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On April 1, 2020, Toshiba Machine Co., Ltd. changed its corporate name to Shibaura Machine Co., Ltd.

NEW DESIGN

INJECTION MOLDING MACHINES

ECSX III SERIES

S-Concept



ELSA III SERIES S-Concept

NEW

Next-generation molding machine to achieve even higher productivity, labor savings, and environmental friendliness

SAVE TIME

Higher Productivity
Streamlines inputs and maximizes output

S-CUBE

- Plastrol II
- Resin viscosity measurement

SOLID CLAMP

- Faster cycle time

iPAQET4.0

- iPAQET4.0 Code Plus
- iPAQET4.0 Trace Plus

Compliant with international safety standards

SAVE WORKFORCE

Labor Saving

Improves the work environment and contributes to prevent human error

- Settings list screen
- Automatic low-pressure clamping force settings
- New mold protection
- Easy automatic purge settings
- Analog signal input
- Analog signal output
- Amplifier lifespan display function

S-Concept

Shibaura Machine provides three solutions to customers' problems

SAVE THE EARTH

Environmentally Friendly

Contributes to energy savings for creating a sustainable society

- Energy-efficient heater cover
- Air purge
- iPAQET4.0 EM Plus

S-CUBE

STABLE MOLDING SCREW VARIATION

Stable molding, screw variation

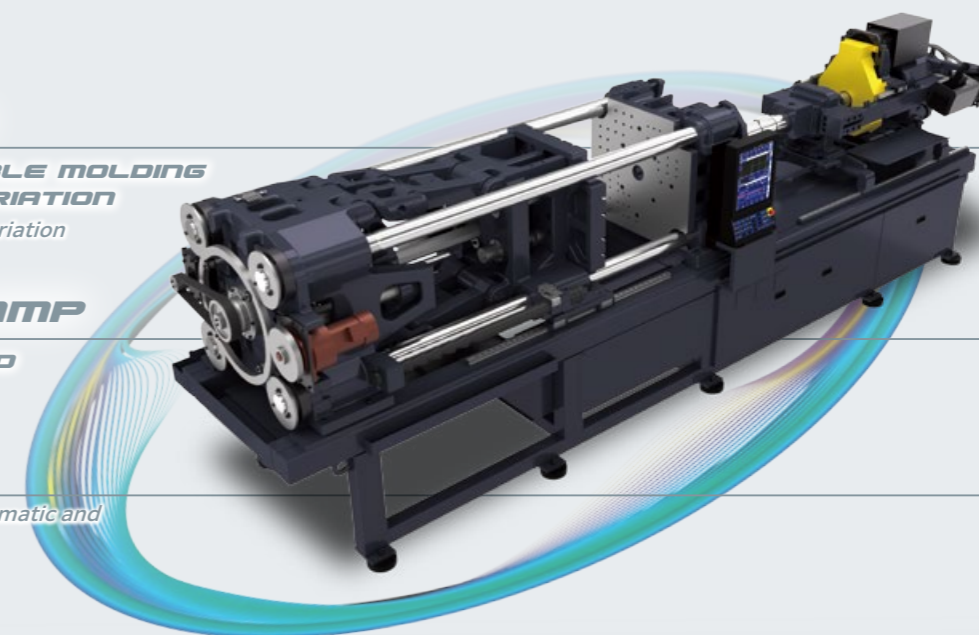
SOLID-CLAMP

SPEED AND SOLID

Faster cycle time

SUPPORT

Predictive maintenance, automatic and easy setup, new mold protection



What is S-Concept?

S-Concept is Shibaura Machine's solution for overcoming the challenges faced by the molding industry in achieving high productivity, labor savings, and environmentally-friendliness.

All-electric injection molding machine

EC SX III SERIES

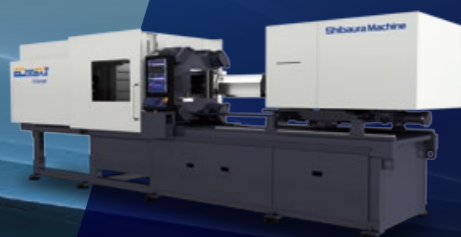
Wide-range lineup from small to ultra-large machines

High-speed, high-pressure injection
For thick-wall molding

NEW
S-Concept

Small-size precision molding machines

- EC505XIII
- EC755XIII
- EC1005XIII
- EC1305XIII
- EC1805XIII
- EC2305XIII
- EC2805XIII
- EC3505XIII



High plasticization and the industry's
fastest dry cycle enable high efficiency and
improved productivity

Medium and large-size
molding machines

- EC4505XIII
- EC5505XIII
- EC6505XIII
- EC8505XIII
- EC10005XIII



Ultra large-size
molding machines

- EC13005XIII
- EC13005XIII W
- EC16005XIII W
- EC18005XIII
- EC25005XIII
- EC30005XIII **NEW**



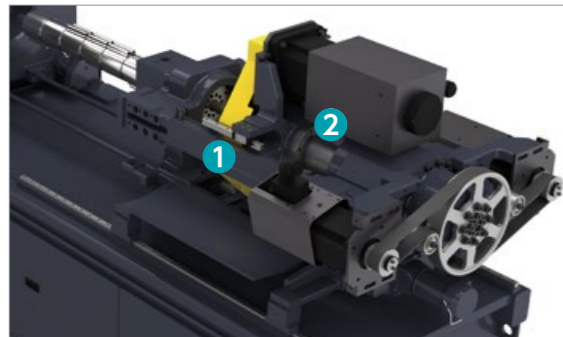
All-electric ultra large-size
injection molding machines

EC30005XIII **NEW**

S-CUBE

Injection unit for stable plasticization and filling

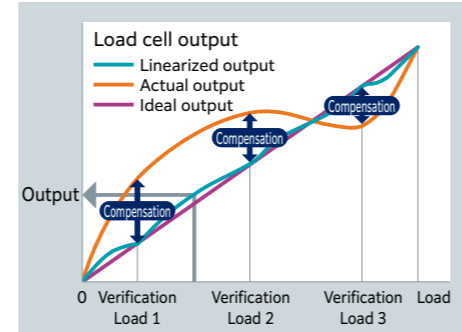
- Friction-free drive that minimizes sliding resistance
- Noise-resistant digital load cell that improves pressure detection accuracy
- Linearization compensation that eliminates variation between machines
- High output motor that enables industry's top pressure holding capacity



