

VERTICAL ALL ELECTRIC INJECTION MOLDING MACHINE

MDVs-IV SERIES **MDVRS-IV**



Enhanced Control Performance

Table oscillation

Start and stop by closed circuit. Table response improved by 20%, and Time for table oscillation is 20% less.

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.

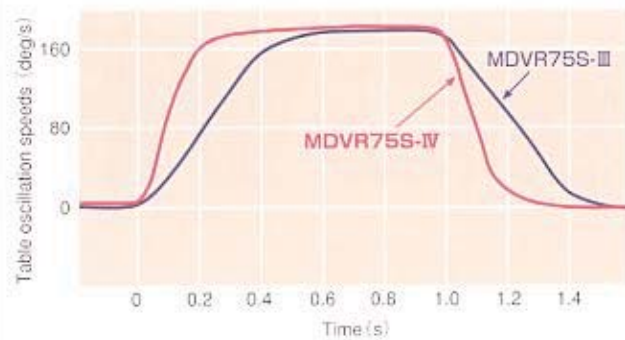
S-CPF (PAT.)

"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.

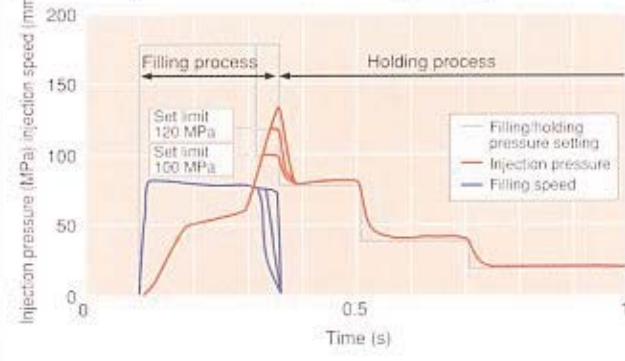
10 Stage Speed/Pressure

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

MDVR75S-IV Table oscillation response



Profile of CPF control (MDVR75S-IV) (Peak cut at V-P change-over)



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.

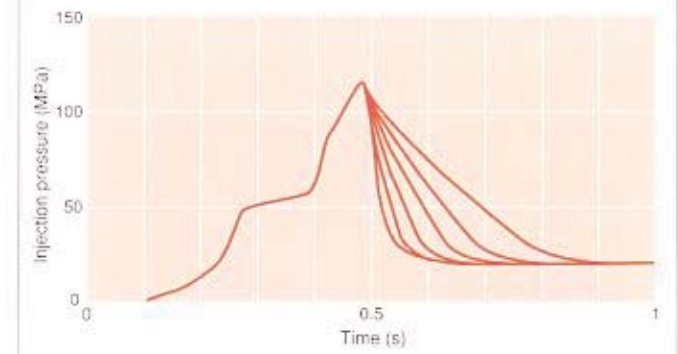
Speed Vector Control (PAT. PEND.)

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

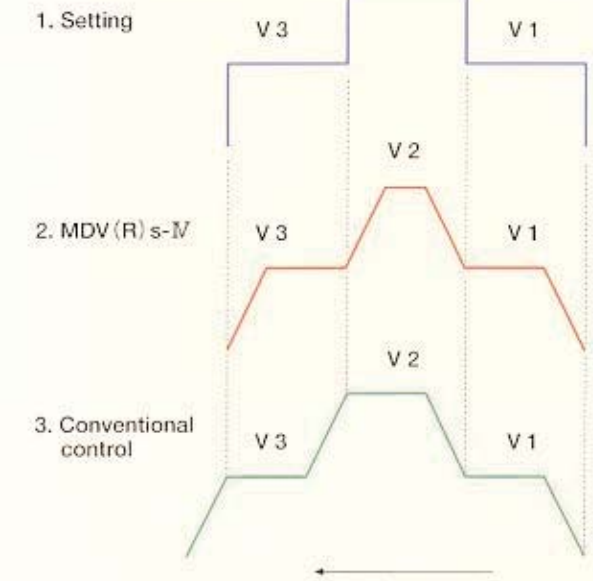
P.I.D. Fuzzy Logic

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.

