinet

The control console is equipped with IP54-equivalent dust lockout capabilities. The console is kept internally pressurized to prevent dust infiltration so that instrumentation components last longer.



Optional Equipment

Plasticizing selection
1. Optical specification screw assembly
2. Optical-use A screw
3. Optical-use B screw
4. Screw tip set - rotation type, TiN coating
5. Open nozzle
6. Open type nozzle (optical specification)
7. Extension nozzle

Plasticizing and injection unit
1. Standard type hopper
2. V/P switchover by mold cavity pressure
3. FTC nozzle electric control circuit (built-in)
4. High temperature heater control circuit (max. temp. 499°C)
5. Hopper swivel mounting plate

Control and monitor unit
1. Leak circuit breaker (AC 200 V/220 V 3ø3W+E) (Asian countries only)
2. Mold temperature monitor (2 zones on movable platen, without thermocouple, type K)
3. Mold temperature monitor (1 zone on movable platen and 1 zone on fixed platen, without thermocouple, type K)
4. Mold temperature monitor (2 zones on movable platen and 2 zones on fixed platen, without thermocouple, type K)
5. Production control (2-directional rejection chute)
6. Mold temperature controller (K=CA, 2 zones on movable platen)
7. Mold temperature controller (K=CA, 1 zone on movable platen and 1 zone on fixed platen)
8. Automatic starting system (heater, water supply, external output signal) *1
9. Revolving alarm lamp
10. Multi function 3-color LED signal tower
11. 4-line closed circuit water connection lines (with flow meter, stop valve, cooling water stop valve, filter)
12. 2-line closed circuit water connection lines (with flow meter, stop valve, cooling water stop valve, filter)
13. Personal computer connection circuit (ethernet)
14. Spare power receptacles selection
15. Power receptacles (operation side)
16. Name plate: Blue
17. Name plate: Black
18. Motion07
19. MotionGB
20. Korea Certification Mark

Mold clamping unit
1. SPI AN-146/EUROMAP67 product unloader connection circuit
2. Product chute
3. High precision heat insulating plate (t5 mm/t10 mm, cross type)
4. Valve gate drive circuit (control circuit + pneumatic circuit) *3
5. Full metallic toggle cover
6. Ejector compression device (SE50EV-S: 49 kN) *5
7. Mold height extension 50 mm *6
8. Slide core return signal *1
9. Ejector stroke extension (SE50EV-S: 100 mm)
10. Pneumatic control circuit *4

Spare parts and accessories
1. Spare parts A (mechanical parts: lub. parts)
2. Spare parts A (electrical parts: thermocouple)
3. Spare parts for export (encoder, limit switch, inductive proximity sensors)
4. Leveling pads (for one machine)
5. Locating ring (transition fit) inner diameter: ø26 mm/outer diameter: ø60 mm (only for SE30EV-S)
6. Mechanical parts and hooks for hosting machine
7. Tool A
8. Ejector rods
9. Grease gun
10. Grease cartridge for automatic lub (700 cc)
11. Grease cartridge for manual lub (400 cc)
12. High precision heat insulating plate (t5 mm/t10 mm, cross type)
13. Mold clamp
14. Box end wrench for open nozzles

Main Specifications

SE30EV-S

■Clamping unit

Item	Unit	SE30EV-S
Clamping system		Double toggle (5 points)
Clamping force (max.)	kN	300
Clearance between tie-bars (H x V)	mm	310 x 290
Platen size (H x V)	mm	440 x 420
Daylight	mm	530
(Mold height extension 50 mm)		(580)
Mold opening stroke	mm	230
Platen speed max.	mm/s	1200
Mold height (min. - max.)	mm	130 - 300
(Mold height extension 50 mm)		(130 - 350)
Locating hole diameter	mm	ø60
Ejector system (ejecting points)		Motor driven type (1 point)
Ejector ejection force	kN	7.8
(When ejector compression device is selected)		—
Ejector speed (max.)	mm/s	333
(When ejector compression device/ejector force power up is selected)		—
Ejector stroke	mm	50
(When ejector stroke extension is selected)		—
(When ejector compression device/ejector force power up is selected)		—