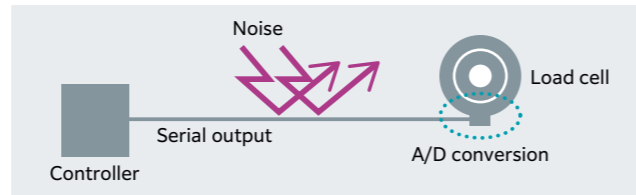
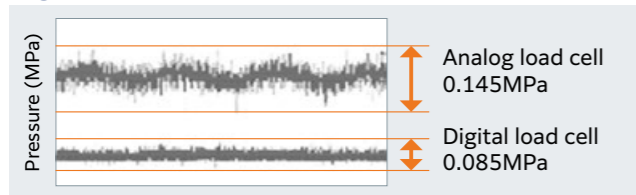
1 Friction-free drive
2 Digital load cell

Linearization compensation

Patent No.: 5401078



Digital load cell



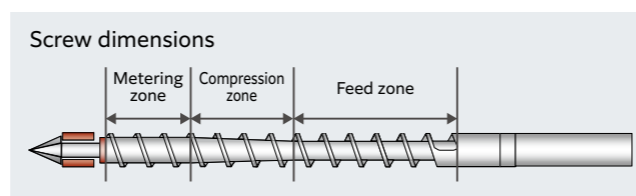
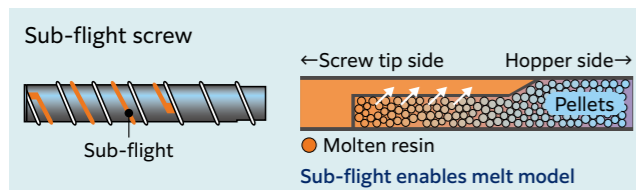
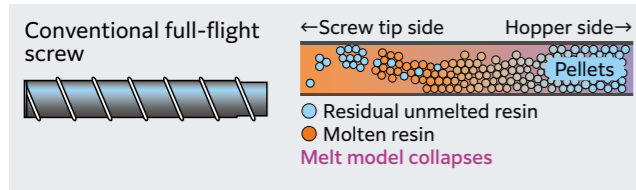
S-CUBE × High-performance DBG design screw

High-performance screw for uniform plasticization of materials

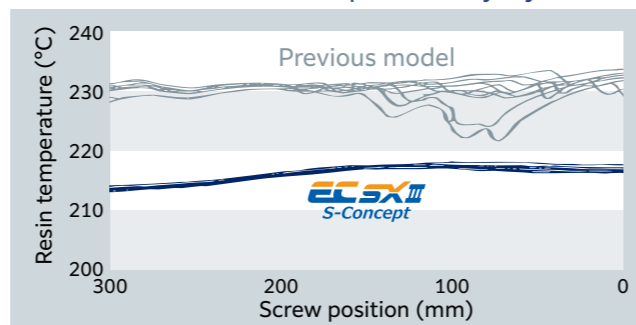
- Screw design for high quality molded products

Shibaura Machine's standard screw has a sub-flight for separating the solid channel from the melt channel, and transferring the molten resin, thereby eliminating break-up.

Break-up: A phenomenon in which pellets are not completely melted in the compression zone, causing solid resin to float in the molten resin.



Measurement of resin temperature by injection



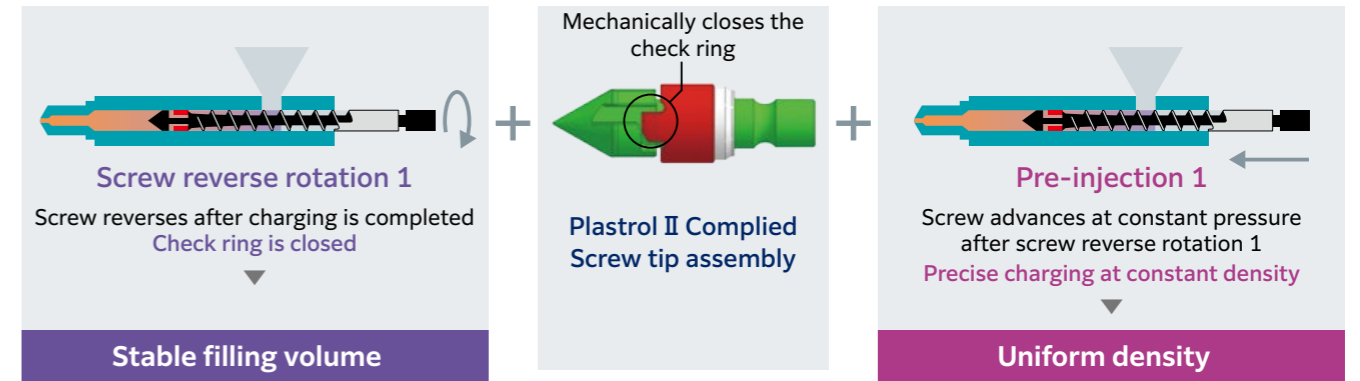
Resin: PP, Screw diameter: 160 mm, Back pressure: 150 kgf/cm² (resin pressure), Screw rotation speed: 80 min⁻¹