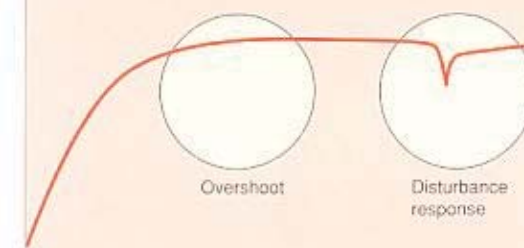
Flexible V-P switching control



Speed vector control



PID fuzzy control of heating cylinder

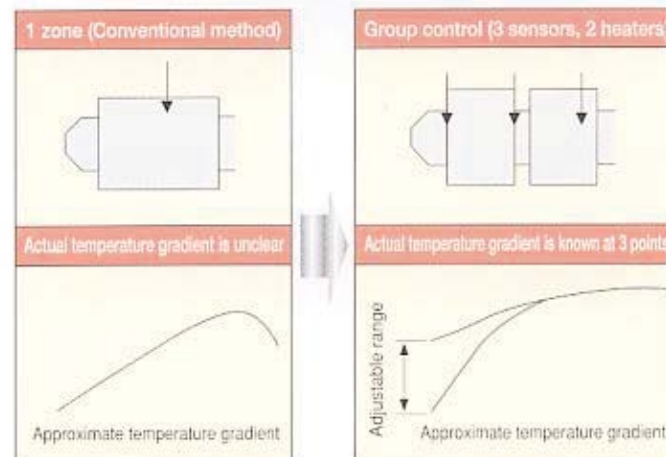


Group Nozzle Temperature Control (PAT. PEND.)



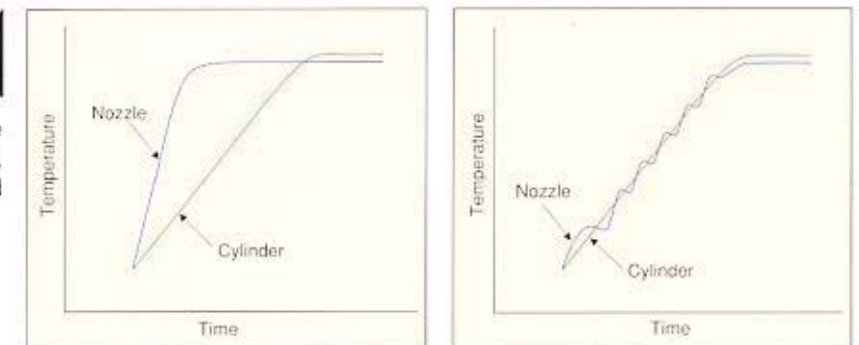
The optimal temperature gradient is obtained using this newly developed group control. Cobwebbing, drooling and plugged nozzles are eliminated.

Group nozzle temperature control



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.



P00 PROD. INFO.

2004/04/06 (Tue) 09:01:26

ALARM ACT. MANNED BUZZER TIME(s) 490.0

INJ. ALM. 1CYCLE TEMP. N.G. PROD. PROD. FIN

MOTOR BARREL PLUG AUX.

INJ. COOL. INT.

PROD. MONI.

PROD. NAME: PRODUCT-01

PROD. PLAN: 10000

SHOT COUNT: 0

GOOD PROD.: 0 PCS.

N.G. COUNT: 0

N.G. CONT.: 0

STOP ACT.: CYCLE RUN

MONI.

