

MD-S7000

All Electric Injection Molding Machine



NIGATA

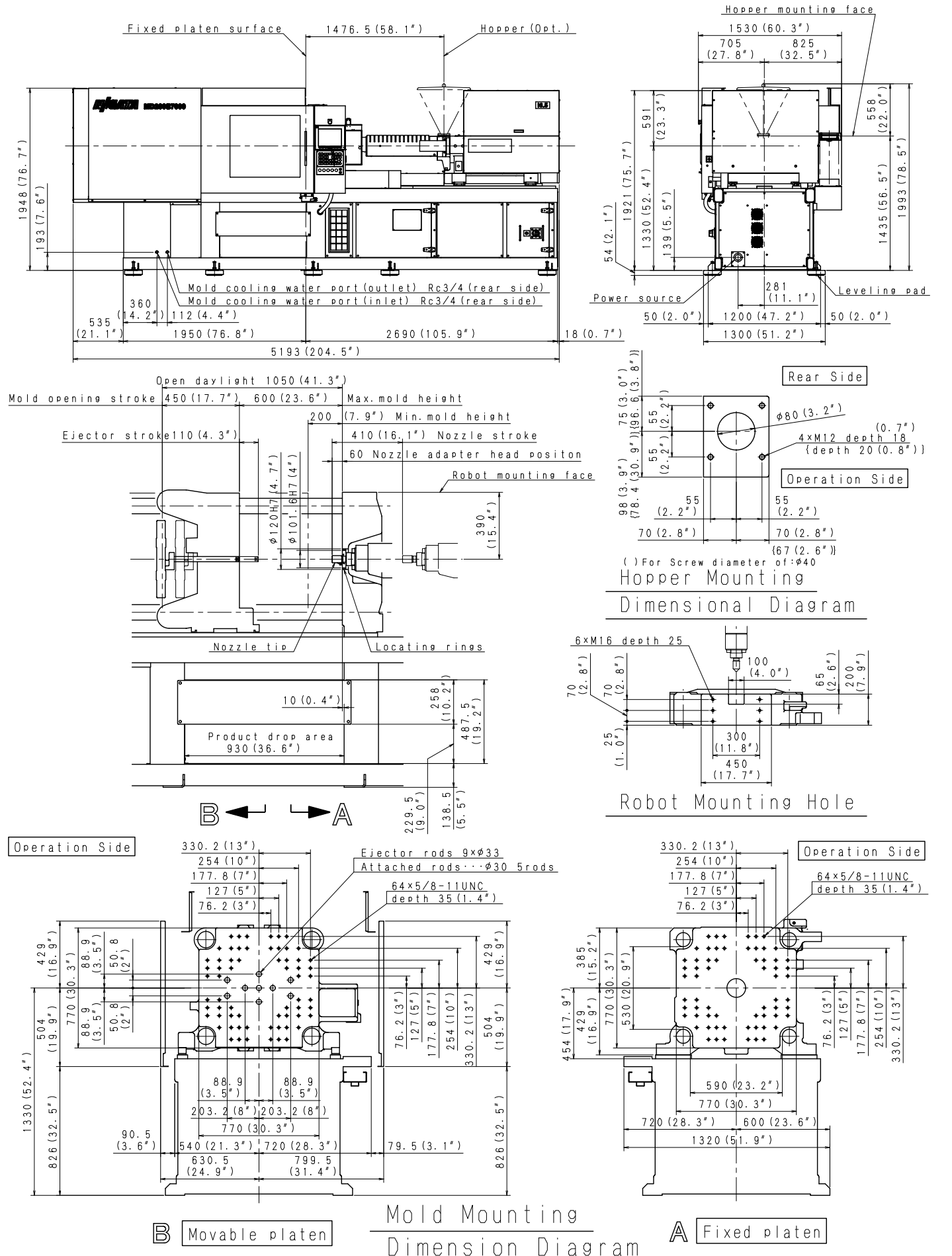
NIIGATA MACHINE TECHNO CO.,LTD.