S-CUBE × Plastrol II

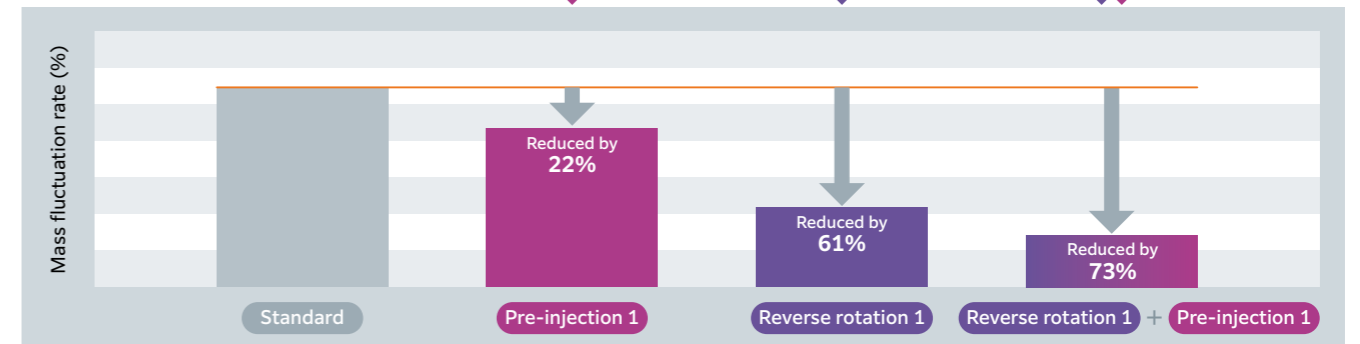
OPTION

Precise charging for stable filling volume

- Check ring is mechanically closed by dedicated screw tip assembly and screw reverse rotation
- Dramatic improvement in molding stability



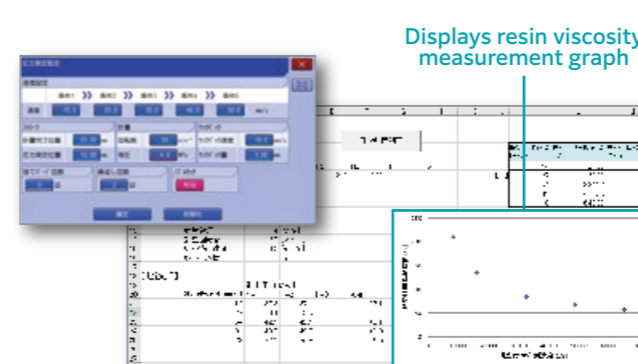
Mass fluctuation rate



S-CUBE × Resin viscosity measurement

Resin viscosity measurement reduces defects and environmental impact

- Includes a function that replaces the capillary rheometer (resin viscometer)
- Quantitatively captures changes in resin viscosity for use in determining whether molding conditions need to be adjusted



Previous model

- When the resin lot is changed, good products are not obtained even though the molding conditions are unchanged.
- Examine resin characteristics and use them as a criterion for making adjustments, but we do not have the facilities

ECSX III S-Concept

- Using changes in resin viscosity data as a criterion enables quicker judgement and adjustment to reduce defects
- Measurement is possible without investing in new equipment

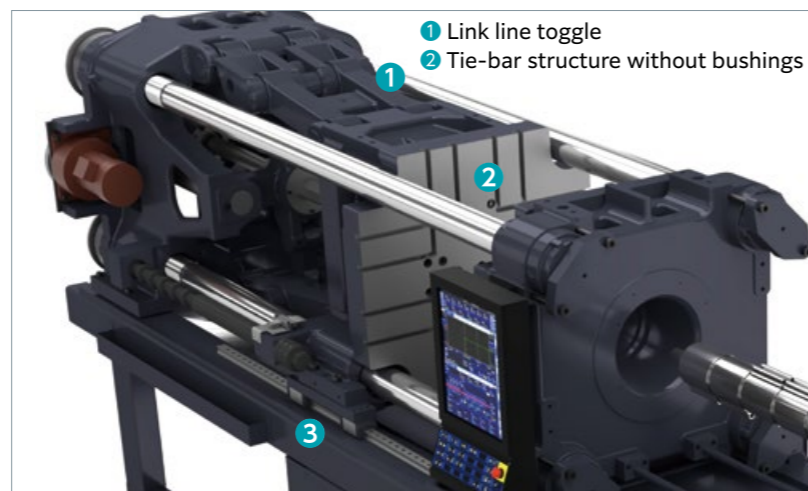
*Example of molding defects caused by changes in the viscosity of recycled resin
● Increase in resin viscosity: Short shots due to inadequate filling ● Decrease in resin viscosity: Burrs due to overfilling (overpacking)

SOLID-CLAMP

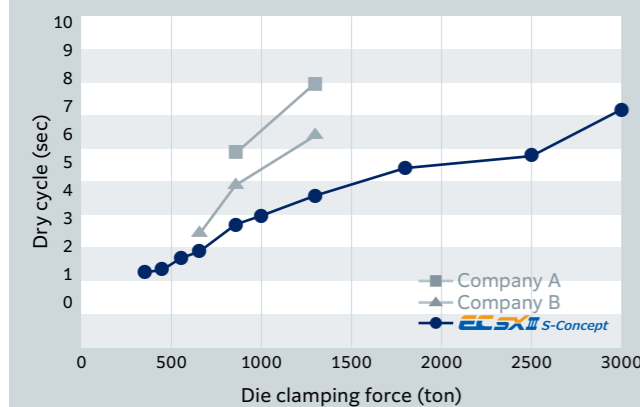
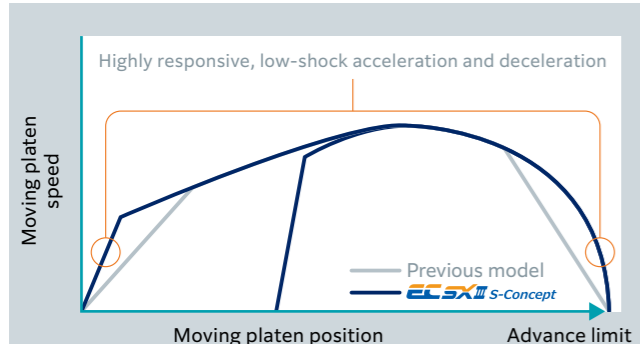
Industry's fastest clamp unit featuring both high productivity and clean environment

