Compact Precision All Electric Injection Molding Machine

Tough Com Machine

- Less-load & High-precision Clamping Device
  - M Support System for Effective Clamping (PATENT)
- Appropriate Pressure Transmission
  - Reduction of Short Shot & Flash by BPF (Balance Pressure Filling)
  - Less-load & High-precision Injection with Sufficient High Pressure
  - Hyperslow & High-performance Pressure Feedback Control

Niigata Hiper Navi

- User-friendly Operation Screen
  - Reduced Number of Switching with New operation concept

Compact Machine for Limited Space

- Space Saving & Low-height Machine
- Improvement in Setup Efficiency
  - Shorter Time for Setup with Quick, Easy and Safe Operation

Note: Specifications are subject to change due to continual improvements.
**Effective Clamping**

**M Support System (PATENT)**

Enabling “Effective Clamping” cutting edge mechanism!

“M Support System” has been developed to enable “Effective Clamping”. It is the new structure of adopting platen support which is attached to the fixed-movable platen to create looseness at the lower part of platen by supporting it from the center of its height at both sides. This will promote the even deformation of platen during clamping force load and prevent platen deflection. Furthermore, low-friction Linear Guide is adopted for supports, which is conventionally substituted by roller and wear plate. With this invention, even our basic line can handle the formed products requiring true platen parallelism.

**Structure of M Support System**

By supporting the center of platen height at both sides, the looseness at the lower part of platen can be created. This will promote the even deformation of platen during clamping force load and prevent platen from tilting.

**Pressure Distribution between Movable Platen and Mold**

The below figure is the example of pressure distribution on movable platen during clamping force load. As for conventional model, the pressure is concentrated on the lower and upper part of platen, so that only small load exists at the center. As for MD-S7000, the clamping force pressure is evenly distributed to the platen of full surface.

**High Precision Clamping Device**

**Improvement in Tilt Prevention of Fixed Platen**

You can select nozzle touch force from “100%” or “70%”. With appropriate touch force, the lift of fixed platen can be reduced by 30%. This is effective for protection of mold and life extension of sprue bush.

**Accurate Clamping Force Adjustment**

With the MD-S7000, setup of the mold can be done in high speed and with high precision. In addition, clamping force can be adjusted accurately, and precision of low pressure mold protection has been improved so that successive and stable precision molding can be achieved.

**Industry-leading Compact Machine**

NIIGATA has a distinctive injection unit structure to minimize machine installation area, which is reputed to be the greatest space saver of all. We can proudly introduce our product to the customer who can not spare enough space for large machineries. Now, you can utilize your space to the fullest! What’s more, the height of machine is lowered from our conventional model and also the operability is improved.
Wide selection of Injection ability!

Specifications of screws are standardized for several types of injection unit. Molding for different injection unit can be done under the same molding conditions.

Variety of Screw Options

Select the most appropriate screw! We propose the best suited screw from our wide selection depending on the intended use taking advantage of the know-how cultivated throughout our history.

Group Temperature Control (PATENT)

Advanced temperature control system!

As for nozzle temperature control, the well-received “Group Temperature Control” is adapted as a standard feature. This ground-breaking temperature control system monitors 2 heaters by 3 sensors. By shifting weighted values among sensors, it can change sensor position virtually and change temperature slope freely. This system has the enormous effect on preventing the problem of stringiness, drooling, nozzle freezing and material burn. Another standard feature is “Cylinder Follow-up temperature Control” for nozzle which prevents resin burning within the nozzle.

Unmatched Powerful Injection

Industry-leading, the most powerful machine!

Pressure Holding Capacity (with A cylinder)

As well as our conventional series, MD-S7000 can maintain a long pressure holding time. Electrical machinery is considered to not-do well on long holding pressure but our one of a kind NIIGATA technology based on the concept of “Taking in the advantage of hydraulic to electrical machinery” sweeps aside this rumor. Now our electrical machine can form thick lens without difficulty, which is once believed to be impossible. In addition, it keeps down the energy consumption rate during pressure hold. Extremely energy efficient!

Ultra-low Speed Injection Control

Industry-leading highly precise speed control of 0.01mm/s!