MD-S7000Series Specifications

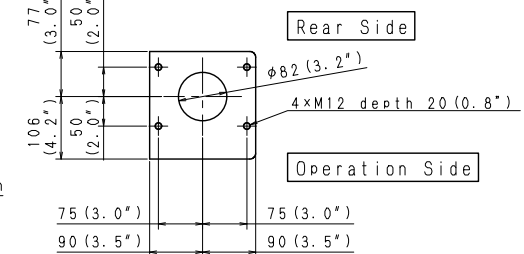
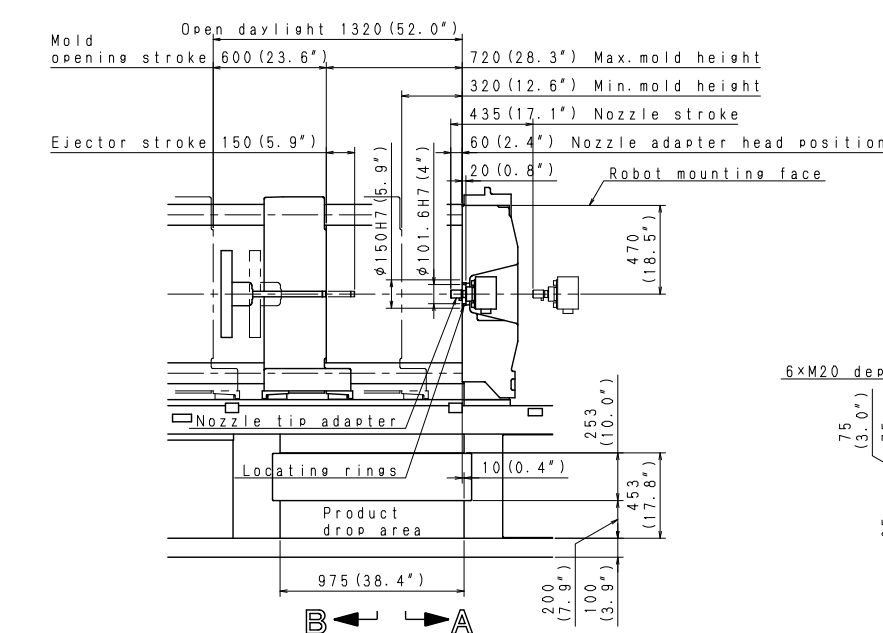
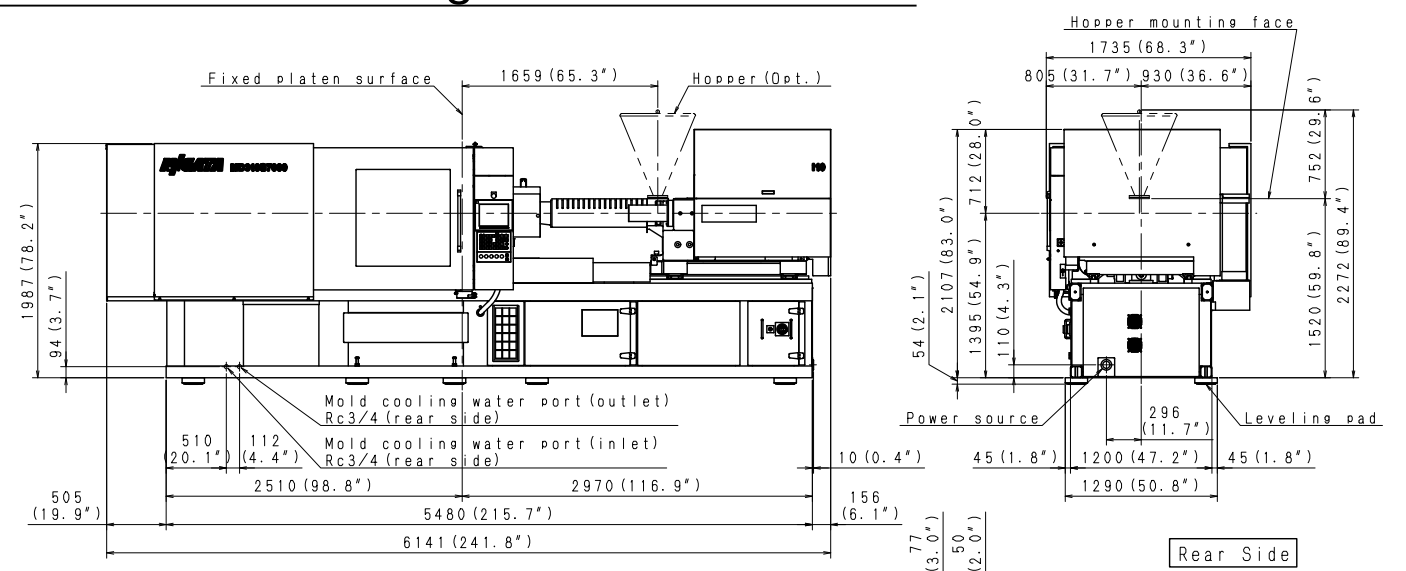
Item	Unit	MD200S7000			MD310S7000			MD385S7000			MD500S7000			
		Y (OP.)	A	B	Y (OP.)	A	B	Y (OP.)	A	B	A	B		
Standard Specification	Injection Capacity	T.m										i 32		
	Screw Complete	Type	-										-	
		Diameter	mm	40	45	52	45	52	60	52	60	68	76	82
			in	1.57	1.77	2.05	1.77	2.05	2.36	2.05	2.36	2.99	3.23	
	Screw Stroke	mm	205										350	
		in	8.07										13.78	
	Calculated Injection Volume *1	cm ³	258	326	435	382	510	679	573	763	980		1588	1848
		cu-in	15.74	19.89	26.55	23.29	31.12	41.44	34.99	46.56	59.80		96.91	112.77
	Calculated Injection Capacity *2	g	237	300	401	351	469	624	527	702	901		1461	1700
		oz	8.36	10.58	14.14	12.39	16.54	22.01	18.61	24.76	31.78		51.54	59.97
Max. Injection Pressure *3	MPa	250	200	150	250	200	150	250	200	155		200	170	
	psi	36260	29010	21760	36260	29010	21760	36260	29010	22480		29010	24660	
Max. Hold Pressure *3	MPa	225	180	135	225	180	135	225	180	140		180	155	
	psi	32630	26110	19580	32630	26110	19580	32630	26110	20310		26110	22480	
Max. Injection Speed *4	mm/s	300										160		
	in/s	11.81										6.30		
Injection Rate	cm ³ /s	377	477	637	365	488	650	425	565	726		726	845	
	cu-in/s	23.01	29.11	38.87	22.32	29.78	39.67	25.92	34.48	44.30		44.30	51.56	
LP Specification (OP.)	Injection Capacity	T.m										i 22 LP		
	Screw Complete	Type	-										-	
		Diameter	mm	40	45	52	45	52	60	52	60	68	76	82
			in	1.57	1.77	2.05	1.77	2.05	2.36	2.05	2.36	2.68	2.99	