- Moving platen linear guide support structure for smooth mold opening/closing motion and improved linearity
- Double rigid plates and link line toggle for uniform distribution of clamping force
- Tie-bar structure without bushings and linear guides enable a clean environment with no contamination of molded parts and molds
- Includes dynamic acceleration/deceleration control (Shibaura Machine patented technology) for achieving both high-speed mold opening/closing and reduced shocks
Fastest dry cycle times in the industry for even higher productivity
- Automatic clamping force compensation control DST-PRESS to maintain a consistent clamping force

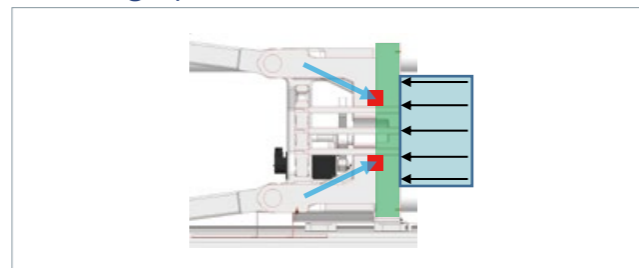
3 Linear guide support structure



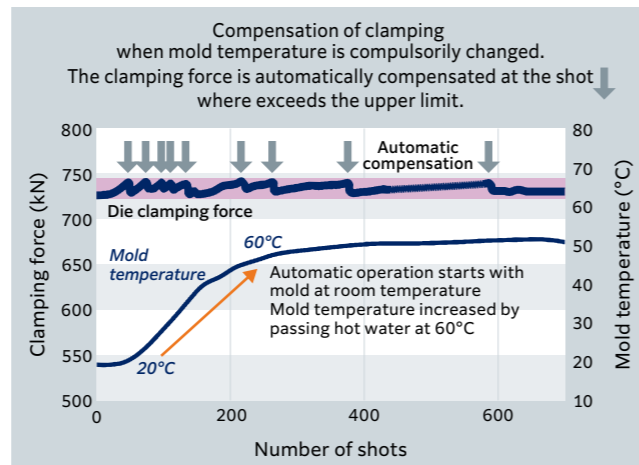
Dynamic acceleration/deceleration control (Patent No. : 5346558)



Double rigid plates



DST-PRESS Automatic clamp force compensation control



Improve production efficiency quickly

Improve production efficiency, but concerned about the impact on quality due to molding conditions change

Improve cycle time and have more time for other processes

Our Solutions

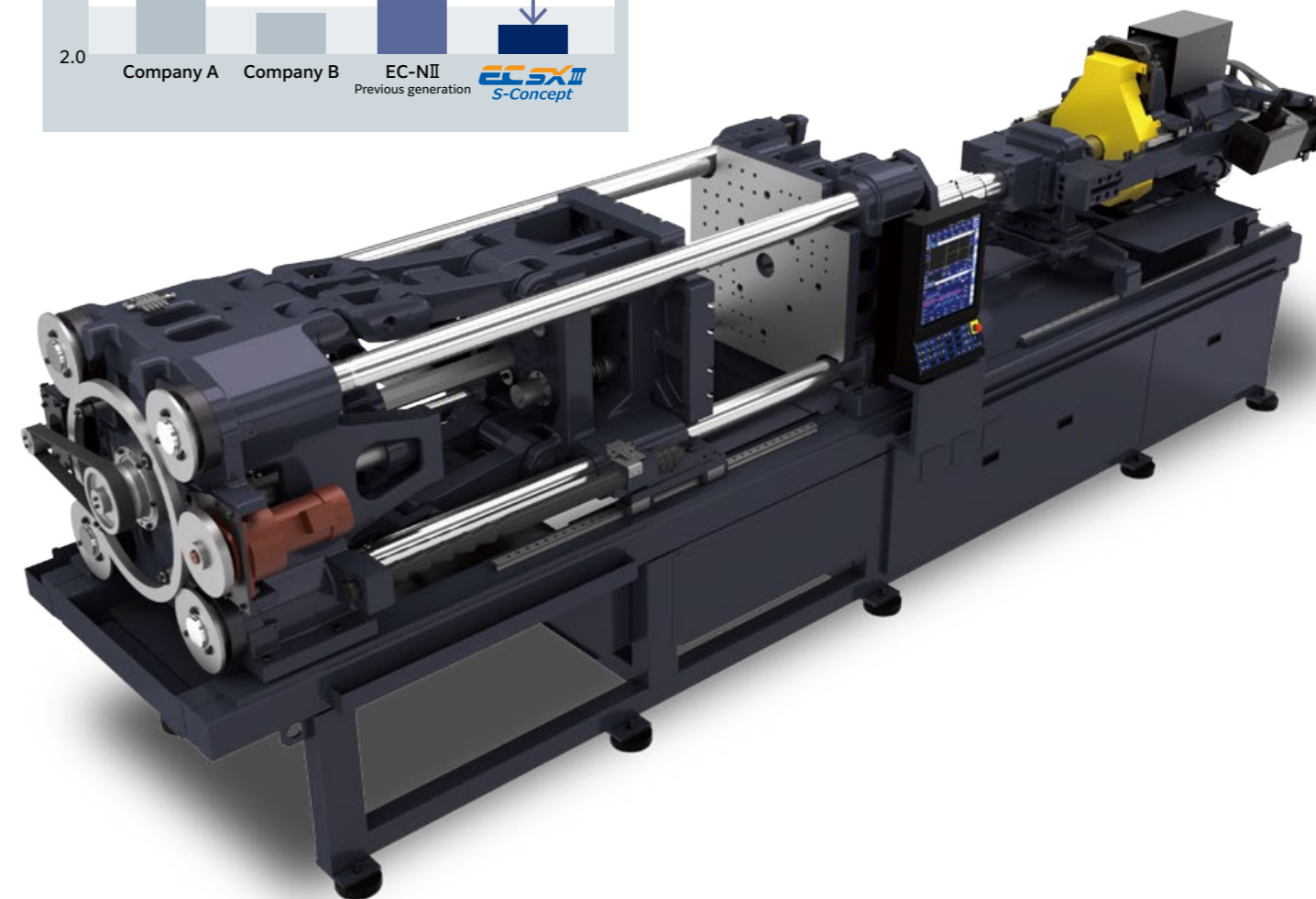
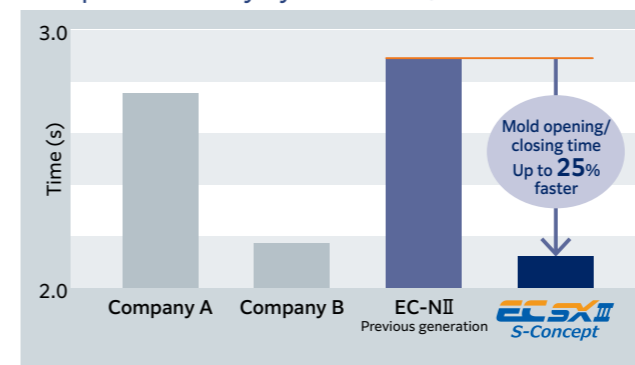
SOLID-CLAMP × Faster cycle times

