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MDVR-S8000

All Electric Vertical Injection Molding Machine

NIIGATA MACHINERY CO., LTD.

All Electric Vertical Injection Molding Machine

MDVR-S8000

Compact Machine Design

- Low machine height and
table height for better workability -

Appropriate Pressure Transmission

- Reduction of short shot and flash
by BPF ® (Balance Pressure Filling) -

High Accuracy Mold Protection

- Low pressure mold protection with
automatic detection of threshold value -

User Friendly Operation Screen

- 15" display with new design
to avoid frequent screen change -

Tough Com Machine

Niigata Hiper Navi

Slow Injection Speed with Precise Control

- Super slow injection speed and
powerful pressure feedback control -

IoT

- Quality and efficency control
by information technology -

Fast Table Rotation and Accurate Positioning

- Low noise by belt-driven rotation and
accurate positioning
by fully closed loop control -

Improved Setup Efficiency

- Quick, easy and safe
preparation process -

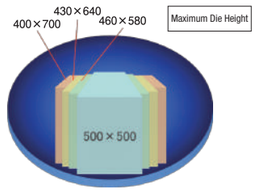
(Note) Specifications are subject to change due to constant improvement.

Effective Clamping

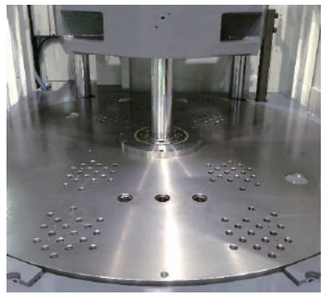
Wide Clamping Unit

Increased mold mounting size !

In order to adapt larger size and more complex mold design, the maximum mold size of MDVR110S8000 is 500 mm x 500 mm and the rotary table holds up to 450 kg per lower mold. High rigidity movable platen and table are designed to prevent deformation.



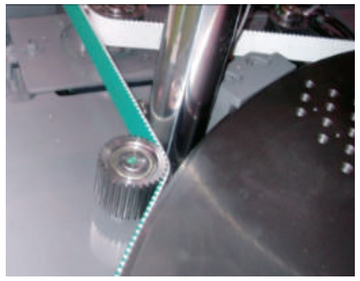
Mountable Mold Dimensions



High-Performance Table Rotation Mechanism (PATENT)

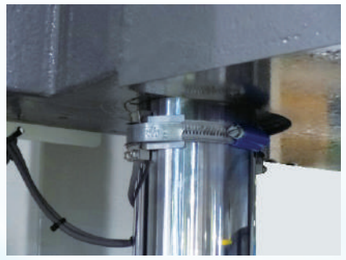
Ensured compatibility between fast-rotating table and high-accuracy positioning !

The MDVR-S8000 is equipped with the low-friction support device that minimizes the friction between the table and the slide, as well as a direct belt-drive system. Together these functions constitute the MDVR-S8000's table rotation mechanism, which provides quiet high-speed operation and excellent durability. Adopting the new, fully closed control, the table can be stopped more accurately.



Accurate Clamping Force Adjustment


High-precision encoder


High-precision tie bar sensor

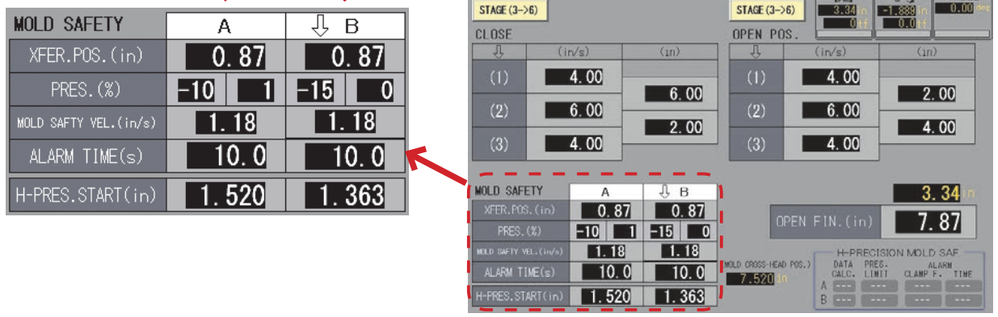
With the MDVR-S8000,setup of the mold can be done in high speed and with high precision. In addition, clamping force can be adjusted accurately, and precision of low pressure mold protection has been improved so that successive and stable precision molding can be achieved. Easy Setting with Simple Operation.

High Precision Clamping Device

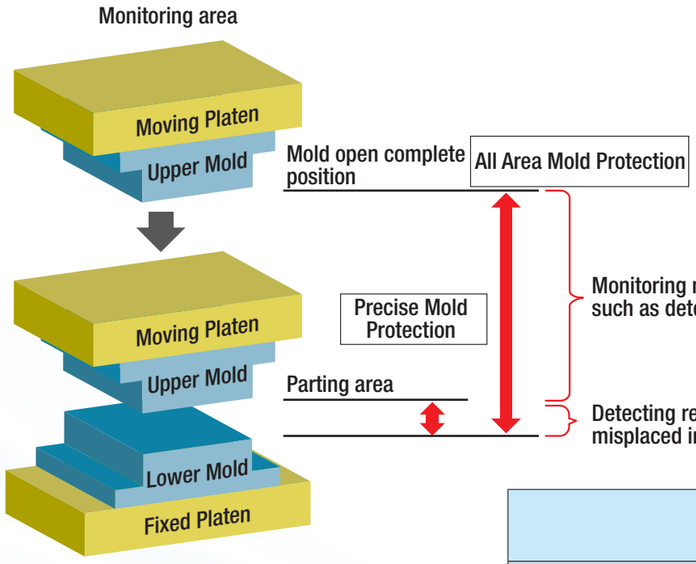
Advanced Technique of Low Pressure Mold Protection

For Low Pressure Mold Protection, optimum setting can be automatically calculated. Lower molds (mold A & mold B) can be set individually.

Low Pressure Mold Protection settings for mold A and mold B.



Improved Mold Protection.



	Precise Mold Protection	All Area Mold Protection
Mold open complete position - Parting area	–	○
Parting area	◎	○

Accuracy of object detection is highly improved.

Selectable Injection Size

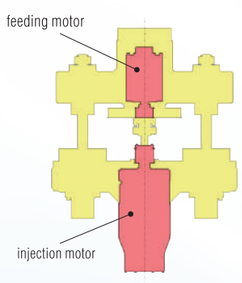
Suitable screw size for optimal application

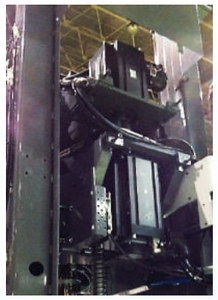
Smaller size or high speed injection unit can be selected (indicated by dotted line).

Model	Injection unit		Speed (mm/s)	Screw diameter (mm)			
MDVR55S8000	i0.8H	High Speed	500	18	22	25	–
	i1.3	STD	300	18	–	25	30
MDVR75S8000	i1.0H	High Speed	450	25	28	–	–
	i2.0	STD	250	–	–	30	35
MDVR110S8000	i1.7H	High Speed	400	30	32	–	–
	i2.9	STD	260	–	–	35	40
	i3.4	High volume	260	–	–	35	40
MDVR165S8000	i3.4	STD	260	35	40	–	–
	i5.7	High volume	150	–	40	45	52

Injection Unit with Low Center of Gravity (PATENT)

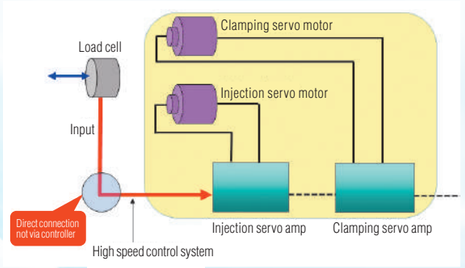
Large-mass servo motors are located at the top and bottom in parallel with the screw shaft, in order to lower the overall gravity center position and thereby achieve a very favorable left-right balance of mass. With guide mechanism of high rigidity and low friction, this new injection unit reduces, to the absolute minimum, vibration and noise during injection operations. The load (mass) constantly applied to the screw is also reduced, and combined with the high-precision load cell this unit lets you control the back-pressure more accurately during injection.





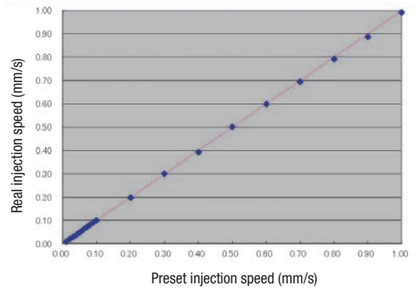
Advanced All-Digital Control

The MDVR-S8000 employs the “MR-J4” all digital servo system. Niigata’s original pressure-feedback control achieves pressure response and accuracy that are unrivaled by competitors’ similar machines. The MDVR-S8000 is also a high-speed machine boasting the industry’s fastest calculation time of 55μs. Data exchange between the servo amplifiers uses optical communication to prevent malfunctions or errors caused by surrounding noise. Additionally, the MDVR-S8000 adopts a control whereby once started, the “molding will not be stopped” because this significantly improves the durability of electrical components and prevents failures and errors.