	Screw Stroke	mm	205										305	
		in	8.07										12.01	
	Calculated Injection Volume *1	cm ³	258	326	435	382	510	679	573	753	981	862	1108	1384
		cu-in	15.74	19.89	26.55	23.29	31.12	41.44	35.00	46.56	59.86	52.60	67.61	84.46
	Calculated Injection Capacity *2	g	237	300	401	351	469	624	527	702	902	793	1019	1273
		oz	8.36	10.58	14.14	12.39	16.54	22.01	18.59	24.76	31.81	27.97	35.94	44.90
Max. Injection Pressure *3	MPa	250	200	150	250	200	150	250	200	155	250	200	160	
	psi	36260	29010	21760	36260	29010	21760	36260	29010	22480	36260	29010	23210	
Max. Hold Pressure *3	MPa	225	180	135	225	180	135	225	180	140	225	180	145	
	psi	32630	26110	19580	32630	26110	19580	32630	26110	20310	32630	26110	21030	
Max. Injection Speed *4	mm/s	240										160		
	in/s	9.45										6.30		
Injection Rate	cm ³ /s	302	382	510	318	425	565	340	452	581	452	581	726	
	cu-in/s	18.43	23.31	31.12	19.41	25.94	34.48	20.74	27.58	35.45	27.60	35.45	44.30	
Screw Rotation Speed	mm ¹	400										200		
Plasticizing Capacity (PS) *5	kg/h	113	148	228	148	201	274	151	206	315	165	252	315	
	oz/s	1.11	1.45	2.23	1.45	1.97	2.68	1.48	2.02	3.09	1.62	2.47	3.09	
Nozzle Stroke	mm	410										560		
	in	16.14										22.05		
Nozzle Touch Force	kN	34 / 23.8			34 / 23.8			34 / 23.8			34 / 23.8			
	US ton	3.82 / 2.67			3.82 / 2.67			3.82 / 2.67			3.82 / 2.67			
Temperature Zones	Nozzle Heating Cylinder	-										-		
	Hopper Base	-										-		
Heater Capacity	kW	11.49	14.2		14.69	18.7		18.7	20.9	21.5	25.06		33.2	
Clamping Unit	Clamping System	-										-		