Shorten the cycle time without changing the molding conditions

- Enabling shorter cycle times without impact on the quality while maintaining the same molding conditions as before
- Compared to EC-NII (previous generation), cycle time can be shortened by up to 168 hours per year*

*For the same injection conditions, 200 hr of production per month, and a cycle time of 10 s.
*Adjustments may be required depending on the customer's production system.

Comparison of dry cycle (clamping force 200t class)



Wide Variety of Screws for Various Resins

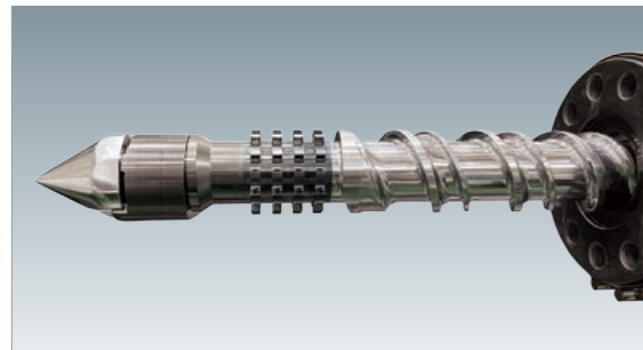
■ A wide variety of screw types are available for various resins, including standard sub-flight screws (DBG).

Type	DBG	DBC	ESB	SRB	GN4	BF (EPS3K)	ETIII
Purpose	General-purpose	For rigid PVC	High discharge	Super stable	For PMMA	Stable adhesion reduction	General-purpose
Feature			Olefin-based	For precision molding	Reduces yellowing Reduces silver streak	Reduces carbides	
Screw diameter (mm)	22~160	25~160	60~160	22~55	22~45	22~45	22~160
Molded products	Office automation (OA) equipment Automotive parts Connectors	Fittings Building materials	Automotive parts Home appliance parts	CD cases Medical devices Precision parts	Light guide plates Lenses	Connectors	Automotive parts Home appliance parts
Resins	Flame-retardant ABS Engineering plastic PP/PE	PVC	PP PE	ABS PBT	PMMA PC	PA PBT POM	PP For filled materials

High dispersion element: Cross ring

- Reduces resin waste when changing resins or colors while maintaining high color dispersion and mixing
- Reduces pressure loss during injection, which has been problematic with mixing nozzles

(Color dispersion performance) PP + 1% master batch



Back pressure	3MPa	7MPa
None		
Cross ring		
Mixing nozzle		

Compliant with international safety standards

■ Compliant with JIS B 6711:2021 (ISO 20430:2020)



NEW iPAQET 4.0

Dramatically Improved iPAQET3. Next-generation Remote Monitoring System

Extended functionality

Please contact us for details about iPAQET4-compatible models.



Visualization

Other Machine

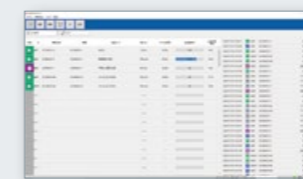
Simple visualization of machines that do not support iPAQET for enabling centralized management



Traceability

Trace Plus

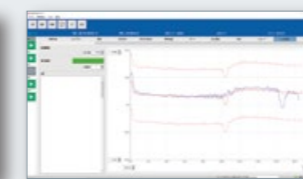
Up to 10 items can be selected from the quality monitor table. Printable as 2D code images on a printer



Visualization

Dashboard

Top screen (dashboard) additional display can be selected from 5 types



Preventive maintenance

PM Plus

Preventive maintenance by monitoring mold ejection torque for detecting anomalies



Energy saving

Power monitoring(V70)

Provides awareness of energy savings by visualizing power usage of molding machine



External linkage

1FileCustomExport

Exports quality monitoring data as a file for each shot. Data can be imported to external devices such as PLCs and PCs or to the customer's system

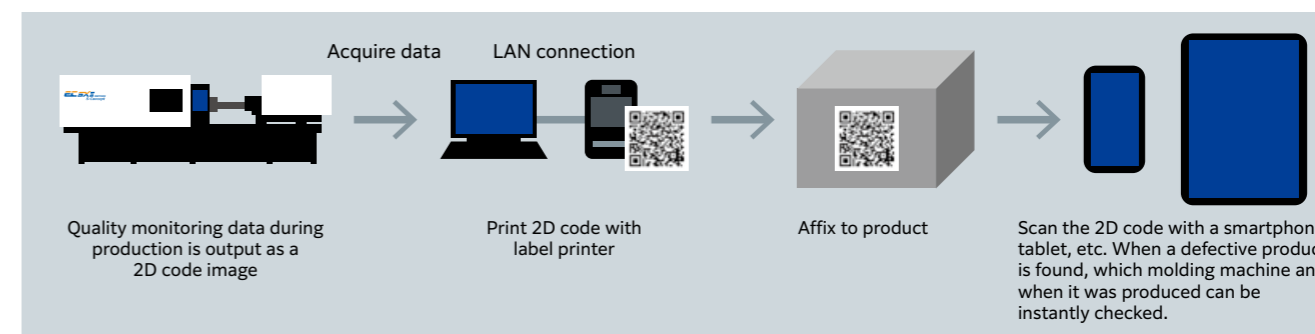
iPAQET 4.0

TRACE PLUS

EXTENDED FUNCTIONS

Labeling of Product Information

- Quality monitoring data during product production is converted into a 2D code as traceable information and attached to the product.
- 2D coded information can be checked from a smartphone or tablet



Conventional model

When a defect is found, it is not possible to check its production conditions, resulting in time-consuming investigations.