Control of Super Low Speed Injection

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

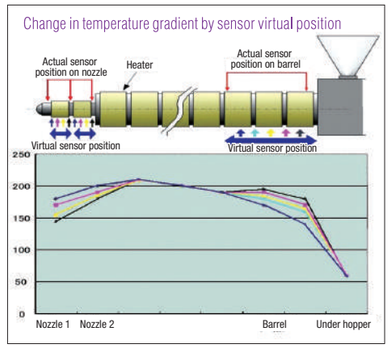


Ultralow speed injection of 0.01mm/s can be achieved with high-resolution encoder of 22bit/rev (4794304PLS) mounted on our machine. Our machine delivers superior performance in thick-walled molding with outstanding stability and repeatability in low speed.

Twin-Group Temperature Control System

Advanced temperature control system !

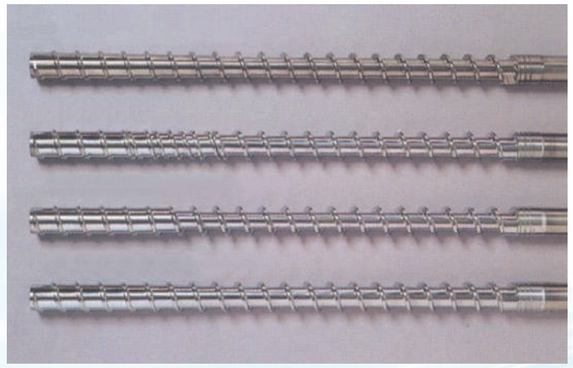
The MDVR-S8000 comes standard with the “twin-group temperature control” system (PATENT). It consists of two of the “group temperature control” units, which have received good reviews from the users. One temperature control unit is installed at the nozzle, while the other unit is provided at the rear of the heating cylinder. “Temperature group control” is Niigata original temperature control technology, whereby you can set the positions of sensors in virtual manner and change the temperature gradient. This lets you change the temperature profiles of the nozzle and heating cylinder as desired. You’ll certainly find this temperature group control very effective in preventing material from running out of the nozzle, and it improves the feeding of material.



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 know-how cultivated throughout our history.



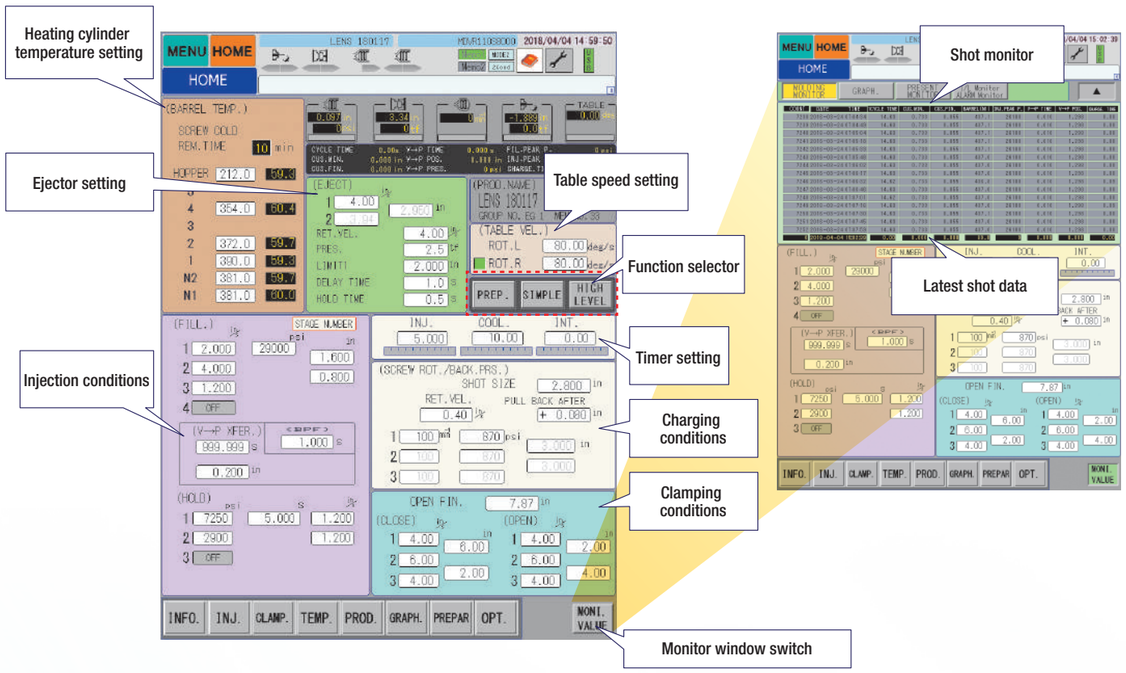
Specification / Screw name	Coat	Abrasion & Corrosion resistant	Super abrasion/ corrosion resistant	High temperature specification	special surface treatment	Super corrosion
Universal NHP screw	●	○	●	●		
Screw for clystalline resin such as PA	●	●	●	●		
Screw for connector		●	●	●		
Screw for optics					●	
Screw for fluororesin						●

○ : standard ● : option

Improvement of Mold Setup

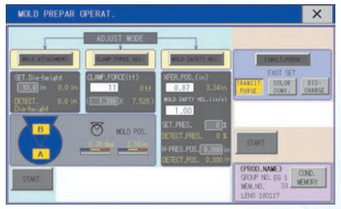
Niigata Hiper Navi

Operation support : Setting screens and monitors are displayed in a single screen to reduce the number of screen switching !



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

Preparation screen

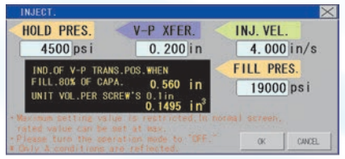


MOLD ATTACHMENT	Input of mold height and clamping force is not required.
CLAMP.FORCE ADJ.	Clamping force can be adjusted with a single touch of this button. (Visualization of clamping force.)
MOLD SAFETY ADJ.	Optimum setting value is calculated automatically.
SIMULT.PURGE	During the process of purging, either clamping force adjustment or low pressure mold protection can be operated without stopping purging.

Simple setup for the mold
Once you press “Start” button in this screen, operation of the machine will start.

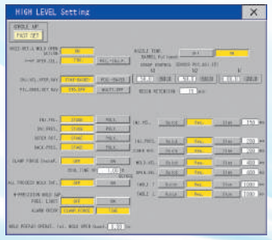
Easy setting function

Easy setting screen



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

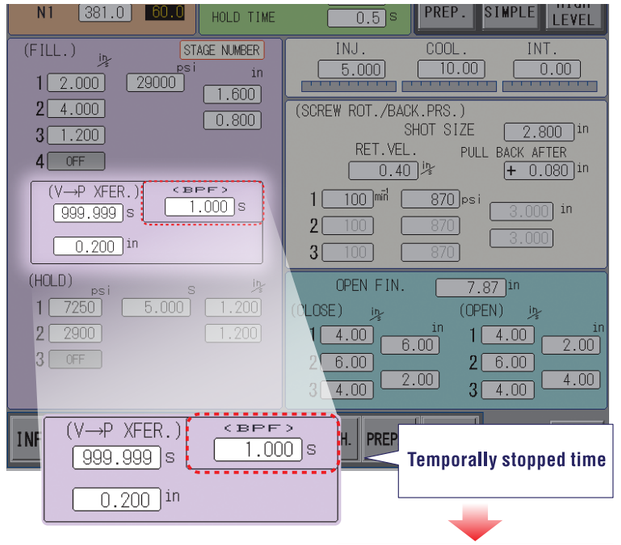
Advanced setting screen



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

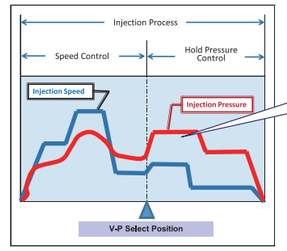
High Quality Stable Molding

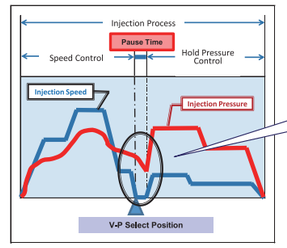
Natural Flow Filling by BPF® Control



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.

Filling peak pressure is reduced.





• Multi-cavity molding
BPF®is effective for uneven thickness 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.

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.

Additional Functions

Pre-releasing of clamping force

Before completion of cooling, clamping force can be released.

Low pressure clamping force holding

Low pressure clamping force can be held. If necessary, you can switch to high pressure clamping force.

Ejector advance speed switching

Advance speed can be switched. (2 speeds)

Individual setting for 2 molds

You can set individual injection conditions for 2 molds respectively.

Local password setting

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

Improved Productivity & Efficeincy

Shorter Cycle Time and Productivity Advance

1 High speed movement

・20% faster mold open/close speed.
・20% faster mold height adjustment speed.