	Clamping Force	kN	1800			2800			3500			4500		
		US ton	202			315			393			506		
	Tie-Bar Distance (H x V)	mm	590 x 530			730 x 730			810 x 810			910 x 810		
		in	23.23 x 20.87			28.74 x 28.74			31.89 x 31.89			35.83 x 31.89		
	Platen Size (H x V)	mm	770 x 770			930 x 930			1040 x 1040			1160 x 1160		
		in	30.31 x 30.31			36.61 x 36.61			40.94 x 40.94			45.67 x 45.67		
	Mold Opening Stroke	mm	450			600			650			800		
		in	17.72			23.62			25.59			31.5		
	Mold Height (Min. /Max.)	mm	200 / 600			320 / 720			320 / 780			380 / 910		
in		7.87 / 23.52			12.60 / 28.35			12.60 / 30.71			14.96 / 35.83			
Open Daylight	mm	1050			1320			1430			1710			
	in	41.34			51.97			56.30			67.32			
Ejector Stroke	mm	110			150			150			160			
	in	4.33			5.91			5.91			6.3			
Ejector Force	kN	45			60			78			80			
	US ton	5.06			6.74			8.77			8.99			
Total Machine Power *6	kVA	36										43		
Power Source (Voltage x Frequency) *7	-	3 phase AC220V (±10%) × 60Hz										3 phase AC220V (±10%) × 60Hz		
		-										-		
Cable Size *8	mm ²	30										125		
	A.W.G.	3										5/0		
Machine Size	Width	m	5.19			6.14			6.79			8.09		
		in	204.5			241.8			267.2			318.54		
	Depth	m	1.53			1.74			1.89			2.06		
		in	60.2			68.5			74.2			80.94		
Height	m	1.95			2.11			2.06			2.19			
	in	76.7			83.0			81.1			86.26			
Machine Mass	ton	8.6			14.5			17.0			26.0			
	US ton	9.5			16.0			18.7			28.6			
Hopper Size (OP)	L	45			80			80			120			
	gal	11.89			21.13			21.13			31.70			
Cooling Water Consumption (Max) *9	L/min	7.5										10		
	gal/min	1.98										2.64		