When a defect is found, it is easy to check when and where it was produced.

- Data is linked to products and managed by 2D code
- Production date, machine number, number of shots, and other data can be obtained

V70 SETTINGS SCREEN

Six key elements of setting are integrated into one screen. This eliminates the need to search for the desired screen.

Conventional model

- Setting of molding conditions by switching to the desired screen
- Creating of molding conditions table by hand

EC SX III S-Concept

- Basic settings can be completed on a single screen
- Eliminates the need to search for a desired screen
- Screenshots can be used as molding conditions tables

Production management

Injection & charging

Ejector

Monitor

Temperature

Die clamping

AUTOMATIC LOW-PRESSURE CLAMPING FORCE (PCL) SETTINGS

Automatic setting based on guideline setting values and advanced mold protection functions.

- The low pressure clamping force (PCL) and mold closing limit position (LS2) are automatically calculated and set
- Enables fine adjustments from automatic setting values to increase the mold protection effects

Conventional model

- Unclear setting method
- A lot of trial and error is required for proper setting
- Large setting values with little mold protection effects

EC SX III S-Concept

- Automatic setting of guideline setting values at the touch of a button
- Fine-tuning from the guideline reduces the range for trial and error
- Appropriate setting values enable significant mold protection effects

監視モード

Mold (PCL) 99.0 %

監視時間 8.00 s

低圧型締力区間 0.00 s

● Default values are set for LS2 and calculation results are set for PCL.

NEW MOLD PROTECTION

Easy setting of torque monitoring during mold open and close

- Reference torque waveforms can be acquired and set with a single touch
- Mold open process can be monitored as well as mold close process
- New mold protection easier-to-use for preventing mold damage

New mold protection screen

Mold close area

Mold open area

Allowance (range)

Reference waveform is recorded by [Start] in [Reference Waveform Recording]

Enabled by changing [Mold Protection] from [Disable] to [Enable]

Example of effect

Starting torque

Running torque

Deceleration torque range

Verification requirements

Deceleration torque range when switching closing speed from 99% to 10%

EASY AUTO-PURGE SETTINGS

Reduces purging time and resin loss. Simplifies purging operations.

- Recommended purging conditions and values are automatically set
- Purging operation is executed by a simple operation (can also be performed from the operation panel)

Recommended purging conditions

- Simple rotation
- Charge and purge
- Air purge **NEW**
- Low viscosity purge

Conventional model

- Extra time is required because the proper operation and setting values are not known, resulting in increased resin usage
- Purging operation is performed manually by the operator

EC SX III S-Concept

- No need to determine detailed operation and setting values, and purging time and resin loss are reduced
- Automatic execution of preset operation at the touch of a button for simplifying operation procedures and preventing human error

● Enables purging operation without changing production molding conditions

● Recommended values can be changed and saved Set according to the resin and conditions.

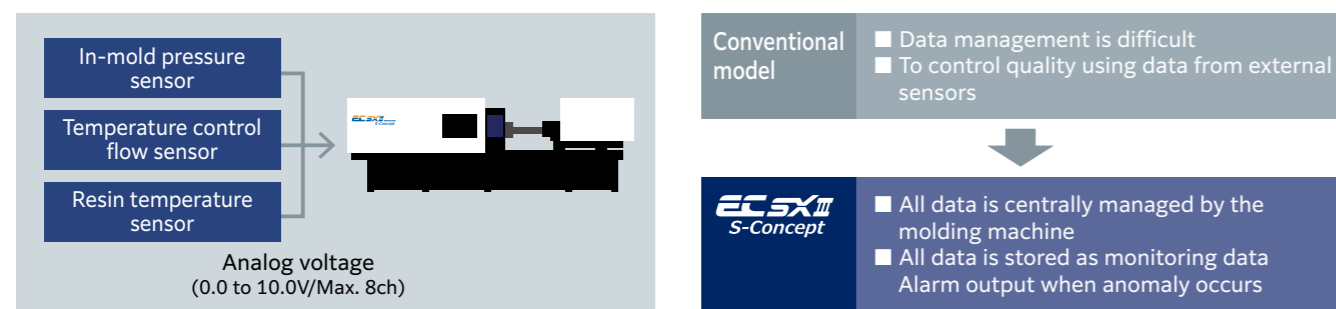


ANALOG SIGNAL INPUT

OPTION

Easy visualization

- Visualization is achieved by importing data from various sensors into the molding machine
- Quality control through external sensor data

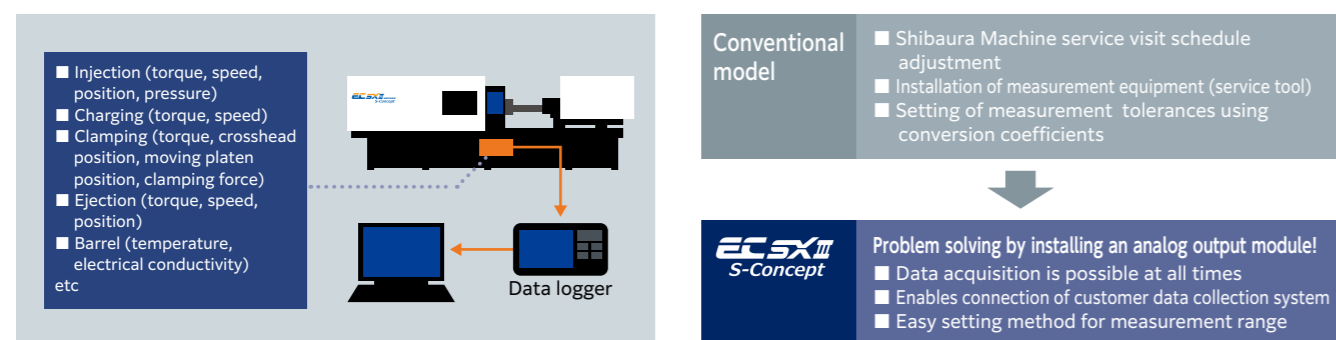


ANALOG SIGNAL OUTPUT

OPTION

To analyze Molding Machine Data

- Analog voltage outputs for speed, barrel temperature and data for each axis.
- Molding machine operating data can be imported to data logger at any time