Ultralow speed injection of 0.01mm/s can be achieved with high-resolution encoder of 18bit / rev (262144 PLS) mounted on our machine. Our machine delivers superior performance in thick-walled molding with outstanding stability and repeatability in low speed.
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Operation support : Setting screens and monitors are displayed in a single screen to reduce the number of screen switching!

Heating cylinder temperature setting
Timer setting
Clamping condition setting
Ejector condition setting

Simplified setup device : Setup for the molding is simplified and minimized with Niigata Hiper Navi

Input of mold height and clamping force is not required.
(This is also applicable for the mold with spring.)

Clamping force can be adjusted with a single touch of this button.
(Visualization of clamping force.)

Optimum setting value is calculated automatically.

During the process of purging, either clamping force adjustment or low pressure mold protection can be operated without stopping purging.

 CPF Control

CPF (Constant Pressure Filling) is a function that automatically slows down the filling speed by controlling maximum filling pressure. CPF can release the peak pressure at the completion of filling process, and the machine will smoothly shift to pressure holding process. You will find that CPF is an advanced technique of NIIGATA and is effective in reducing or preventing the occurrence of molding failure.

Pre-releasing of clamping force
Low pressure clamping force holding
Local password setting

CPF® is effective for uneven thickness molding.
Multi-cavity molding
Thick-walled molding

BPF® can improve the quality in the gate sealing and formation of skin layer. This is effective for the transcription with high precision and reduction of mold release resistance.

BPF® is effective for uneven thickness molding.

Multi-cavity molding
Thick-walled molding
Thick-walled molding

Low pressure clamping force holding

You can put restriction on the screen operation by setting a password for each operator.

Before completion of cooling, clamping force can be released.
Low pressure clamping force can be held, if necessary, you can switch to high pressure clamping force.

Simple setup for the mold
Easy setting function
Easy setting screen
Advanced setting screen

Basic setting for molding can be done easily along the operation procedure.

Advanced setting such as injections, clamping and temperature are consolidated in one list screen.

Filling peak pressure is reduced.

Normal pressure behavior
Pressure behavior before/after temporarily stop

During injection process, screw is temporally stopped so that the gate balance can be kept and the material is naturally filled along the gate. This is also effective for the release of gas.
**Visualization of Running Cost**

Equipped with power consumption monitor as a standard feature!

This monitor screen can display power consumption.

**Reduction of Running Cost**

Keep the machine clean with less use of grease!

By adopting sealed ball screw, high-precision linear guide and bush-less design, consumption of grease can be significantly reduced.

(Grease consumption can be reduced by 40% compared with MD100X.)

**Improvement of Maintenance Property**

Equipped with maintenance support function as a standard feature!

This function will inform you the schedule of periodical inspection for each part of the machine.

- Oil fence (Injection side)
- Oil pan (Clamping side)
- Toggle side cover

Oil fence prevents grease dripping and scattering of pellet. Space under the fixed platen is wide so that cleaning can be done easily.

Oil pan can be pulled out for easy cleaning.

By visualizing clamping mechanism through the side cover, visual check can be done without stopping the operation.

**Meet the Demand**

**Enhanced Man-Machine Interface**

Large-capacity memory and introduction of new functions!

Instruction manual screen

Shot monitor Screen

Event record Screen

You can check with the instruction manual in the operation screen.

Sufficient memory capacity is secured. (10,000 shots)

Sufficient memory capacity is secured.

Graphical monitor screen

Condition memory screen

Convenient functions

This graphical monitor screen can display up to 8 waveforms. Overwriting and setting comparison are also available.

Number of molding conditions recordable is 384 in built-in memory and 384 in commercial-release USB memory respectively.

Notepad, as an example. Hand writing is available. You can leave a message or notes etc.

**Direct Display of Convenient Functions**

- Waveform Monitor
- Shot monitor
- Molding counter
- Power consumption monitor
- Calculator; you can access these functions directly through function key at the bottom of display.

**Meet the Demand**

- Sealed Ball screw
- High precision linear guide
- Bush-less Tie-bar

By adapting sealed ball screw, high-precision linear guide and bush-less design, consumption of grease can be significantly reduced.

(Grease consumption can be reduced by 40% compared with MD100X.)

**Equipment Support Function**

Equipped with maintenance support function as a standard feature!

This equipment will inform you the schedule of periodical inspection for each part of the machine.

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