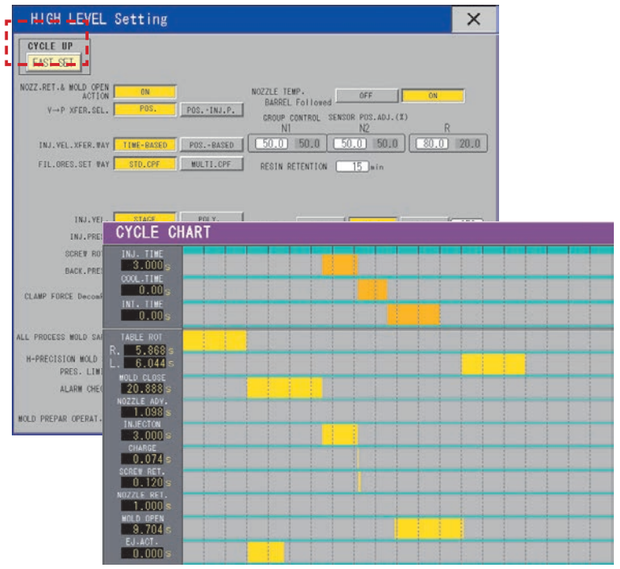
Faster movement reduces preparation time and cycle time.

2 Cycle-up mode

・Condition setting is automatically changed for shorter cycle time only by pressing FAST SET button. All related features are displayed on one screen.

3 Cycle chart display

・Cycle Chart is a useful tool to check effectiveness of overlapping process for shortening cycle time.



Compact Machine

Lower height design !

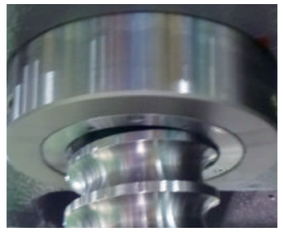
Table height and overall height of the machine are lowered compared to the conventional vertical injection molding machine. The lowered table can reduce the burden of operator, and improve safety and work efficiency.

Wide Opening for Mold & Auxiliary Equipment Setup

Operator's gate is modified to secure wider workspace. You can access to the mold from both sides of the machine, which can make the setup of molding easier.

Reduction of Running Cost

Keep the machine clean with less use of grease !


Sealed ball screw


High precision linear guide


Automatic lubrication

By adopting sealed ball screw, high-precision linear guide, and automatic lubrication, consumption of grease is significantly reduced.

Equipped with power consumption monitor as a standard feature!

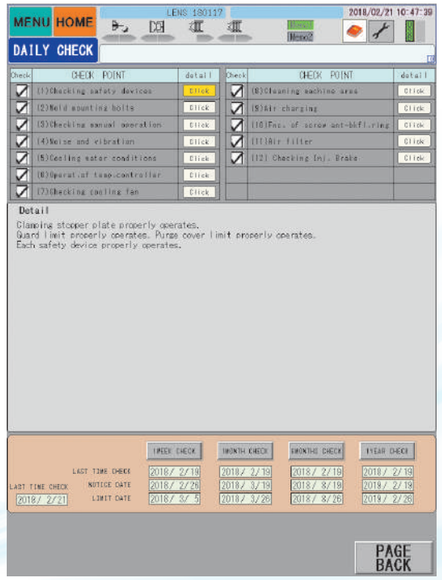
ELECTRICITY MONI.	HEATER	MOTOR	TOTAL
INSTANT.VALUE(kW)	0.000	0.057	0.057
INTEG.POWER CONS.(kWh) RESET 2018/02/17 ～	10.440	5.220	15.660
ELEC.ENERGY MEAS.(kWh) START TIME(min) 60	0.000	0.000	0.000

This monitor screen can display power consumption.

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.



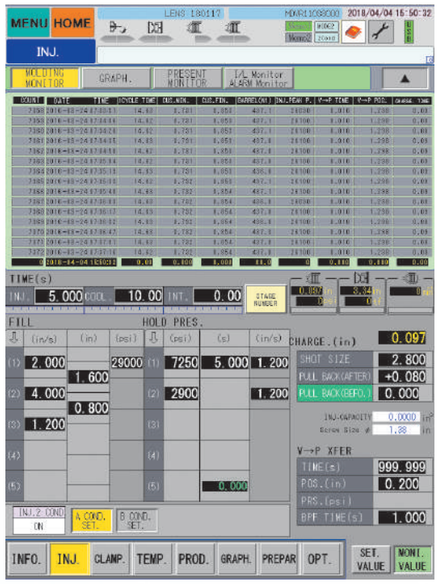
Injection unit maintenance position!

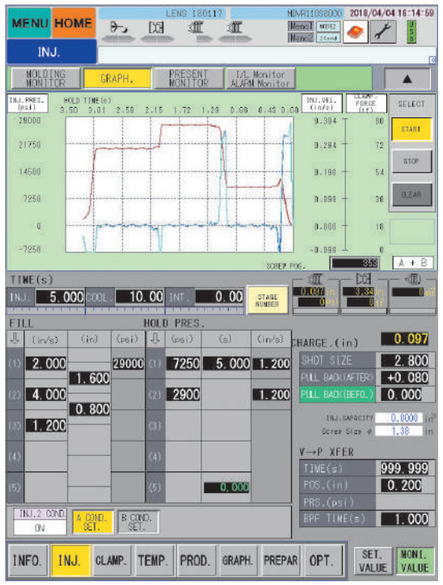
In addition to normal retract position, injection unit can further retract to a maintenance position.

Enhanced Man-Machine Interface

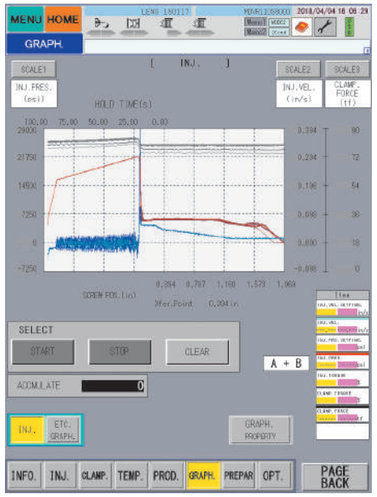
15” Display mounted

- Display size is enlarged to 15” for clear image.
- Basic screen design is based on S7000 model with familiar interface.
- Shot monitor or waveform can be displayed with molding condition to avoid frequent screen changes.



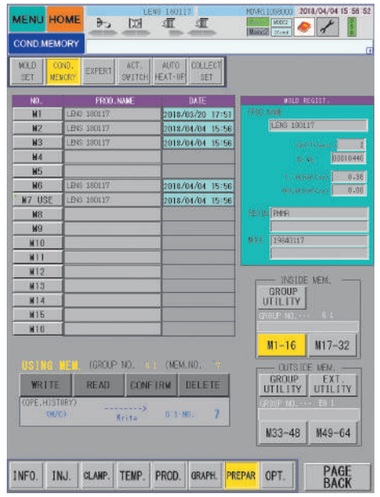


Graphical monitor screen



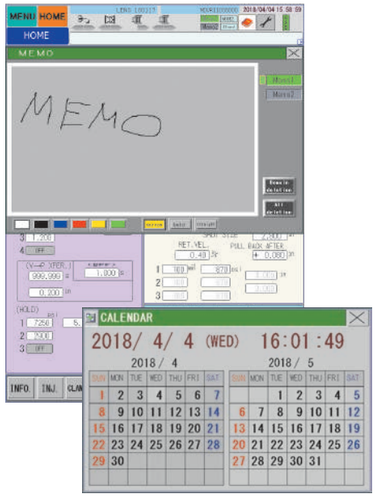
This graphics monitor screen can display up to 8 waveforms. Overwriting and setting comparison are also available.

Condition memory screen



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

Convenient functions



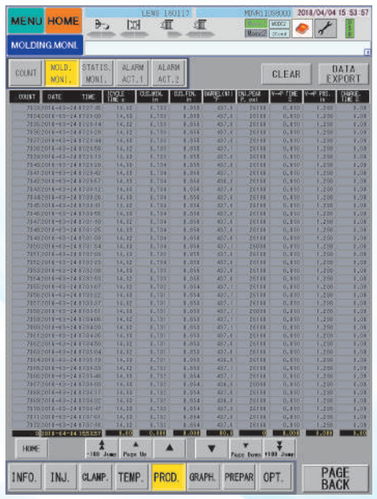
Notepad, as an example.
Hand writing is available. You can leave a message or notes etc.

Increased memory capacity and new feature

Instruction manual screen

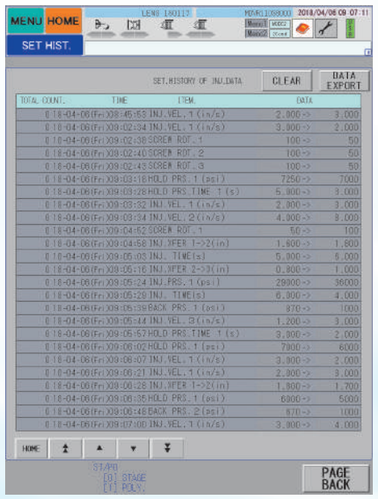
Instruction manual is available on screen.

Shot monitor screen



Large memory size to keep monitoring record of 10,000 shots.

Event record screen



Alarm history, fault history and injection/clamping/temperature condition history can be viewed.