■Injection unit

		C35		C65			
		S		S			
Screw diameter	mm	18	20	18	20	22	25
Injection pressure (max.) *1,*2	MPa	224	181	274	265	220	170
Holding pressure (max.) *1,*2	MPa	224	181	274	265	220	170
Theoretical injection capacity	cm^3	14	18	19	24	29	38
Injection weight (GPPS)	g	13	17	19	23	28	36
Plasticizing rate *3, *4	kg/h	11	14	10	13	18	26
Injection rate	cm^3/s	152	188	139	172	209	269
Screw stroke	mm	58		78			
Injection speed (max.)	mm/s	600		550			
Screw speed (max.)	min^{-1}	430		400			
Number of temperature control zone		4		4		5	
Heater capacity	kW	2.8	3.3	2.8	3.3	3.6	4.1
Nozzle contact force	kN	7.8		14			
Injection unit moving stroke	mm	185		185			
Nozzle protrusion	mm	30		30			
Hopper capacity (When the standard hopper is selected)	L	(15)		(15)			

■Machine dimensions and weight

Machine dimensions (L x W x H) *5	mm	3185 x 1005 x 1491
(Mold height extension 50 mm)		(3235 x 1005 x 1491)
Machine weight *6	t	2.0 / 2.2

*1 The max. injection pressure and max. hold pressure are calculated values and represent machine output, not resin pressure.
*2 The max. injection pressure and max. hold pressure are not sustained pressure levels.
*3 The plasticizing rate is given for a machine mounted with the SD Screw.
*4 50% of the value in the table is the threshold value when the SL screw is selected.
*5 The total length of the machine is to the front end of the injection unit when mounting the screw of the smallest diameter.
*6 The machine mass is subject to change depending on mounting optional equipment.
● Specifications are subject to change without notice for performance improvement.

SE50EV-S

■Clamping unit

Item	Unit	SE50EV-S
Clamping system		Double toggle (5 points)
Clamping force (max.)	kN	500
Clearance between tie-bars (H x V)	mm	360 x 360
Platen size (H x V)	mm	500 x 500
Daylight	mm	600
(Mold height extension 50 mm)		(650)
Mold opening stroke	mm	250
Platen speed max.	mm/s	1200
Mold height (min. - max.)	mm	160 - 350
(Mold height extension 50 mm)		(160 - 400)
Locating hole diameter	mm	ø60
Ejector system (ejecting points)		Motor driven type (5 points)
Ejector ejection force	kN	21
(When ejector compression device is selected)		(49)
Ejector speed (max.)	mm/s	333
(When ejector compression device/ejector force power up is selected)		(250)
Ejector stroke	mm	70
(When ejector stroke extension is selected)		(100)
(When ejector compression device/ejector force power up is selected)		(60)

■Injection unit

		C65				C110	
		S				S	
Screw diameter	mm	18	20	22	25	22	25
Injection pressure (max.) *1,*2	MPa	274	265	220	170	274	212
Holding pressure (max.) *1,*2	MPa	274	265	220	170	274	212
Theoretical injection capacity	cm^3	20	25	30	38	40	51
Injection weight (GPPS)	g	19	24	28	37	38	49
Plasticizing rate *3, *4	kg/h	10	13	18	26	18	26
Injection rate	cm^3/s	140	173	209	270	190	245
Screw stroke	mm	78				104	
Injection speed (max.)	mm/s	550				500	
Screw speed (max.)	min^{-1}	400				400	
Number of temperature control zone		4		5		5	
Heater capacity	kW	2.8	3.3	3.6	4.1	3.6	4.1
Nozzle contact force	kN	14				14	
Injection unit moving stroke	mm	250				250	
Nozzle protrusion	mm	30				30	
Hopper capacity (When the standard hopper is selected)	L	(15)				(15)	

■Machine dimensions and weight

Machine dimensions (L x W x H) *5	mm	3682 x 1113 x 1575
(Mold height extension 50 mm)		(3732 x 1113 x 1575)
Machine weight *6	t	2.8 / 2.8