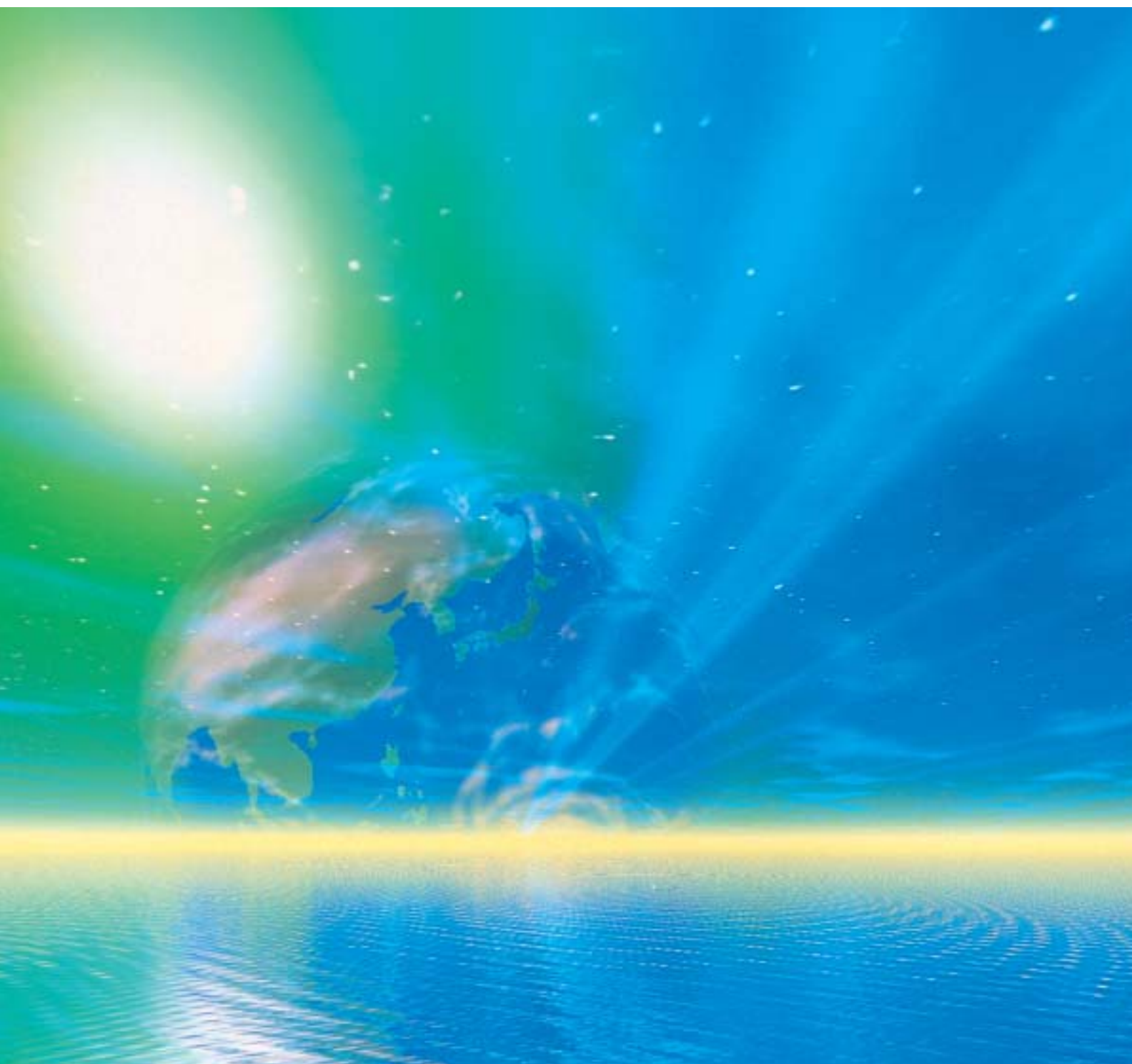


NIIGATA

ALL ELECTRIC INJECTION MOLDING MACHINE

MDS-IV

NIIGATA PLASTICS MACHINERY COMPANY, INC.



Equipment that's environment and user friendly.

With the next-generation in mind, this new standard is designed with fully integrated hardware and software.



MD100S-IV

MDS-IV

Enhanced Control Performance

Fast and Responsive

300 mm/s injection speed, coupled with fast response time, is ideal for thin wall parts.

Accurate

Maintaining low screw speeds of 0.01 mm/s, along with resin pressures of 0.1 MPa, is perfect for lens molding.