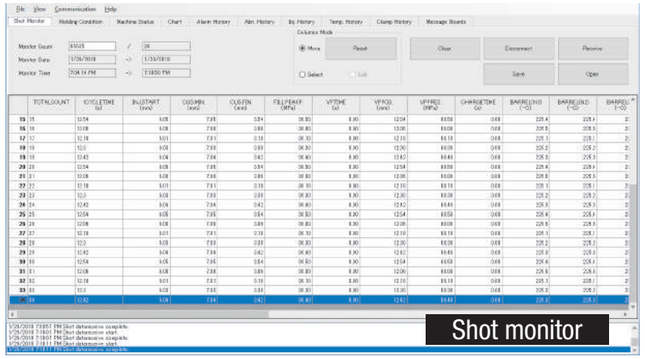
Screen display by function key

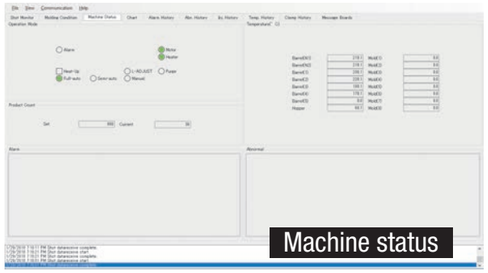
Waveform Monitor, Shot monitor, Molding counter, Power consumption monitor, Calculator; you can access these functions directly through function key at the bottom of display.

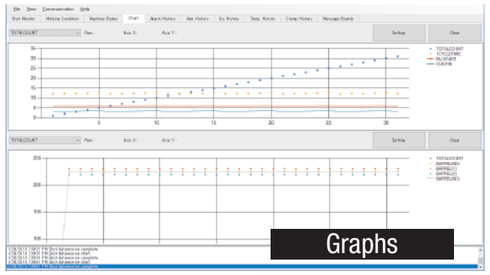
IoT

1. MD-Monitor (PC I/F)

- Connection Manager can display operation status of 256 machines.
- Shot monitor, molding condition and history data of networked machines can be retrieved at once.

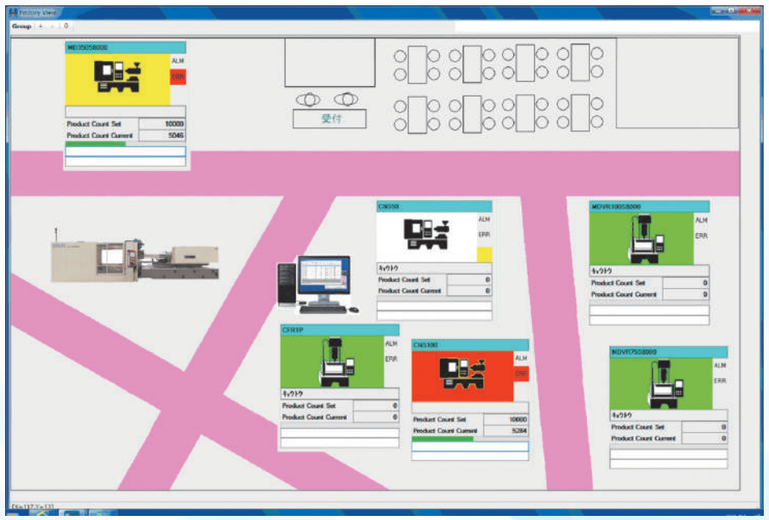






2. FactoryView

- Machine running condition is displayed with machine icon.
- Background image of your choice can be used to show machine layout.

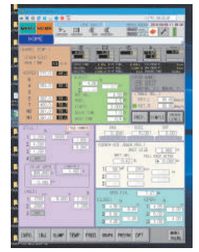


3. VNC (Virtual Network Computing) server function

- Remote monitoring and control from PC and mobile device are possible.

VNC Viewer software (freeware) needs to be installed on PC or mobile device.

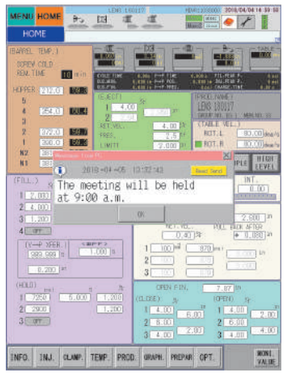
Screen data of molding machine appears on PC and mobile device for remote control. Remote access can be controlled by changing setting on molding machine.


on PC


on mobile device

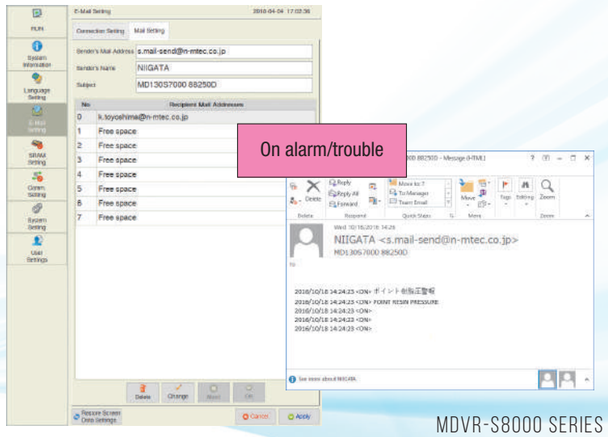
4. Message board

- Operator can receive a message sent from remote PC.
- The sent message is marked as read on PC after it is viewed on machine display.



5. E-mail

- Trouble, production completion and other notice are sent by e-mail.