AMPLIFIER LIFESPAN DISPLAY FUNCTION

Notifies Before Failure

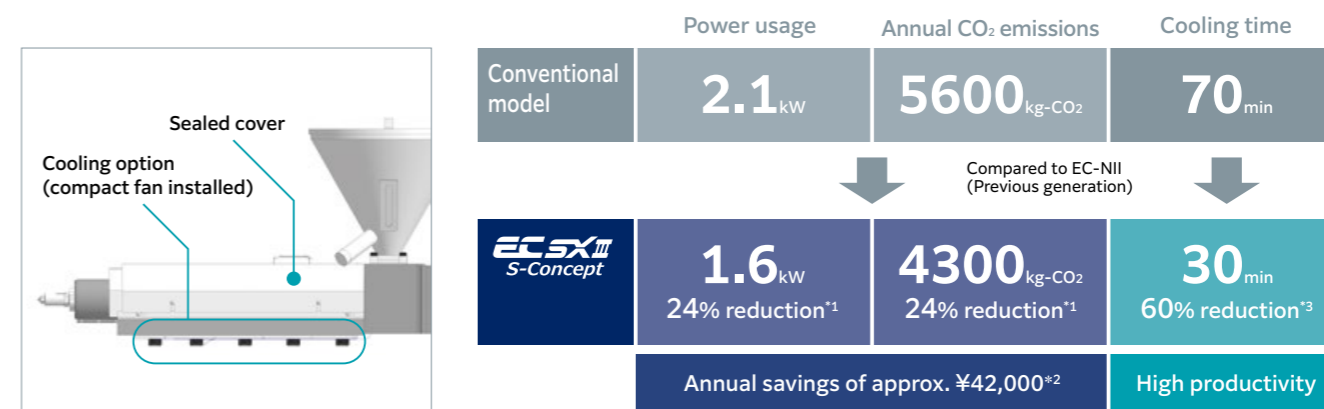
- Amplifier capacitor lifespan is displayed on HMI based on internal calculations
- Useful for setting amplifier replacement schedule and ordering of spare parts



NEW HEATER COVER

New heater cover with both heat retention and cooling performance

- Enclosed cover structure for improved heat retention and energy-saving performance
- Cooling option provides both heat retention and cooling efficiency



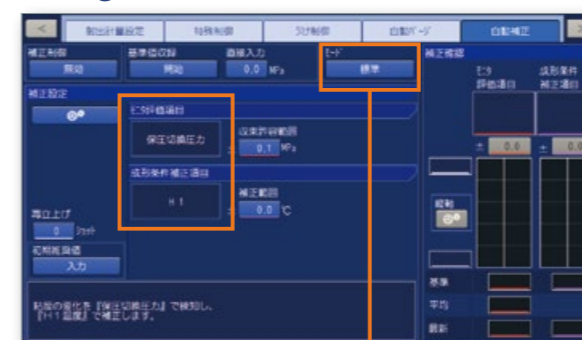
*1 Measured at 240°C heat retention (6A:Φ45) *2 Calculated based on 60% utilization rate and 1kWh=¥20
*3 When cooling option is installed (240°C→180°C)
*In this catalog, the state when the temperature setting is lowered is expressed as "cooling."

UTILIZATION OF REGRIND MATERIALS

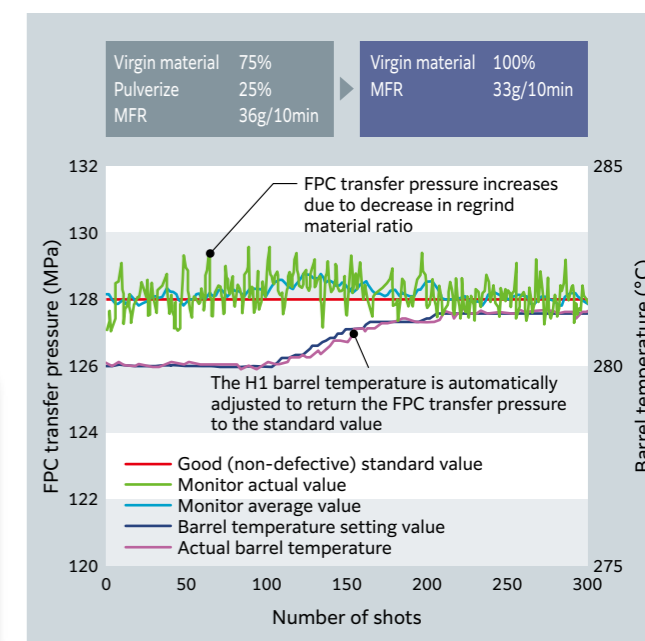
Automatic molding condition compensation function DST-FILL can be used for regrind materials

- Viscosity changes caused by changes in the mixing ratio of regrind materials can lead to molding defects such as short shots and flash
- Viscosity changes are detected by monitoring data such as FPC transfer pressure, and conditions such as barrel temperature are automatically adjusted to keep the viscosity constant and prevent molding defects