Stable

System scanning is executed and processed in 222 micro-secs, and the injection time is adjustable to 0.001 sec., insuring enhanced stability.

S-CPF (PAT.)

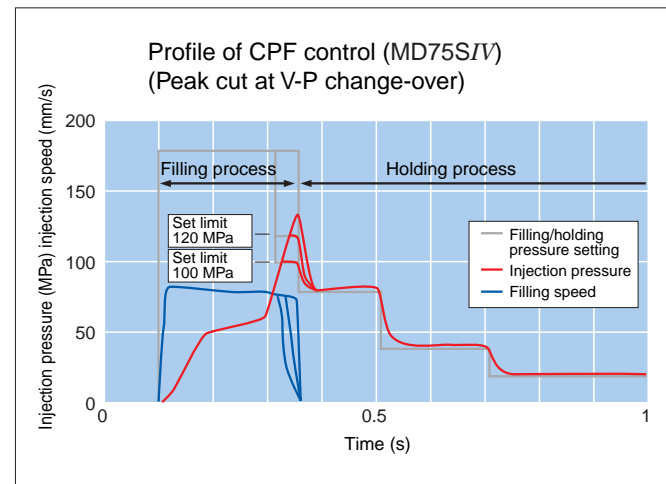
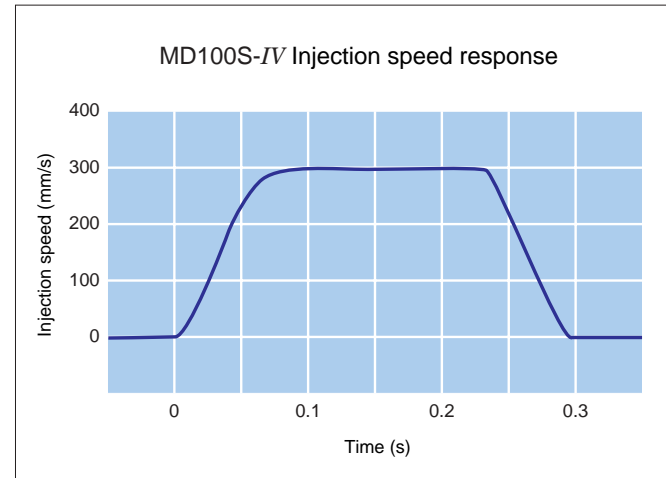
“Constant Pressure Filling” sets the pressure during filling, achieving automatic speed reduction and a smooth transition to the pressure-holding stage. Filling pressure can be set for each speed stage.

10 Stage Speed/Pressure

A maximum of 10 stages can be set for both speed and pressure enabling the machine to respond to complicated molded products.

Group Nozzle Temperature Control (PAT. PEND.)

The optimal temperature gradient is obtained using this newly developed group control. Cobwebbing, drooling and plugged nozzles are eliminated.



Group nozzle temperature control

1 zone (Conventional method)	Group control (3 sensors, 2 heaters)
Actual temperature gradient is unclear	Actual temperature gradient is known at 3 points
Approximate temperature gradient	Adjustable range Approximate temperature gradient



Flexible V-P Switching

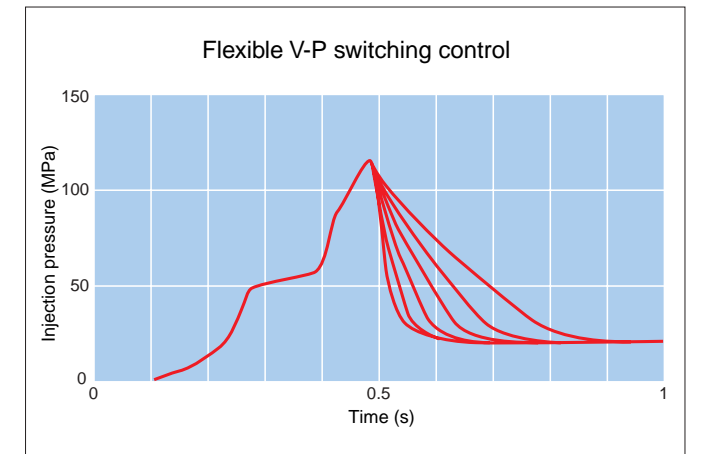
According to part geometry, optimum control of switch over from speed to pressure is necessary to handle acute variations in wall thickness.

Speed Vector Control (PAT. PEND.)