● Note : Specifications are subject to change without notice. Items with (OP.) are optional.
 *1 Calculated Injection Volume = (screw cross section area) × (Screw Stroke)
 *2 Calculated Injection Capacity is calculated with Polystyrene and 92% of its calculated injection volume.
 *3 Max. Injection Pressure and Max. Hold Pressure may be limited depending on cycle.
 *4 Max. Injection Speed may not reach this value depending on state of load.
 *5 Plasticizing Capacity is value of Polystyrene.
 *6 Total Machine Power does not include auxiliary equipment power.

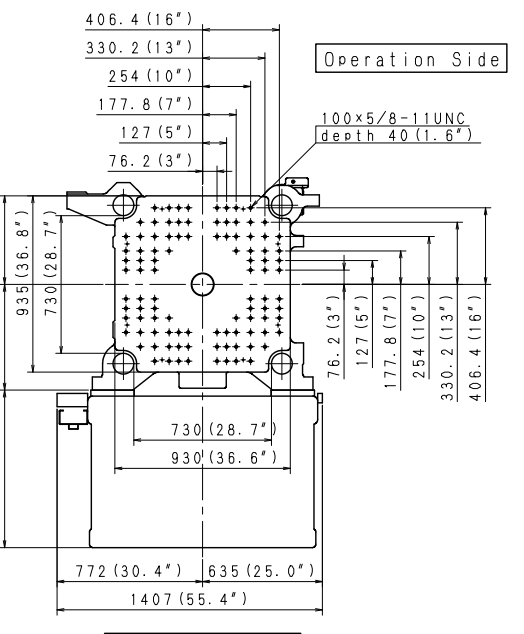
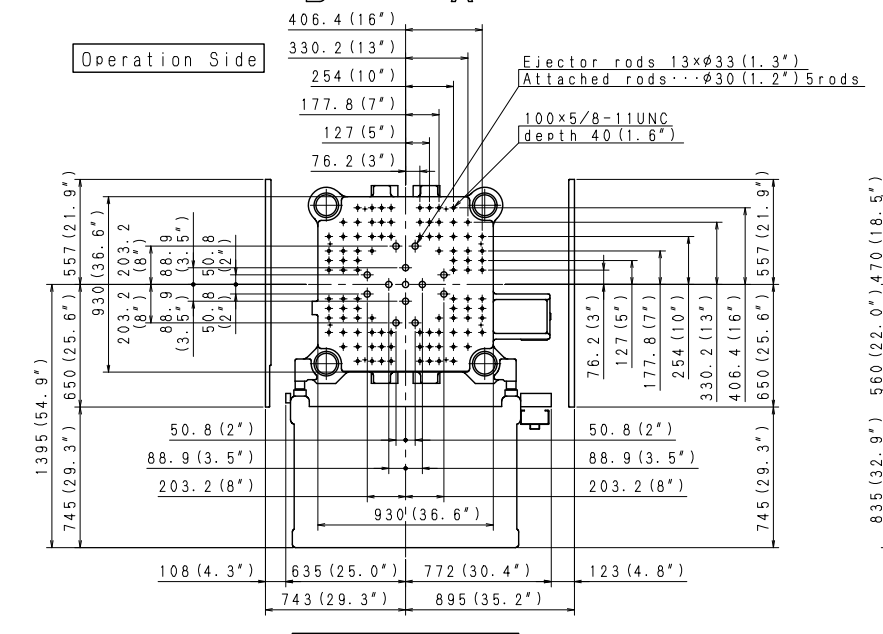
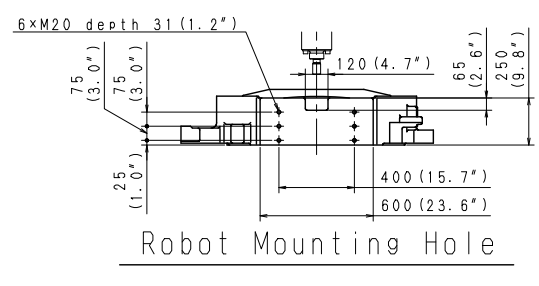
External Dimension Diagram (MD200S7000)



External Dimension Diagram (MD310S7000)

