Realizing dreams with a new fusion. The future is here.

We Deliver World Class Performance

Specifications are subject to change without prior notice.

Printed in Japan
The Foremost Two-Platen Injection Moulding Machines

The emⅢ Series offers improved "Space-saving", "Energy-saving" and "Higher speed".

The two-platen clamping mechanism has become increasingly popular in the large-sized injection moulding market and has gained numerous delivery records and reliability since our company first introduced the emⅢ series ahead of our competitors.

The "emⅢ series" utilizes all the resources of the pioneering two-platen clamping mechanism to improve the high-end "emⅢ series" machines, thus meeting the needs of carbon neutrality and our valued customers.

Two-Platen clamping mechanism
- Small footprint
- 4-axis equal clamping mechanism

Carbon neutrality
- Clamping block with high-sealing boost cylinder allows further energy savings
- Shorting of Dry cycle allows further energy savings
- Lower floor allows easier access and operability
- Operations and maintenance functions are significantly improved

Direct Drive injection mechanism
- Highly responsive and high power injection by exclusive DD (Direct Drive) motors
- Suitable for both thin and thick wall moulding

A variety of screw sizes and designs are available
- For high-cycle, high-mixing and lower material costs

Multistage clamping function
- Servo motors allow highly accurate and responsive control for hydraulic clamping force
- Helps to vent gas generated during the moulding process

New and improved MAC-Ⅲ controller
- IoT advanced function capable
- Wide screen allows for easy operation

Machine line-up of emⅢ series

- 1050emⅢ:
  - Clamping Unit: i50
  - Injection Unit: i80
  - Screw Diameter: φ90 mm
  - Machine Length: 9.7m

- 1300emⅢ:
  - Clamping Unit: i80
  - Injection Unit: i80
  - Screw Diameter: φ105 mm
  - Machine Length: 10.7m

- 1600emⅢ:
  - Clamping Unit: i120
  - Injection Unit: i80
  - Screw Diameter: φ105 mm
  - Machine Length: 11.0m
Two-platen clamping mechanism allows for energy-saving and high cycle with a significantly reduced footprint

Small footprint

- By comparison, the emIII can replace toggle machines having clamp force 2 to 3 classes lower.
  - The emIII length is even shorter than the previous emIII model.
  - The length of emIII (1300t) is the same as that of a toggle machine (850t).
  - Allows better use of floor space and easier factory layout.

High-cycle

- Motion of mould release is driven fast by ball screw for mould open/close. (Servo driven mould release mode)
- Acceleration and deceleration setting during mould open/close is selectable among sharp, standard or soft.
  - The drive mode is now selectable to target dry cycle time reduction, energy saving operation, or vibration reducing.
- Dry cycle is 40% shorter compared to a hydraulic toggle machine.
- By comparison, the emIII... efficiency.
- The length of emIII... maintenance.
- The emIII... of a toggle machine (650t).
The new and improved MAC-IX controller

- Exceptional operability with two screens combined on one large screen
- An upgraded security function that utilizes ID card authentication is equipped as standard
- Stable moulding by high-speed control that is six times faster than a conventional system

Upgraded Operability
- Swing and tilt mechanism
  Easier operation with control panel swing and tilt.
- Injection waveform memory
  An ideal process, waveform can be saved and displayed on-screen for checking shot-to-shot repeatability.
  This feature helps ensure consistent production.
- Vertically long screen
  Long, vertical screens can display twice the trend data compared to a conventional system.

High-speed, high-accuracy control
- Reduced scan time
  Scan time is shortened to 1/6 of a conventional system by using EtherCAT. High-speed communication which provides stable weight of the moulded product.

UM IoT Solutions
- Factory supervision
- Operation records
- Alarm records
- Quality management
- Quality analysis

Upgrade security function
- Security ID card system
  Login by ID card which can be assigned to an operator; automatic change of languages and units.
  Prevention of password loss.
- Traceability management
  Operator’s information is added to the operational/setting records.
- Control over operator access
  Capable of setting 4 levels of access for each operation.

User support function
- Alarm guidance
  Access for alarm resolution by using a flow chart which can be restored easily.
  Easy identification of failure by improved alarm messages.
- e-manual
  The machine manual can be reviewed on screen.
- Screenshot
  Screenshot data can be saved to USB for ease of printing documents.
- Automatic mould setup memory
  Mould setup data can be saved to internal memory (480 moulds) and external memory (1008 moulds).
- ECO monitor
  Displays power consumption of servo motors and heater, and support management.