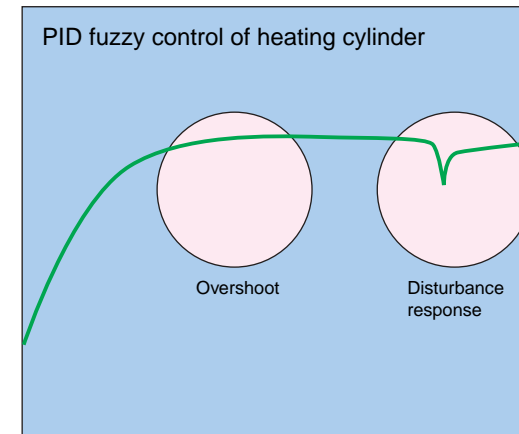
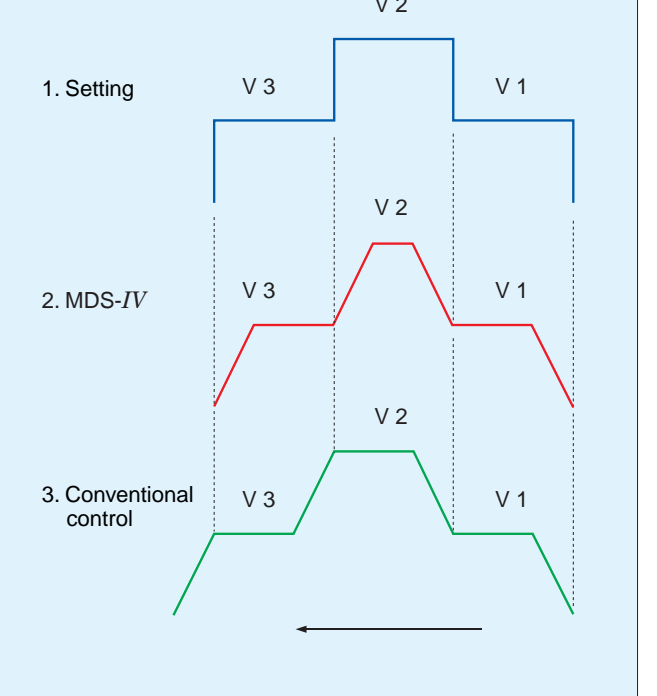
Allows for the selection of transfers from one speed to the next and how it is accomplished (conventional control vs. MDS-IV).

P.I.D. Fuzzy Logic

Fuzzy logic is used in conjunction with the barrel temperature control to suppress overshooting and heat fluctuations. A wide range of stable temperatures is achieved in units of 0.1°C in a period of 0.5 sec.

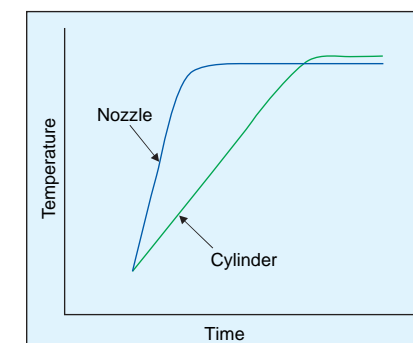


Speed vector control

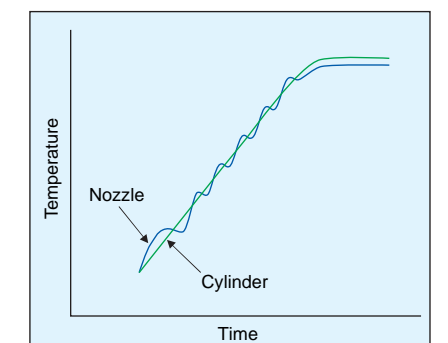


Barrel Follow-up Temperature Control

Nozzle zone increases to set temperature at the same rate as barrel zones, eliminating material degradation and burning.