MDVR-S8000 Series Specifications

Item				Unit	MDVR55S8000			MDVR85S8000					MDVR110S8000						MDVR165S8000								
					Standard			Low Capacity (OP.)			Standard		Low Capacity (OP.)		Standard		High Capacity (OP.)		Low Capacity (OP.)		Standard		High Capacity (OP.)			
Injection Unit	Standard	Injection Capacity	※ 1	T.m	i 1.3			i 1.3 (OP.)			i 2.0		i 2.0 (OP.)		i 2.9		i 3.4 (OP.)		i 2.9 (OP.)		i 3.4		i 5.7 (OP.)			
		Screw Complete	Type	–	Y (OP.)	A	B	Y	A	B	A	B	A	B	A	B	A	B	A	B	A	B	Y	A	B
			Diameter	mm	18	25	30	18	25	30	30	35	30	35	35	40	35	40	35	40	35	40	40	45	52
				in	0.71	0.98	1.18	0.71	0.98	1.18	1.18	1.38	1.18	1.38	1.38	1.57	1.38	1.57	1.38	1.57	1.38	1.57	1.57	1.77	2.05
		Screw Stroke		mm	85	95		85	95		105		105		120		140	160	120		140	160	180		
				in	3.35	3.74		3.35	3.74		4.13		4.13		4.72		5.51	6.30	4.72		5.51	6.30	7.09		
		Calculated Injection Volume	※ 2	cm^3	22	47	67	22	47	67	74	101	74	101	115	151	135	201	115	151	135	201	226	286	382
				cu-in	1.34	2.87	4.09	1.34	2.87	4.09	4.52	6.16	4.52	6.16	7.02	9.21	8.24	12.27	7.02	9.21	8.24	12.27	13.79	17.45	23.23
		Calculated Injection Capacity	※ 3	g	20	43	62	20	43	62	68	93	68	93	106	139	124	185	106	139	124	185	208	263	352
				oz	0.71	1.52	2.19	0.71	1.52	2.19	2.40	3.28	2.40	3.28	3.74	4.90	4.37	6.53	3.74	4.90	4.37	6.53	7.34	10.09	12.42
		Max. Injection Pressure	※ 4	Mpa	280	280	200	280	280	200	270	200	270	200	250	190	250	190	250	190	250	190	250	200	140
				psi	40610	40610	29010	40610	40610	29010	39160	29010	39160	29010	36260	27560	36260	27560	36260	27560	36260	27560	36260	29010	20310
		Max. Hold Pressure	※ 4	Mpa	280	260	180	280	260	180	245	180	245	180	225	170	225	170	225	170	225	170	250	180	125
				psi	40610	37710	26110	40610	37710	26110	35530	26110	35530	26110	32630	24660	32630	24660	32630	24660	32630	24660	36260	26110	18130
		Max. Injection Speed	※ 5	mm/s	300			300			250		250		260		260		260		260		150		
				in/s	11.81			11.81			9.84		9.84		10.24		10.24		10.24		10.24		5.91		
		Injection Rate		cm^3/s	76	147	212	76	147	212	177	241	177	241	250	327	250	327	250	327	250	327	188	239	319
				cu-in/s	4.64	8.97	12.94	4.64	8.97	12.94	10.86	14.71	10.80	14.71	15.26	19.95	15.26	19.95	15.26	19.95	15.26	19.95	11.47	14.58	19.47
		Screw Rotation Speed		min^{-1}	360			360			360		360		360		360		360		360		300		
		Plasticizing Capacity (PS)	※ 6	kg/h	9	27	43	9	27	43	43	60	43	60	60	88	60	88	60	88	60	88	85	111	171
				oz/s	0.09	0.26	0.42	0.09	0.26	0.42	0.42	0.59	0.42	0.59	0.59	0.86	0.59	0.86	0.59	0.86	0.59	0.86	0.83	1.09	1.68
		Heater Capacity		kW	3	5.36		3	5.36		8.05		8.05		10.43		10.43		10.43		10.43		8.11	11.02	
	High-Speed	Injection Capacity	※ 1	T.m	i 0.8 (OP.)			i 0.8 (OP.)			i 1.0H (OP.)		i 1.0H (OP.)		i 1.7H (OP.)		–		i 1.7H (OP.)		–		–		
		Screw Complete	Type	–	Y	YA	A	Y	YA	A	Y	YA	Y	YA	Y	YA			Y	YA					
			Diameter	mm	18	22	25	18	22	25	25	28	25	28	30	32			30	32					
				in	0.71	0.87	0.98	0.71	0.87	0.98	0.98	1.10	0.98	1.10	1.18	1.26			1.18	1.26					
		Screw Stroke		mm	85	95		85	95		105		105		120				120						
				in	3.35	3.74		3.35	3.74		4.13		4.13		4.72				4.72						
		Calculated Injection Volume	※ 2	cm^3	22	36	47	22	36	47	52	65	52	65	85	97			85	97					
				cu-in	1.34	2.20	2.87	1.34	2.20	2.87	3.17	3.97	3.17	3.97	5.19	5.92			5.19	5.92					
		Calculated Injection Capacity	※ 3	g	20	33	43	20	33	43	47	59	47	59	78	89			78	89					
				oz	0.71	1.16	1.52	0.71	1.16	1.52	1.66	2.29	1.66	2.29	2.75	3.14			2.75	3.14					
		Max. Injection Pressure	※ 4	Mpa	280	230	180	280	230	180	200	160	200	160	200	175			200	175					
				psi	40610	33360	26110	40610	33360	26110	29010	23210	29010	23210	29010	25380			29010	25380					
		Max. Hold Pressure	※ 4	Mpa	280	210	160	280	210	160	180	140	180	140	180	155			180	155					
				psi	40610	30460	23210	40610	30460	23210	26110	20310	26110	20310	26110	22480			26110	22480					
		Max. Injection Speed	※ 5	mm/s	500			500			450		450		400				400						
				in/s	19.69			19.69			17.72		17.72		15.75				15.75						
		Injection Rate		cm^3/s	127	190	245	127	190	245	221	277	221	277	283	322			283	322					
				cu-in/s	7.75	11.59	14.95	7.75	11.59	14.95	13.49	16.90	13.49	16.90	17.27	19.65			17.27	19.65					
		Screw Rotation Speed		min^{-1}	360			360			360		360		360				360						
		Plasticizing Capacity (PS)	※ 6	kg/h	9	18	27	9	18	27	27	36	27	36	43	51			43	51					
				oz/s	0.09	0.18	0.26	0.09	0.18	0.26	0.26	0.35	0.26	0.35	0.42	0.50			0.42	0.50					
		Heater Capacity		kW	3	3.5	5.36	3	3.5	5.36	8.05		8.05		10.43				10.43						
	Nozzle Stroke			mm (in)	195 [Max. 310] (15 [Max. 12.20])			205 [Max. 335] (8.07 [Max. 13.19])					240 [Max. 375] (9.45 [Max. 14.76])						285 [Max. 375] (11.22 [Max. 14.76])				386 (Max. 500) (15.20 [Max. 19.69])		
	Nozzle Touch Force			kN (Us ton)	15 (1.69)			15 (1.69)					15 (1.69)						15 (1.69)				25 (2.81)		
	Temperature Zones		Nozzle and Barrel	–	1G+2+1G			1G+2+1G					1G+2+1G						1G+2+1G						
			Hopper Base	–	1			1					1						1						
Clamping Unit	Clamping System			–	Double toggle			Double toggle					Double toggle						Double toggle						
	Clamping Force			kN (Us ton)	500 (55)			750 (85)					1000 (110)						1500 (165)						
	Platen size (H x V)		※ 7	mm (in)	365 x 365 (14.37 x 14.37)			420 x 420 (16.54 x 16.54)					500 x 500 (19.69 x 19.69)						560 x 560 (22.05 x 22.05)						
	Mass of Max. Mountable Mold.		※ 8	kg (oz)	Upper Mold: 100 (3527) Lower Mold: 200 (7055) x 2 Molds			Upper Mold: 150 (5291) Lower Mold: 300 (10582) x 2 Molds					Upper Mold: 200 (7055) Lower Mold: 450 (15873) x 2 Molds						Upper Mold: 350 (12346) Lower Mold: 500 (17637) x 2 Molds						
	Mold Opening Stroke			mm (in)	200 (7.87)			250 (9.84)					280 (11.02)						300 (11.81)						
	Mold Height (Min/Max)			mm (in)	150/300 (5.91/11.81)			220/320 (8.66/12.60)					250/350 (9.84/13.78)						300/400 (11.81/15.75)						
	Open Daylight			mm (in)	500 (19.69)			570 (22.44)					630 (24.80)						700 (27.56)						
	Table Diameter			mm (in)	1060 (41.73)			1206 (47.48)					1423 (56.02)						1658 (65.28)						
	Ejector Stroke			mm (in)	60 (2.36)			60 (2.36)					75 (2.95)						100 (3.94)						
	Ejector Force			kN (Us ton)	22 (2.47)			22 (2.47)					22 (2.47)						35 (3.93)						
Utility	Machine Mass			ton (Us ton)	4.1 (4.5)			5.4 (6.0)					7.3 (8.0)				7.4 (8.1)		11.1 (12.2)				12.3 (13.6)		
	Total Machine Power		※ 9	kVA	14			17			22		22		29		29		29		29		29		
	Power Source (Voltage x Frequency)		※ 10	–	AC200V x 50Hz / AC200V x 60Hz / AC220V x 60Hz																				
	Cable Size		※ 11	mm^2 (A.W.G.)	8 (8)			8 (8)			14 (6)		14 (6)		22 (4)		22 (4)		22 (4)		22 (4)		22 (4)		
	Cooling Water Consumption (Max.)		※ 12	L/min (gal/min)	5 (1.32gal/min) (0.2~0.5MPa)			5 (1.32gal/min) (0.2~0.5MPa)					5 (1.32gal/min) (0.2~0.5MPa)						5 (1.32gal/min) (0.2~0.5MPa)						
	Compressed Air Consumption		※ 13	NL/min	200 (0.35MPa)			200 (0.35MPa)					200 (0.35MPa)						200 (0.35MPa)						

Note : Specifications are subject to change without notice. Items with (OP.) are optional.

※ 1 Injection capacity is calculated by (Max injection pressure) x (Calculated injection volume).

※ 2 Calculated injection volume is calculated by (Screw cross section) x (Screw stroke).

※ 3 Calculated injection capacity is 92% of polystyrene calculated injection volume.

※ 4 Max. injection pressure and max. hold pressure may be limited by cycle time.

※ 5 Max. injection speed may not reach this value depending on load.

※ 6 Plastisizing capacity is for polystyrene.

※ 7 The size is for squared mold.

※ 8 Consult with us if your mold weight exceeds this value.

※ 9 The total machine power does not include other auxiliary equipment.

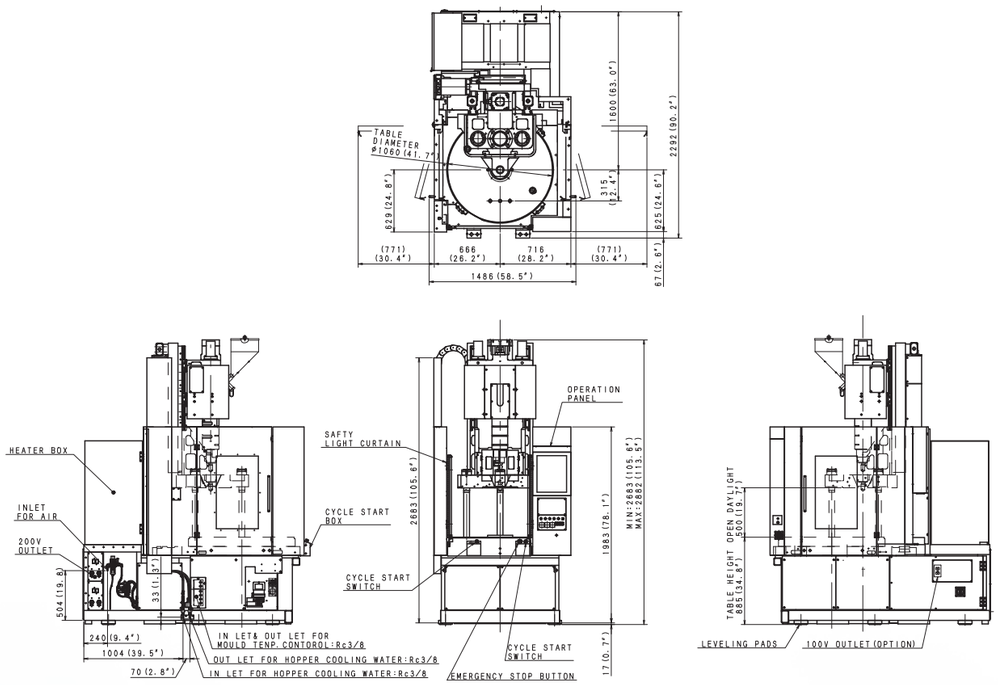
※ 10 Voltage should be kept as rated voltage. Voltage change should occur only temporarily and fluctuation range is within + or - 10% of rated voltage.