Settings screen



Evaluation item:
FPC transfer pressure
Correction item:
H1 barrel temperature



V70 POWER CONSUMPTION MONITOR

Displays Power Consumption (Calculated Value) of Molding Machine

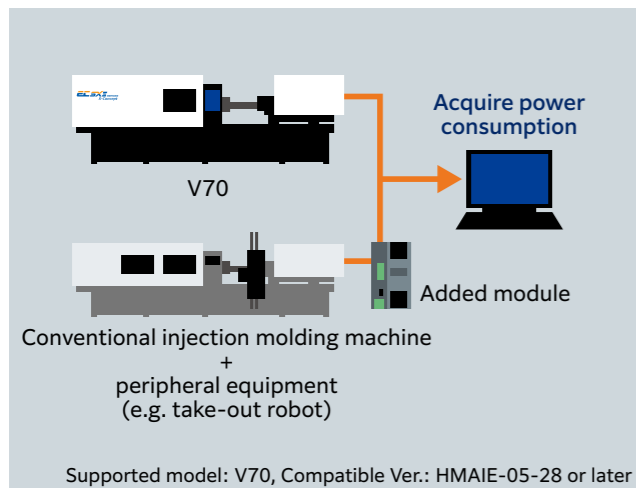
- Shows current and cumulative power consumption, trend graph for a specified period, electricity fees, etc.
- Power usage data can be saved to a USB flash drive. Backup data for the past year can be loaded.



iPAQET 4.0
Power Monitoring/EM PLUS
EXTENDED FUNCTIONS

Visualization of Power Consumption

- Monitors power usage not only of the injection molding machine itself, but also of auxiliary equipment. Visualization of the current status of the entire system and the effects of implementing energy-saving measures
- With iPAQET4.0EM Plus, power consumption of molding machines and auxiliary equipment other than V70 can be centrally monitored by adding modules



Conventional model

- Unable to check power consumption of molding machines other than V70 or auxiliary equipment
- Unable to check power consumption of molding machines in the entire factory

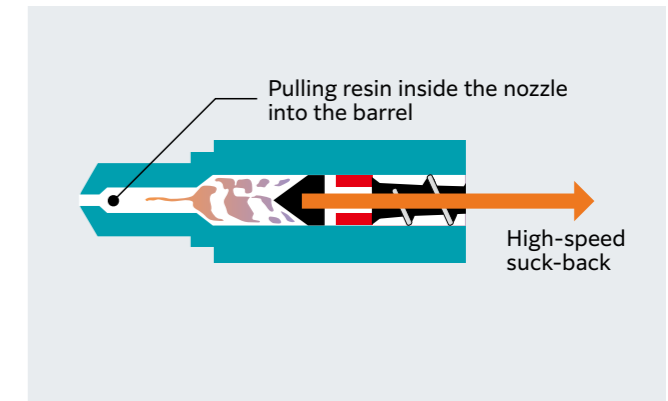
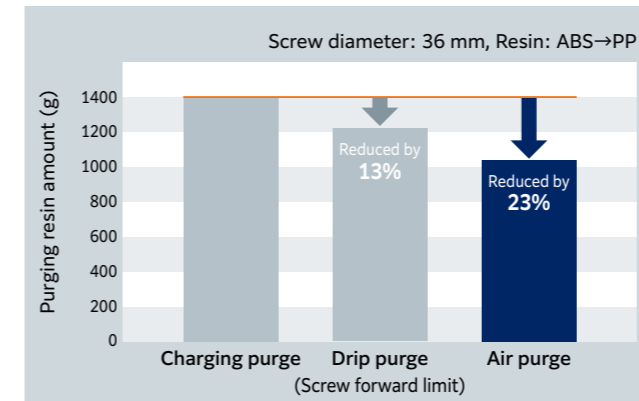
ECSX III S-Concept

- Enables remote monitoring of power consumption of molding machines and auxiliary equipment from the office or other locations (Data equal to V70 HMI display, such as power consumption, carbon dioxide emissions, etc. can be obtained)

AIR PURGE

Dramatically Improve Color Change Efficiency

- High-speed suck-back during automatic purging to pull resin inside the nozzle enables dramatically improved color change efficiency



Intuitive and easy-to-use controller, INJECTVISOR V70



Offices and Plants

Europe

Sales and Service Offices

- Shibaura Machine Europe S.R.L.
- Milan Head Office

East Asia

Sales and Service Offices

- Shanghai Shibaura Machine Co., Ltd. (China)
- Shanghai Head Office
- Beijing Office
- Tianjin Office
- Dalian Office
- Chongqing Office
- Ningbo Office

Shibaura Machine (Shenzhen) Co., Ltd. (China)

- Shenzhen Head Office
- Guangzhou Branch

Shibaura Machine Taiwan Co., Ltd. (Taiwan)

- Taipei Head Office

Production Sites

- Shibaura Machine (Shanghai) Co., Ltd. (China)
- Shanghai Head Office

Southeast Asia

Sales and Service Offices

- Shibaura Machine (Thailand) Co., Ltd. (Thailand)
- Bangkok Head Office
- Shibaura Machine Singapore Pte. Ltd. (Singapore)
- Singapore Head Office
- Kuala Lumpur Office
- Pt. Shibaura Machine Indonesia (Jakarta)

Shibaura Machine Vietnam Company Limited (Vietnam)

- Hanoi Head Office
- Ho Chi Minh Office

Shibaura Machine India Private Limited (India)

- Chennai Head Office
- Delhi Office
- Mumbai Office

Production Sites

- Shibaura Machine Manufacturing (Thailand) Co., Ltd. (Thailand)
- Rayong Head Office
- Shibaura Machine India Private Limited (India)
- Chennai Head Office

North and South America

Sales and Service Offices

- Shibaura Machine Company, America (U.S.A.)
- Chicago Head Office
- Los Angeles Office
- Charlotte Office
- Canada Branch

Shibaura Machine Mexico, S.A. DE C.V. (Mexico)

- Leon Head Office

Shibaura Machine Do Brasil Comercio De Maquinas Ltda. (Brazil)

- Sao Paulo Head Office



Numazu Headquarters/Numazu Plant



Sagami Plant



Gotemba Plant



Shibaura Machine India Private Limited (India Plant)



Shibaura Machine (Shanghai) Co., Ltd. (China Plant)



Shibaura Machine Manufacturing (Thailand) Co., Ltd. (Thailand Plant)