Conventional control

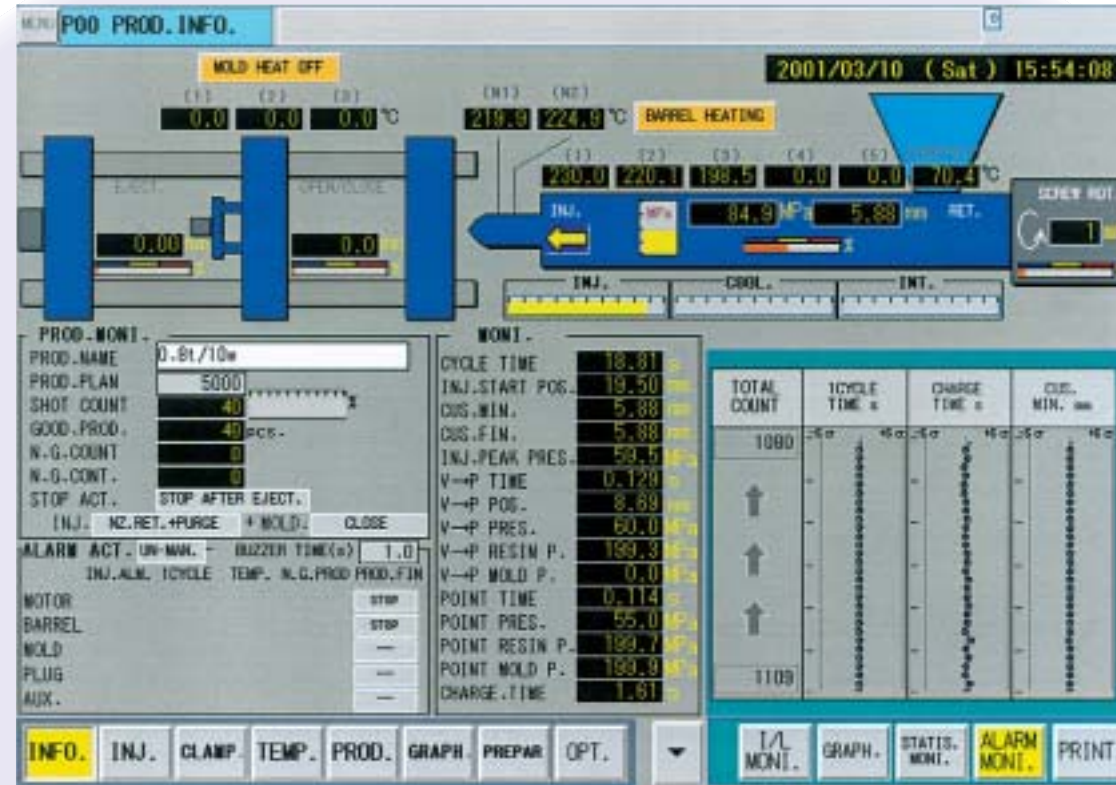


Barrel follow-up control

Operator-friendly, easy-to-see screen

Large, Clear LCD Display

12.1 inch color touch screen is integrated with the operation panel. Condition setting is easy by incorporation of graphical user interface.



New Operation Panel Emphasizes Operability

- The large touch screen and operation buttons are located together at the center of the machine. It easily enables operators to monitor the information on the screen while operation.
- New screen layout fully considered of operability.
- Each main screen has sub-windows, whose displaying pages are selectable as needed.
- Very easy access to necessary screen.

P00 Production Information

The production conditions can be monitored on one screen. The necessary setting screen can be reached directly by selecting each item.

P01 Injection

Maximum 10 injection speeds and 10 holding pressures can be set. [The screen layout can be flexibly changed indicating from one speed, one pressure up to 10 speeds, 10 pressures.] Functions such as automatic arrangement of duplicate conditions or the stage insertion (PAT. PEND.) provide more ease and flexibility to condition settings. Graphics or trend graphs are shown in the sub-window screen.

P02 Clamp

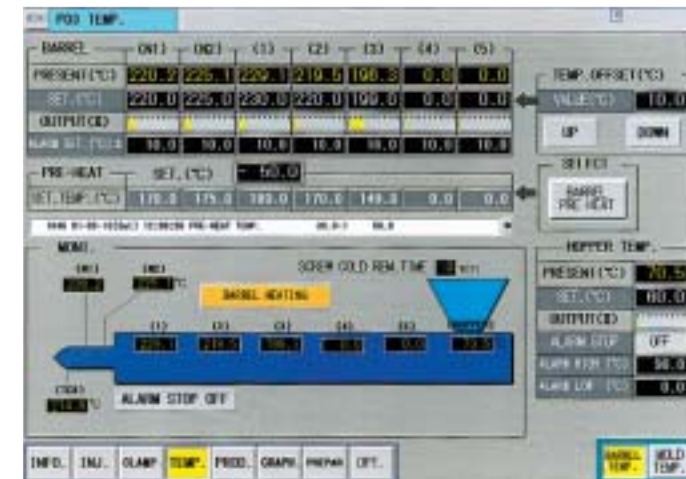
Max. 6 speeds can be set for mold opening and closing, effective for shorter cycle. Settings related to the clamping, such as ejector or core pull (option), can be set in the sub-window screen.