※ 11 The cable size is for single core. Current reduction coefficient should be used for multi-core cable.

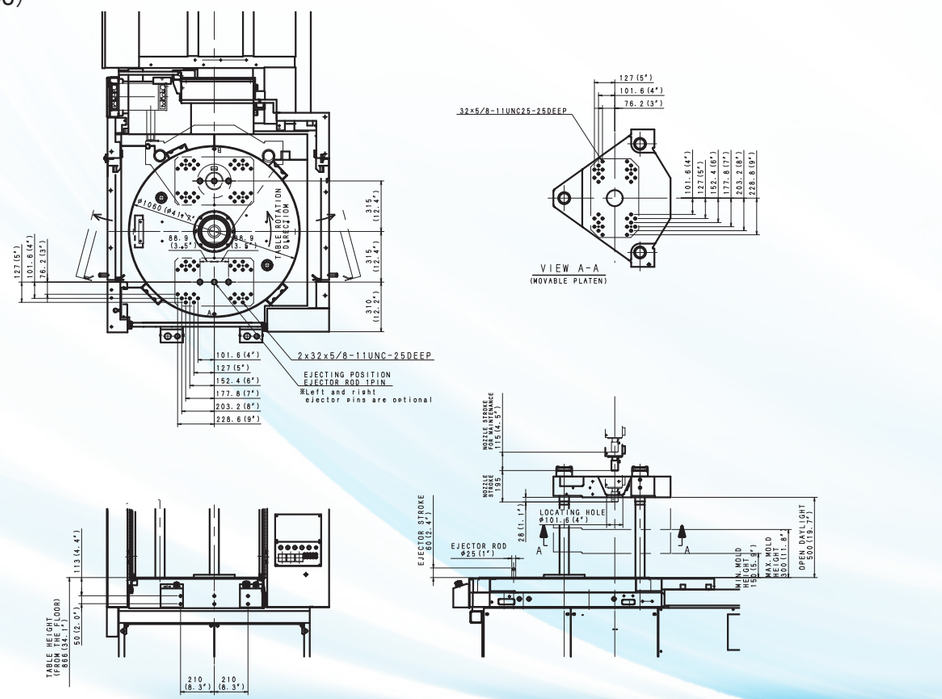
※ 12 The water is used to cool under hopper. Water pressure shall be 0.5 MPa (72.5 psi) or less.

※ 13 Air consumption may differ depending on the cycle.

External Dimension Diagram
（MDVR55S8000）

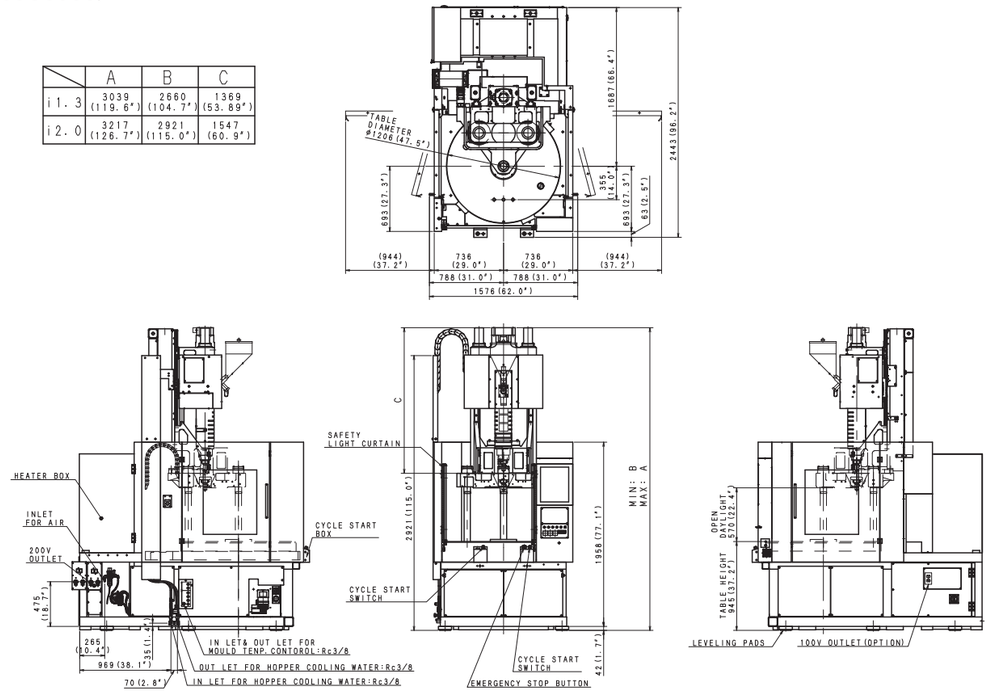


Mold Mounting Dimension Diagram
（MDVR55S8000）

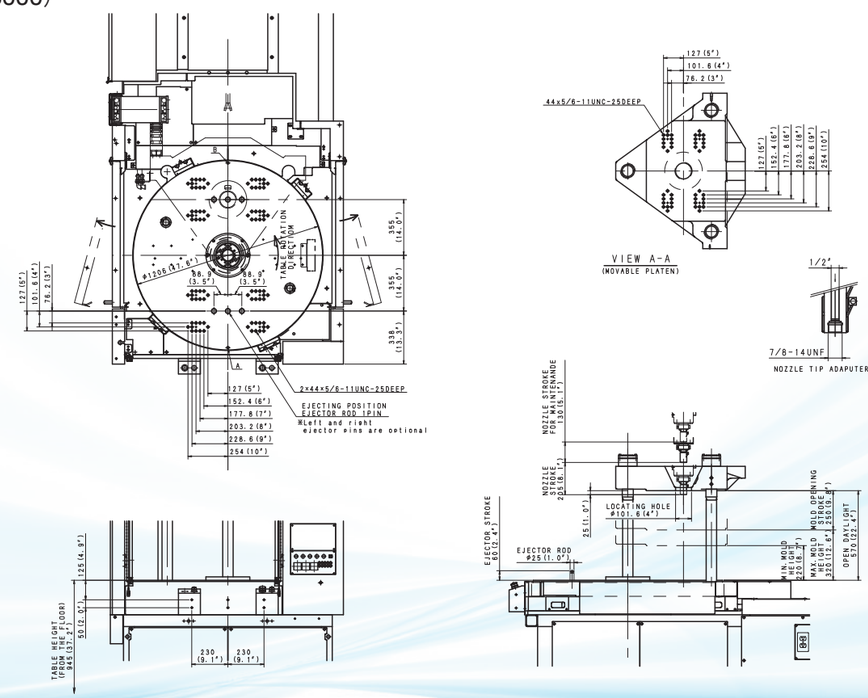


External Dimension Diagram
（MDVR85S8000）

	A	B	C
i1.3	3039 (119.6")	2660 (104.7")	1369 (53.89")
i2.0	3217 (126.7")	2921 (115.0")	1547 (60.9")

