

NIIGATA – UBE  
INJECTION MOLDING MACHINE

**MD720WS-IV**

SPECIFICATIONS

## 1. Prime specifications

## 1-1 Injection unit

Items		Unit	Specifications	
Nozzle	Type	—	Nozzle adapter	
	Bore×Radius	in	$\phi \times R$	
Inj. Capacity	* 1	T·m	i 55	
Screw Complete	Type	—	A	B
	Dia.	in (mm)	3.54 (90)	3.94 (100)
Screw stroke		in (mm)	17.72 (450)	
Cal. Inj. Capacity	* 2	cu-in (cm <sup>3</sup> )	174.7 (2863)	215.7 (3534)
Shot mass (P S)	* 3	oz (g)	92.91 (2634)	114.7 (3252)
Max. inj pressure	* 4	psi (MPa)	27560 (190)	22480 (155)
Max. hold pressure	* 4	psi (MPa)	24660 (170)	20310 (140)
Max. injection speed		in/s (mm/s)	5.91 (150)	
Injection rate		cu-in/s (cm <sup>3</sup> /s)	58.22 (954)	71.89 (1178)
Screw speed		min <sup>-1</sup>	130	
Plasti. capacity (PS)	* 5	oz/s (kg/h)	3.03 (309)	3.20 (327)
Nozzle stroke		in (mm)	27.56 (700)	
Nozzle touch force		US ton (kN)	4.41 (39.2)	
Temp. zones	Nozzle · Barrel	—	1G + 5	
	Hopper base	—	1	
Heater capacity		kW	33.91	

## 1-2 Mold clamping unit

Item	Unit	Specifications
Clamping system	—	Double toggle
Clamping force	US ton (kN)	716 (6370)
Tie rods distance (H×V)	in (mm)	43.31×43.31 (1100×1100)
Platen size (H×V)	in (mm)	61.42×61.42 (1560×1560)
Mold open stroke	in (mm)	47.24 (1200)
Mold height (min./max.)	in (mm)	19.69/48.82 (500/1240)
Daylight	in (mm)	96.06 (2440)
Ejector stroke	in (mm)	7.87 (200)
Ejector force	US ton (kN)	27.54 (245)

## 1-3 Utility

Items	Unit	Specifications
Machine size	in (mm)	L443.23×W96.50×H97.80 (L11258×W2451×H2484)
Machine mass	US-ton	48.95
Power source Voltage×Frequency	—	AC440V(-10%~0%)×60Hz
Total machine power * 6	kVA	190
Grounding size		Grounding resistance : below 10 Ω
Cable size	mm <sup>2</sup> .	150
Max. cooling water consumption * 7	gal/min.	5.28 (at water temp. 86° F)

## Note

The mark of this “ o p . ” shows optional specification.

- \* 1 . Injection capacity is shown by “maximum injection pressure”×”calculated injection capacity” = T · m.
- \* 2 . Calculated injection capacity is reckoned with “screw’s sectional area” ×”screw stroke”.
- \* 3 . Shot mass is given by 92 % of calculated injection capacity with a mass of polystyrene.
- \* 4 . Maximum injection pressure and maximum holding pressure will be limited by molding conditions.
- \* 5 . Plasticizing capacity is shown by a mass of polystyrene.
- \* 6 . This numerical value shows the standard capacity except ancillary equipment for the machine.  
If an equipment shall be installed to the machine, their power should be added to the machine power.
- \* 7 . Water is used for hopper base cooling and it should maintain it’s pressure below 0.5Mpa.

## 2. The specification table of standard device

## 2-1 General

No.	Items	Note
1	Mode selection	Manual slow · Manual · Semi-automatic · Full-automatic
2	Push lock type emergency stop button	
3	Cycle start button	
4	Automatic greasing device	Excepted Slide Base and Feed Cylinder

## 2-2 Injection unit

No.	Items	Note
1	Multistage injection controller	1) Injection speed : Max. 10-speed 2) Filling pressures by each injection speeds 3) Holding pressure : Max. 10-pressure 4) Holding speeds by each pressure 5) V→P transfer position setting 6) V→P transfer pressure setting 7) V→P transfer time setting
2	Multistage screw speed	1) 3-speed rotation (positional transfer) 2) 3-pressure back-pressure (positional transfer)
3	Nozzle temperature group control	3- sensor × 2-heater
4	PID and fuzzy control for barrel temperature	
5	Injection unit swivel device	
7	Cold screw starting prevention	All of the heating zone
8	Barrel heater cover	
9	Automatic purge	(4-mode)
10	Non back-pressure function in manual mode	
11	Hopper base temperature control	
12	Purge guards with interlock	
13	Nozzle retraction	Retraction timer setting
14	Delay timers	Injection · charge · nozzle retraction

## 2-3 Clamping units

No.	Items	Note
1	Multistage mold opening and closing speed	1) 6-stage mold opening speeds 2) 6-stage mold closing speeds
2	Movable platen under support	
3	Automatic mold clamping force adjustment	
4	Low-pressure mold protection	
5	Ejector advance position holding timer	
6	Low pressure and speed for mold replacement	
7	Operation side mold closing safety device	Mechanical · Pneumatic · Electric
8	Rear side mold closing safety device	Mechanical · Pneumatic · Electric
9	Thread holes for takeout robot mounting	Refer to the annex draft
10	Delay timer	Ejector

## 2-4 Electric

No.	Items	Note
1	12.1" display · input panel	Touch panel type
2	Simultaneous action	Ejection under mold opening
3	Start motion delay timer	
4	Expert function	Initial mold condition setting and condition calculation
5	Nozzle temperature slave control based on the barrel	
6	Automatic heat up	With power-cut compensation
7	Multiple language function	Japanese, English, Chinese, Spanish
8	Mold conditions memory	32 setups
9	Trial conditions memory	10 setups
10	Graphic monitor	Injection speed · pressure / data comparison · pile up
11	Servo motor's monitor	Load torque, error cord, effective load ratio
12	Monitor data statistic processing	
13	All conditions digital setting and display	
14	Action select switch for warning transaction	
15	Alarm buzzer	
16	No fuse breaker for main power switch	

17	Wiring for takeout robot	
18	Printer connection interface	

No.	Items	Note
19	Alarm	Servo motor abnormal alarm (all of the servo axes)
		Motor thermal abnormal alarm (nozzle · mold height adjustment)
		V→P transfer abnormal alarm (time · position · pressure) (upper · lower) *
		Charging abnormal time (upper · lower) *
		Cycle time abnormal alarm (upper) *
		Barrel temperature abnormal alarm (upper · lower) *
		Hopper base temperature abnormal alarm (upper · lower)
		Heater break alarm
		SSR alarm
		Thermocouple alarm
		Temperature regulator preparation alarm
		Resin lack alarm
		Clamp alarm
		Cushion position alarm (min. / finish) (upper · lower) *
		Filling peak pressure abnormal alarm (upper · lower) *
		Screw action hold alarm
		Low pressure mold protection alarm
		Injection unit alarm
		Injection start position abnormal alarm (upper · lower) *
		Operator's gate alarm
Greasing alarm		
Free screw position observation		
20	Counters	Preset type total counter *
		Preset type production counter      Injection / good selection, finish action selection, with previous finish
		Preset type preparation counter
		Preset type conveyor Molding continue (DC24V open collector output 0.3A)
		Preset type no good product counter Molding stoppage
		Preset type no good products continuity counter Mold stoppage
21	100-shot monitor	Monitoring above * marking items
22	Histories observation	No good products history · setting history · abnormal history

23	Running monitor	Running hour : greasing · battery · all shots number
		Hour meter : heater · display · power