P03 Temperature

All the necessary input for temperature change is rising/falling value. The value is applied to all the zones automatically just by one button hit.

P06 Preparation

The workability on mold preparation has incredibly improved incorporating the features like position retrieval of mold open/close (PAT. PEND.), expert or automatic condition conversion from other machines.



Newly Developed Injection Unit

Durable & Accurate

Quick response and long life are attributable to time tested servo-motors and ball screws, coupled with a highly accurate guide mechanism.

Screw Variations

A variety of screw designs are available for improving resin uniformity. Chromium plating is used to improve color change transition.

HR-Type Screw Tip

The HR-Type tip improves repeatability by reducing shut-off time through its "counter-flow" preventative mechanism. Anti-wearing material is used as standard.

P.I.D. Feed Throat Control

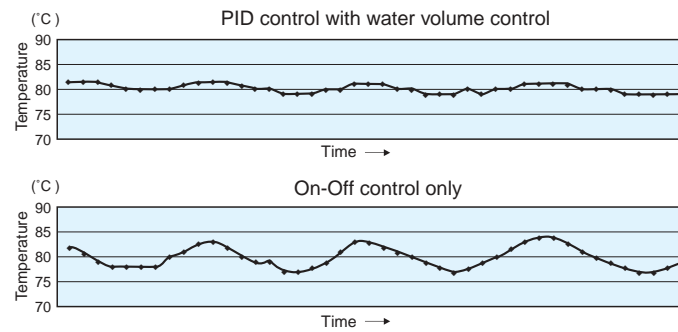
Used in concert with a flow control valve, water temperature at the material inlet area is maintained at the optimum level.



Application \ Material	Material				
	Plating	Nitriding	Abrasion resistance, corrosion resistance	Super abrasion resistance, corrosion resistance	High temperature specification
General purpose NHP screw	●	●	●	●	●
High kneading NSS screw	●	●	●	●	●
Screw for crystalline resin such as PA	●	●	●	●	●
Exclusive screw for connector	—	—	●	●	●

● : Standard
 ● : Option
 ● : Semioption

Temperature control under hopper



Nozzle Touch Force

The nozzle touch pressure force has been increased to equal that of hydraulic machines of equal size.



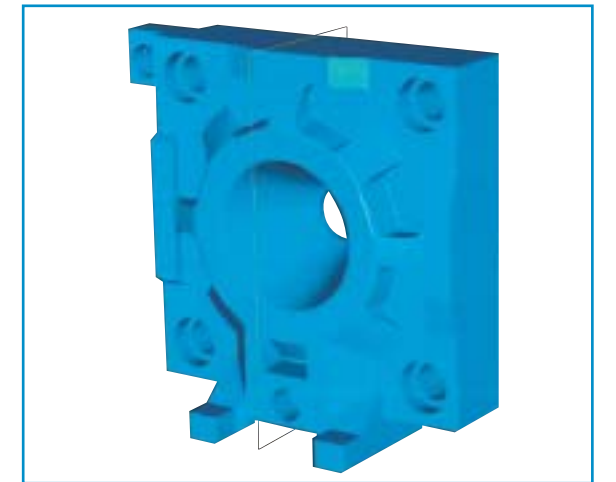
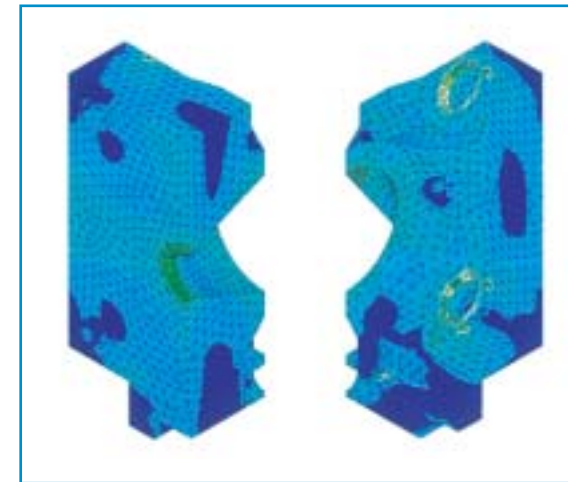
Improved Clamping Mechanism

Solid Design

Incorporating the Niigata 5-point system, the clamp responds with fast/smooth opening and closing speeds. This proven design has been developed over years of toggle clamp experience.