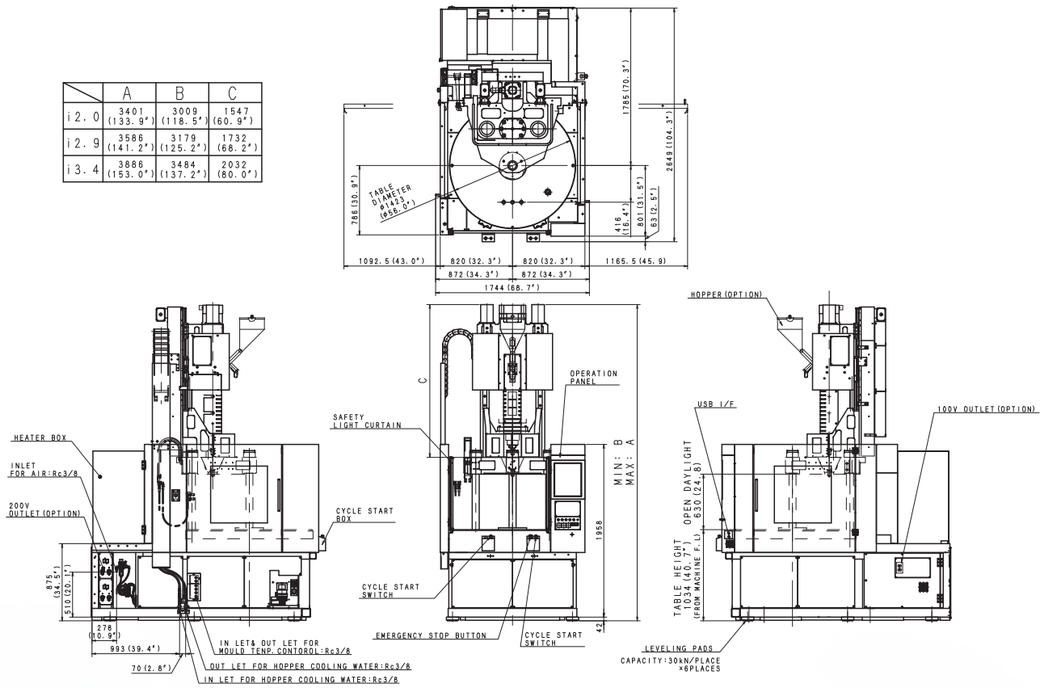


Mold Mounting Dimension Diagram
（MDVR85S8000）

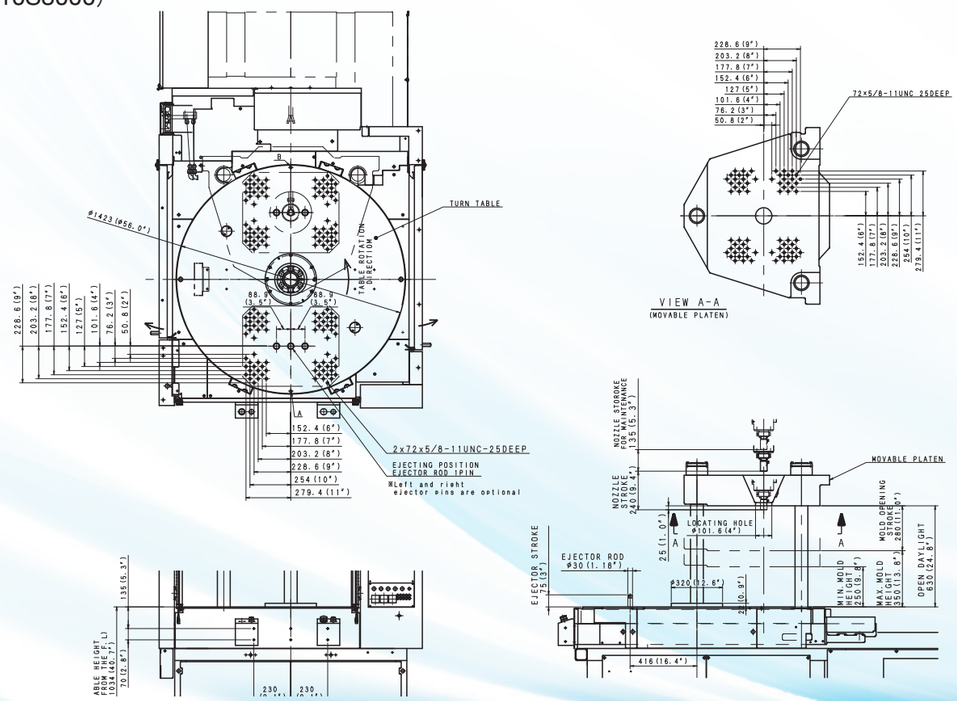


External Dimension Diagram
（MDVR110S8000）

	A	B	C
i2.0	3401 (133.9")	3009 (118.5")	1547 (60.9")
i2.9	3586 (141.2")	3179 (125.2")	1732 (68.2")
i3.4	3886 (153.0")	3484 (137.2")	2032 (80.0")

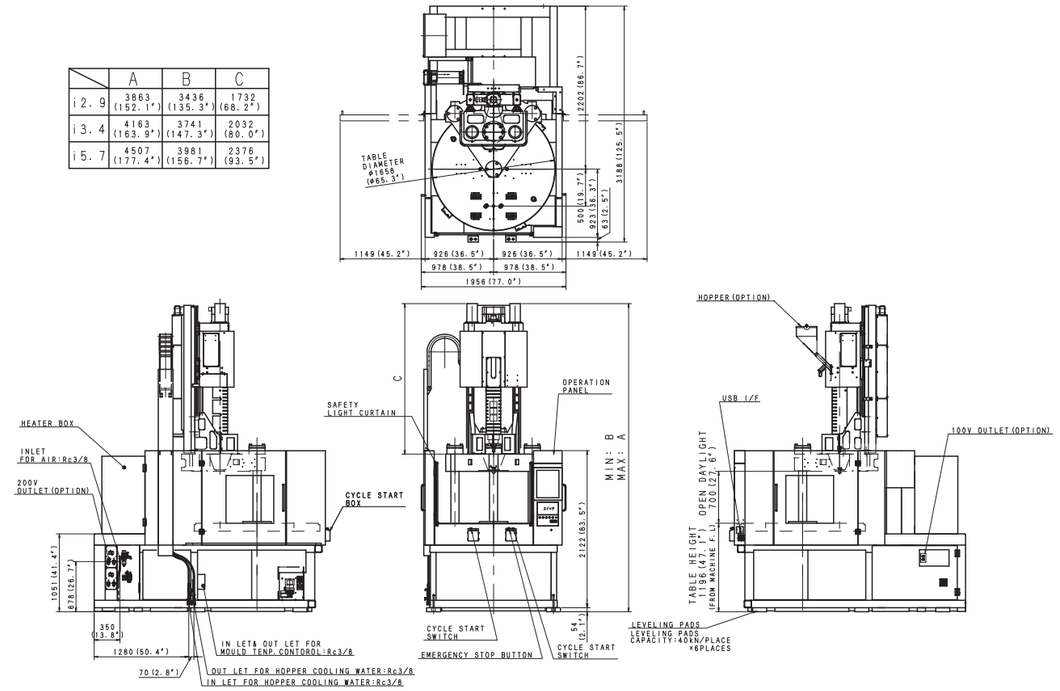


Mold Mounting Dimension Diagram
（MDVR110S8000）

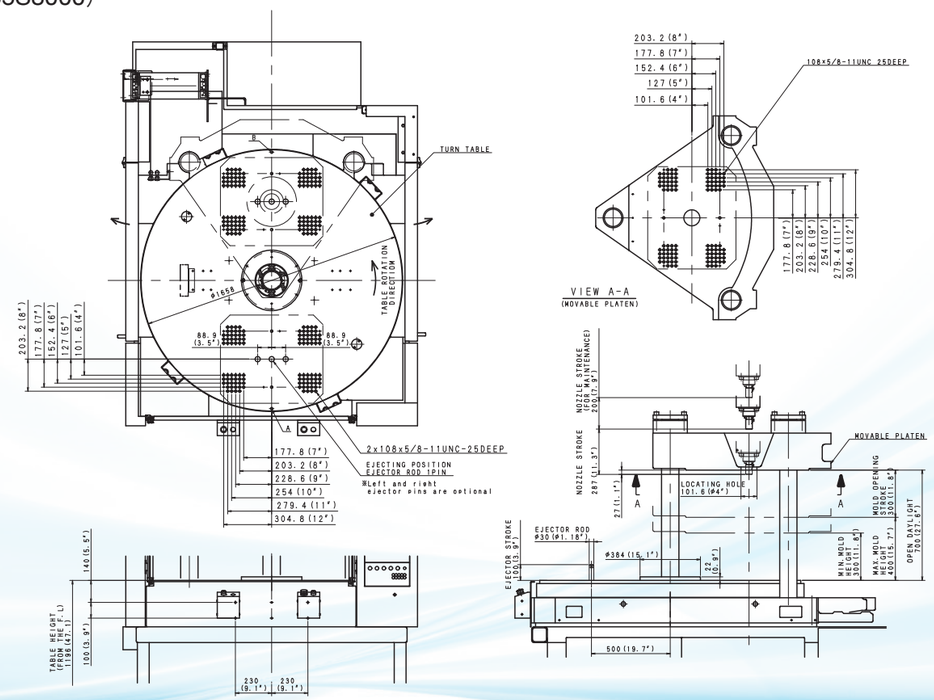


External Dimension Diagram
（MDVR165S8000）

	A	B	C
i2.9	3863 (152.1")	3436 (135.3")	1732 (68.2")
i3.4	4163 (163.9")	3741 (147.3")	2032 (80.0")
i5.7	4507 (177.4")	3981 (156.7")	2376 (93.5")



Mold Mounting Dimension Diagram
（MDVR165S8000）



Standard accessories & functions

General	1. Operation mode
	(Adjust mode, manual, semi-automatic, full-automatic, purge)
	2. Auto lubrications
	3. Emergency stop button with lock
	4. Sourcing type control circuit (PNP)
	5. Light curtain

Injection	1. Anti wearing screw and barrel
	2. Multi stage injection control
	1) Max.5 speeds injection speed control,Filling pressures for each speed stage
	2) Max 5 pressures injection pressure control,Holding speeds for each pressure stage
	3. Setting of indivisual molding conditions for 2 sides
	4. Balance Pressure Filling control
	5. Constant Pressure Filling control
	6. Sealed ball screw
	7. Multi stage screw recovery control :3 speeds, 3 back pressures
	8. Automatic purge (4 modes)
	9. Temperature group control (Nozzle / Barrel zone 4)
	10. Cylinder follow-up temperature control for nozzle zone
	11. PID fuzzy controled temperature regulation of heating cylinder/barrel
	12. Cold screw starting prevention
	13. Double-layer structure cylinder heater cover
	14. Back pressure delete in manual mode
	15. Hopper base temperature control (PID)
	16. Purge guard (with interlock)
	17. Nozzle retract (retract time setting)
	18. Delay timers for injection, Screw recovery, Nozzle back
	19. Digital load cell device (High-precision detection of injection pressure and back pressure)
	20. 2 nozzle-strokes