Global reliability
- An uninterruptible power supply (UPS) is standard equipment
  Prevents failure resulting from voltage drops or brownouts, even in areas with unstable electric power supply.
  Data can be safely backed-up in case of power outage.
- A surge suppressor is standard equipment
  Protect the control system from lightning strikes.
- Multi-language selection
  Standard languages available are Japanese, English, Chinese, Spanish and Thai (new addition).
  Eight other languages are available as an option.
  A maximum of three languages is selectable from a total of 13 languages.
- Pictographic switches (ISO-compliant)
  Easy to operate by pictographic switches.
- Variety of international standard compliances
  Complies with JIS, ANSI, EN, GB and KCS standards.
  Will comply with ISO20430 soon.
- IEC 61131-3-compliant ladder
  The operation sequence is created by global standard ladder language.

Production information for each machine is displayed
- Ability to classify and summarize alarm data from each machine for each occurrence
- Communication facility (LAN, leased lines, VPN, etc.)

ELECTRIC INJECTION MOULDING MACHINE

Analysis
- Quality radar
  Displays the correlation of the data
  Same place: Same correlation data
  Symmetrical to center point: Reversal correlation data
  Distance from center point: Variation impact is great
The highly regarded UB screw, with outstanding mixing and plasticizing capacity properties, is standard equipment. Various screw designs tailored to the wide-ranging needs of the industry are also available.

Multi-stage clamping function

Highly accurate and responsive multistage clamping control by pressure feedback with the clamping hydraulic motor is a standard function of the emIII. Gas generated during moulding is a main factor to cause moulding defects such as gas burning. Increasing clamping force in stages during injection by using the multistage clamping function is helpful for venting trapped air from the mould cavity.

Image of improvement of gas burning with multistage clamping function

Special moulding technologies

Multi-resin moulding (Long Fiber reinforced Thermoplastics)

Long Fiber reinforced Thermoplastics allows automobile parts to be lighter with more unique design. An important feature of LFT moulding is to ensure high rigidity and mechanical properties of products. Our LFT screw contributes to high rigidity, high intensity and weight reduction by ensuring the fiber length without breakage.

Foaming moulding with 4-axis tie bar core back

(Meeting is necessary to install this function)

Superior-quality foamed mould products are possible with the high-speed and high-accurate core back motion (Parallelism of platens, core back speed and positioning) by 4-axis tie bar servo parallel control.

MuCell® moulding

(Meeting is necessary to install this function)

MuCell® is a registered trademark of TREXEL, INC

Superior-quality foamed mould products are possible with the high-speed and high-accurate core back motion (Parallelism of platens, core back speed and positioning) by 4-axis tie bar servo parallel control.

For high-cycle, general-purpose, “UB screw” (standard equipment)

For super-high color mixing, “MF-UB screw” (optional)

For super-high mixing, “MD-UB screw” (optional)

For Long Fiber Thermoplastics, “LFT screw” (optional)

For low shear, low heat generating, “F screw” (optional)

Foaming moulding with 4-axis tie bar core back (optional)

Ball screw for mould open/close

Servo motor

CORE BACK

Siervo valve equipped for each cylinder

Pump

Main equipment of MuCell®

Uniform internal stress with microcellular foaming pressure

- Improve accuracy in product dimensions
- Significantly improves warpage and sink marks
- Shorten cycle time (skip holding pressure)

MuCell®

&

4-axis servo core back

Highly accurate mould open/close control

Foaming moulding with core back produces light products

High-speed and high-accurate core back motion by 4-axis servo parallellism control allows high-quality surface texture and microcellular bubbles.
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<td><strong>Injection Unit</strong></td>
<td><strong>Electric Unit</strong></td>
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<td>1. Screw</td>
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<td>1. Screw type</td>
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<td>5. Mould</td>
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<tr>
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<tr>
<td>8. Hydraulic core (2, 4 lines)</td>
<td>8. Earth leakage breaker</td>
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</tbody>
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**Note:** 1. Values above are subject to change due to modification without prior notice. 2. The value of injection capacity are the result of standard testing conditions. 3. Injection weight, injection rate and plasticizing capacity are dependant on resin and moulding conditions.