CYCLE TIME: 0.00

INJ. START POS.: 0.00

CUS. MIN.: 0.00

CUS. FIN.: 0.00

V→P TIME: 0.000

V→P POS.: 0.00

V→P PRES.: 0.0

V→P RESIN P.: 0.0

V→P MOLD P.: 0.0

POINT TIME: 0.000

POINT PRES.: 0.0

POINT RESIN P.: 0.0

POINT MOLD P.: 0.0

CHARGE TIME: 0.00

NOZZLE TOUCH IN-COMPTM

OPEN/CLOSE: 0.0

EJECT: -47.00

INFO. INJ. CLAMP. TEMP. PROD. GRAPH PREPAR OPT.

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.

P01 INJ. (COND. A)

TIME (s)

INJ. 1.000 5.00 5.00

FILL

V→P (PER. TIME) 10.000

V→P (PER. POS.) 5.000

HOLD PRES.

NO.	(%)	(mm)	(MPa)	(s)	(%)
(1)	30.00	120.0	40.0	1.000	30.00
(2)			30.0		30.00
(3)					
(4)					
(5)					0.000

SCREEN POS.: 0.00

SHOT SIZE (mm) 20.00

PULL BACK (AFTER) (mm) + 3.00

SCREEN ROT. /BACK PRES.

(1) 60 4.0 10.00

(2) 60 4.0 19.00

(3) 60 4.0

INJ. CAPACITY 9.113 cm³

Screen Size: F

SET VEL. (CM) 5.0

CHARGE DELAY (s) 0.0

PULL BACK (BEFORE) (mm) 0.00

INFO. INJ. CLAMP. TEMP. PROD. GRAPH PREPAR OPT.

P02 CLAMP.

MOLD CLAMP

NO.	(%)	(mm)
(1)	100.0	140.0
(2)	100.0	75.0
(3)	100.0	50.0
(4)	100.0	30.0
(5)	100.0	25.0
(6)	100.0	

MOLD OPEN

NO.	(%)	(mm)
(1)	100.0	2.0
(2)	100.0	25.0
(3)	100.0	30.0
(4)	100.0	50.0
(5)	100.0	75.0
(6)	100.0	

MOLD SAFETY (ON)

NEER. POS. (mm) 20.0

PRES. (X) 10

ALARM TIME (s) 10.0

W-PRE-START (mm) 0.00

ONLY CLOS. NEW PRES. 0.00

AUTO SETTING

TABLE VEL. (mm/s)

ROT. R 20.00

ROT. L 20.00

OPEN FIN. (mm) 150.0

MOLD POS.: 0.0

INFO. INJ. CLAMP. TEMP. PROD. GRAPH PREPAR OPT.

P03 TEMP.

BARREL (NO) (NO) (1) (2) (3) (4) (5)

PRESENT (°C) 0.0 0.0 0.0 0.0 0.0

SET (°C) 195.0 195.0 200.0 190.0 180.0

OUTPUT (X)

BAR. SET (°C) 10.0 10.0 10.0 10.0 10.0

PRE-HEAT SET (°C) 100.0

SET TEMP. (°C) 95.0 95.0 100.0 90.0 90.0

MINI.

(NO) (NO) SUPER COLD REM. TIME 10 min

(1) (2) (3) (4) (5)

(1) 0.0 0.0 0.0 0.0 0.0

(2) 0.0 0.0 0.0 0.0 0.0

(3) 0.0 0.0 0.0 0.0 0.0

(4) 0.0 0.0 0.0 0.0 0.0

(5) 0.0 0.0 0.0 0.0 0.0

ALARM STOP OFF

TEMP. OFFSET (°C)

VALUE (°C) 5.0

UP DOWN

SELECT

ESPEL PRE-HEAT

HOPPER TEMP.

PRESENT (°C) 0.0

SET (°C) 60.0

OUTPUT (X)

ALARM STOP OFF

ALARM HIGH (°C) 95.0

ALARM LOW (°C) 20.0

INFO. INJ. CLAMP. TEMP. PROD. GRAPH PREPAR OPT.

P06 PREPAR.