Clamping	1. High accuracy & high speed table rotation (0/180°)
	2. Mold open / close speed (up to 6 speeds for each)
	3. Simplified setup device (Mold setting mode, Clamping force adjusting mode, Low pressure mold protection adjusting mode)
	4. Automatic clamping force setting
	5. Mold height adjust device with encoder
	6. clamping force monitor
	7. Low pressure mold protection device (2 conditions)
	8. All processes mold protection device
	9. Ejector advance position holding function
	10. Ejector advance speed switching (high & low /two-steps)
	11. Ejector motor with break
	12. Mold closing safety device (air-cylinder)
	13. Delay timers for ejector
	14. Pre-releasing of clamping force
	15. Low pressure clamping force holding

Control	1. 15 inches color LCD touch panel
	2. NHN (Niigata Hiper Navi)
	Operation support, simplefied setup device, easy setting function
	3. Simultaneous operation
	1) Ejection advance during mold close
	2) Nozzle advance during mold close
	3) Injection start during mold close
	4) Mold open during charging
	4. Servo motor with high-resolution encoder
	5. Expert function (Setting conversion from other machines)
	6. Calendar timer for heater start-up
	7. Multiple language (Japanese, English, Chinese, Spanish or Korean)
	8. Mold condition recode (384 built in memories, 384 external memories)
	9. Mold trial conditions stored (10 conditions)
	10. Motion/ No-motion selector switch
	11. Operation selector switch during alarm activation
	12. Select switch for machine shut down alarm
	13. Alarm buzzer
	14. Take-out robot interface
	15. External memory (USB I/F)
	16. Event history (1000 data each)
	17. Instruction manual screen
	18. Convenient screen

Control	19. Convenient screen
	20. Local password
	21. Output of external signal (multiple-choice)

Alarms・Counters・Monitors	1. Graphical monitor (Injection, mold open/close, clamping force, ejector, screw rotation, table rotation)
	Overwriting, 8 waveforms on 1 screen, vertical axis value indicator function.
	2. Alarm device
	1) Automatic lubrication abnormal alarm
	2) Servo motor abnormal alarm
	3) Motor thermal abnormal alarm
	4) V-P transfer alarm (timer, position, pressure, upper/lower limit)
	5) Charging time alarm (upper/lower limit)
	6) Cycle time alarm (upper limit)
	7) Barrel temperature alarm (upper/lower limit)
	8) Hopper base temperature alarm (upper/lower limit)
	9) Heater break alarm
	10) SSR abnormal alarm
	11) Thermo couple break alarm
	12) Temperature regulator preparation alarm
	13) Resin lack alarm
	14) Clamp confirmation alarm
	15) Cushon position (min/ finish) abnormality alarm (upper/lower limit)
	16) Peak pressure abnormality alarm (during charge/Injection,upper/lower limit)
	17) Screw operation inhibit alarm
	18) Low-pressure mold protection alarm
	19) Injection unit alarm
	20) Injection start position abnormality alarm (upper/lower limit)
	21) Operation door alarm
	22) Grease lubrication alarm
	23) Screw position alarm (arrival time, injection pressure)
	24) Resin retention monitoring alarm
	3. Counter device
	1) Total shot counter (preset type)
	2) Production Shot counter (preset type)
	(injection/non-defective shot counting, completed operation counting,
	3) Preparation shot counter (preset type)
	4) Shot counter for external conveyer (preset type), operation continued.
	5) Reject shot counter (preset type), operation stopped.
	6) Continous rejection counter (preset type), operation stopped.
	4. Shot monitor (10000 shots)
	1) Cycle time
	2) Injection starting position
	3) Cushion volume (min./finish)
	4) Filling peak pressure
	5) Injection peak pressure
	6) V-P transfer time
	7) V-P transfer position
	8) V-P transfer pressure
	9) Arrival time at the setting point
	10) Injection pressure at the setting point
	11) Charge time
	12) Nozzle (N2, N2) temperature
	13) Cylinder 1, 2, 4 temperature
	14) Hopper base temperature
	15) Power consumption in one cycle
	5. Servo motor monitor
	6. Statistical processing of monitoring data
	7. History monitor (control panel temperature, ball screw mileage, etc.)
	8. Ladder monitor
	9. Electrical power monitoring device (power consumption, energy measurement of servo motor and cylinder heater)
	10. Cycle chart

Others	1. Under hopper cooling device with flow indicator
	2. Levelling pads (6 pcs)
	3. Mold mounting unit (12 sets)
	4. Spare grease cartridge (for auto lubrication 700cc : 1 pc)
	5. Special tool

Optional accessories & functions

1.	IoT centralized control system	12.	Special locate ring	23.	Valve gate signal
2.	Special design screw	13.	Signal output interface for hot runner	24.	Resin hopper mounting base
3.	Resin hopper	14.	Mold temperature regulator	25.	Table stop position at 90°
4.	Optional Nozzle (Long open nozzle, Spring needle nozzle)	15.	Mold temperature control water piping	26.	Table rotation — 90°
5.	Heat insulating board (thickness : 5mm,10mm)	16.	Upper mold ejector with hydraulic unit	27.	Rotational control box
6.	Air jet / air ejector	17.	Interface for insert device	28.	Main power with leakage breaker
7.	Warning light	18.	High temperature heating cylinder	29.	Mold positioning hole drilling (moving platen, turn table)
8.	Mold ejector plate return confirmation device	19.	Core pull confirmation device (hydraulic/ pneumatic)	30.	Mold height extension (50mm, 100mm)
9.	Outlet 200V (20A, 30A)	20.	PC interface	31.	FREEBEAR on table (ball table)
10.	Outlet 100V	21.	Flow molding	32.	Control box position change (right side)
11.	Special color	22.	Mold open/close pause signal	33.	Safety regulation compliant (U.S.A, China, Korea and other)

Vertical Machine Variations

MDV55S8000

- All electric vertical injection machine
- Vertical clamp & vertical injection
- Single station
- 55 US ton clamping force
- Sensitive mold safety system
- Compact machine design for small footprint
- Precise clamp force control
- Ideal for hoop molding

Item			Unit	Low Capacity (OP.)	Standard		
Injection Unit	Injection Capacity ※ 1		T.m	i 0.7 (OP.)	i 1.3		
	Screw Complete	Type	—	A	Y (OP.)	A	B
		Diameter	mm	18	22	25	30
			in	0.71	0.87	0.98	1.18
	Screw Stroke		mm	85			
			in	3.35			
	Calculated Injection Volume ※ 2		cm³	22	32	42	60
			cu-in	1.34	1.95	2.59	3.66
	Calculated Injection Capacity ※ 3		g	20	30	38	55
			oz	0.71	1.06	1.34	1.94
	Max. Injection Pressure ※ 4		Mpa	280	250	215	150
			psi	40610	36260	31180	21760
	Max. Hold Pressure ※ 4		Mpa	270	230	195	135
			psi	39160	33360	28280	19580
	Max. Injection Speed ※ 5		mm/s	300			
			in/s	11.8			
	Injection Rate		cm³/s	76	114	147	212
			cu-in/s	6.64	6.96	9.97	12.94
	Screw Rotation Speed		min⁻¹	300			
	Plasticizing Capacity (PS) ※ 6		kg/h	8	15	23	36
			oz/s	0.08	0.15	0.23	0.35
	Heater Capacity		kW	2.99	3.5	4.19	
	Nozzle Stroke		mm (in)	210 (8.27)			
	Nozzle Touch Force		kN (Us ton)	18 (2.02)			
	Temperature Zones	Nozzle and Barrel	—	1G + 2+ 1G			
		Hopper Base	—	1			
Clamping Unit	Clamping System		—	Double toggle			
	Clamping Force		kN (Us ton)	500 (55)			
	Tie-Bars Distance (H x V)		mm (in)	360 x 360 (14.17 x 14.17)			
	Mold Opening Stroke		mm (in)	250 (9.84)			
	Mold Height (Min/Max)		mm (in)	200/300 (7.87/11.81)			
	Open Daylight		mm (in)	550 (21.65)			
	Ejector Stroke		mm (in)	60 (2.36)			
	Ejector Force		kN (Us ton)	20 (0.79)			
Utility	Total Machine Power		kVA	14			
	Power Source (Voltage x Frequency)		—	AC200V x 50Hz/AC200V x 60Hz/AC220V x 60Hz			
	Machine Mass		ton (Us ton)	3.1 (3.41)			
	Cooling Water Consumption (Max.)		L/min (gal/min)	5 (1.32)			

Note : Specifications are subject to change without notice. Items with (OP.) are options.
※ 1 Injection capacity is calculated by (Max injection pressure) x (Calculated injection volume).
※ 2 Calculated injection volume is calculated by (Screw cross section) x (Screw stroke).
※ 3 Calculated injection capacity is 92% of polystyrene calculated injection volume.
※ 4 Max. injection pressure and max. hold pressure may be limited by cycle time.
※ 5 Max. injection speed may not reach this value depending on load.
※ 6 Plastisizing capacity is for polystyrene.