30% Increase in Platen Stiffness (PAT.PEND.)

Increased platen stiffness and minimal uniform deformation has been achieved through CAE analysis.



Wide Span Guides

4-point guide rollers are used for the moveable platen guides. With a wide span, platen parallelism is ensured allowing for greater mold alignment accuracy.

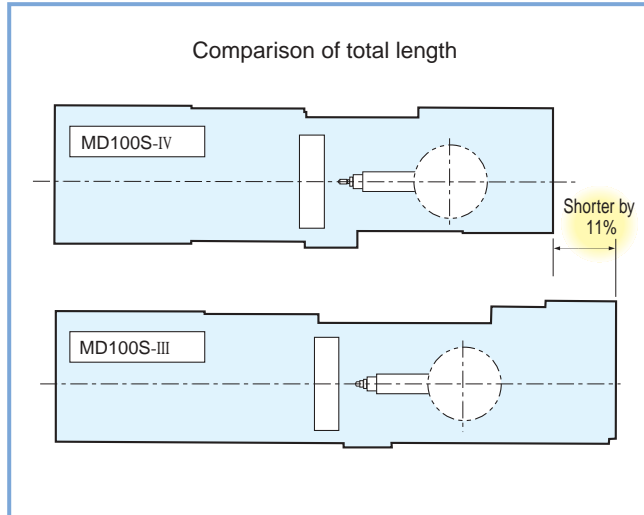


MD75S-IV

Environment and User-Friendly

Compact Design

Compact in size, it requires 10% less space than earlier models. Leaves more room for peripheral equipment and secondary operations.



Adjustable Operator Station

Flexible locations for ease of operation.

Expert System

Using a vast database this system can be used to automatically set-up general mold parameters by entering some basic information. A great help to quick mold set-up.



Language Options

Machine is easily programmed in English, Spanish, Japanese and Chinese.

Speed Value Retrieval (PAT. PEND.)

Clamp speed changes can be set automatically by a position retrieval button.

CLAMP SPEED	CLAMP SPEED	CLAMP SPEED
111	100.0	220.0
112	400.0	100.0
113	300.0	150.0
114	400.0	150.0
115	200.0	100.0
116	100.0	30.4
117	100.0	30.0
118	100.0	2.0
119	400.0	100.0
120	300.0	100.0
121	200.0	200.0
122	100.0	220.0
123	50.0	240.0

Expanded Purge Operation (PAT. PEND.)

Modes include "momentary," "color change," "hot-sprue" and "clean-out." Each can be set automatically depending on function needed.

Set-up Memory

32 difference machine set-ups are held in memory without the need to download.



Automatic Grease System

To insure long life to key components such as ball screws, toggle links, and bushings, automatic lubrication systems are installed.

Servo-Motor Load Factors Indicator (PAT. PEND.)

The screen indicates effective load factor of each servo-motor. Being great help for mold set-up eliminating overload.

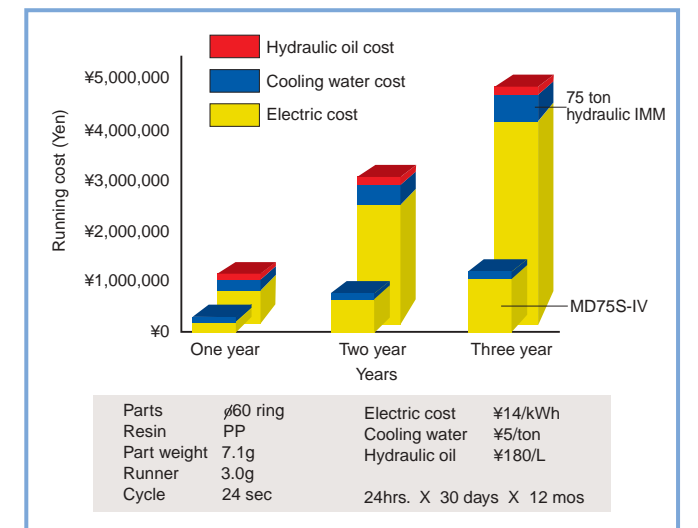


Reduced Power Consumption

40% to 50% less power is used when compared to hydraulic machines. This, combined with reduced water cooling costs, means far less energy usage.

Memory Function (PAT. PEND.)

10 separate mold conditions can be stored along with input times. This allows time/link tracing of conditions for mold set-up.





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