MOLD POS. (mm) 300

OPEN FIN. (mm) 150.0

CLAMP. FORCE (kN) 500

MOLD CLAMP

NO.	(%)	(mm)
(1)	100.0	140.0
(2)	100.0	75.0
(3)	100.0	50.0
(4)	100.0	30.0
(5)	100.0	25.0
(6)	100.0	

MOLD OPEN

NO.	(%)	(mm)
(1)	100.0	2.0
(2)	100.0	25.0
(3)	100.0	30.0
(4)	100.0	50.0
(5)	100.0	75.0
(6)	100.0	

W-PRE-START (mm) 0.00

ONLY CLOS. NEW PRES. 0.00

SET DATA ALL CLEAR

MOLD REGIST

SET TEMP. 200.0 °C FAST SET

AUTO PURGE

ADV. LIMIT (mm) 1.00

RET. LIMIT (mm) 70.00

INJ. VEL. (CM) 30.00

INI. TIME (s) 99.9

RET. VEL. (CM) 0.0

RET. TIME (s) 0.0

SCREEN ROT. (mm) (START) 60 (NORMAL) 60

BACK P. (mm) 4.0

BACK P. TIME (s) 2.0

NOBACK P. T. (s) 2.0

COUNT 3

RESIN LOCK (s) 30.0

INFO. INJ. CLAMP. TEMP. PROD. GRAPH PREPAR OPT.

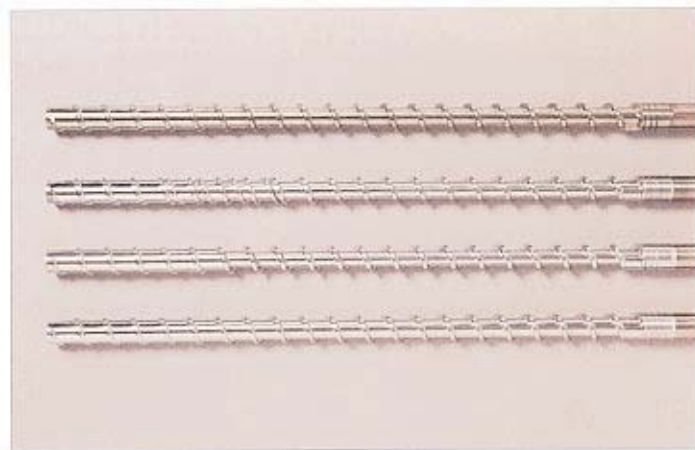
Newly Developed Injection Unit

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.



Application \ 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

Automatic Grease System

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

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.



Equipment that's environment and user friendly

Set-up Memory

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



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.

MOLD CLAMP	Clamp (%)	Clamp (mm)	PRE-POS.GET
(1)	100.0	140.0	PRE-POS.GET
(2)	100.0	75.0	PRE-POS.GET
(3)	100.0	50.0	PRE-POS.GET
(4)	100.0	30.0	PRE-POS.GET
(5)	100.0	25.0	PRE-POS.GET
(6)	100.0	20.0	PRE-POS.GET

MOLD OPEN	Clamp (%)	Clamp (mm)	PRE-POS.GET
(1)	100.0	2.0	PRE-POS.GET
(2)	100.0	25.0	PRE-POS.GET
(3)	100.0	30.0	PRE-POS.GET
(4)	100.0	50.0	PRE-POS.GET
(5)	100.0	75.0	PRE-POS.GET
(6)	100.0	75.0	PRE-POS.GET



Speed Value Retrieval (PAT. PEND.)

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

Language Options

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

MDV SERIES

MDV series are reliable for hoop molding and insert molding. Slide table is option and push the core forward.



Slide table



Clamping mechanism



MDV50

MDVR SERIES

- Lower table height, One upper mold and two lower mold for better operability.
- Easy and convenient insert loading, mold installation, and accessibility for peripherals and automation devices.



MDVR100TY

MDVR150



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