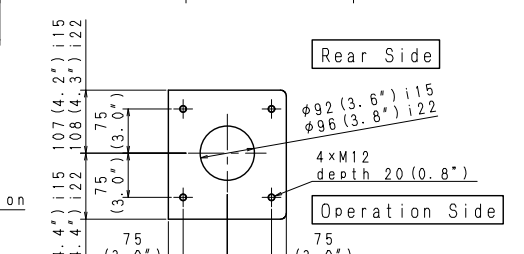
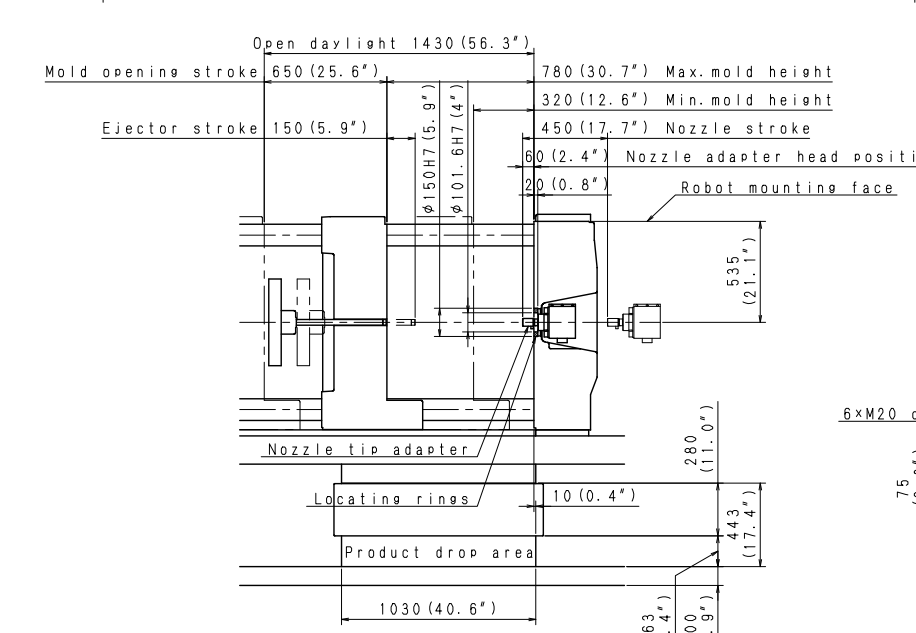
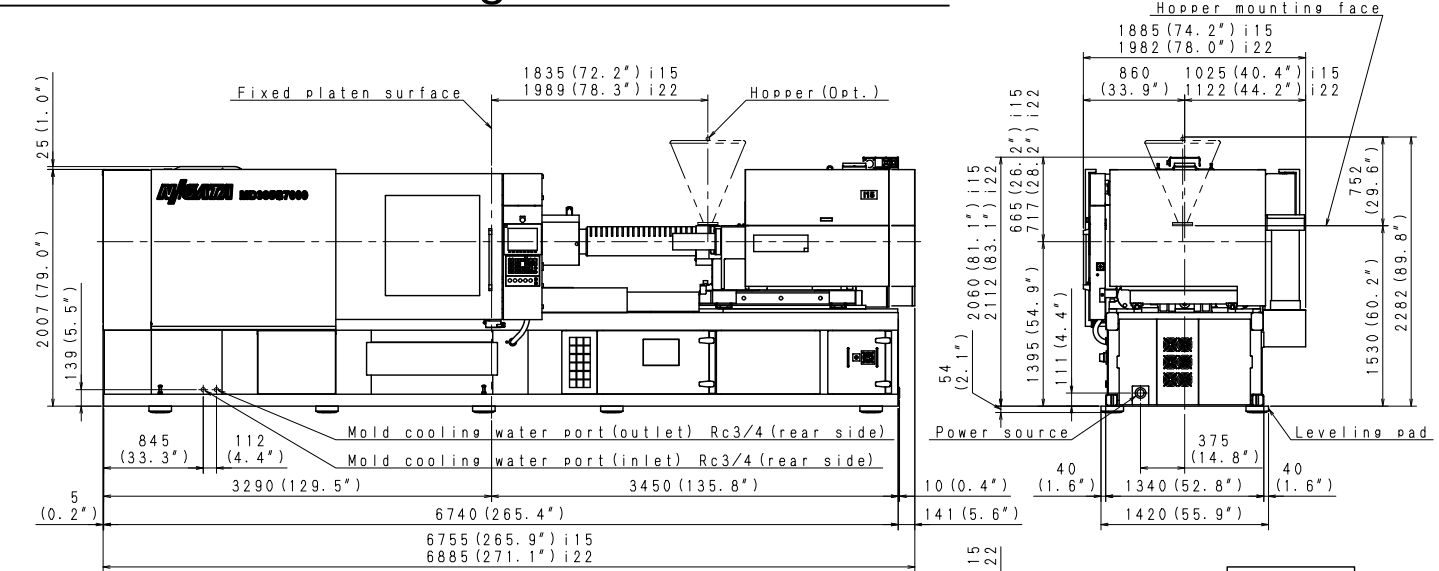


Hopper Mounting Dimensional Diagram

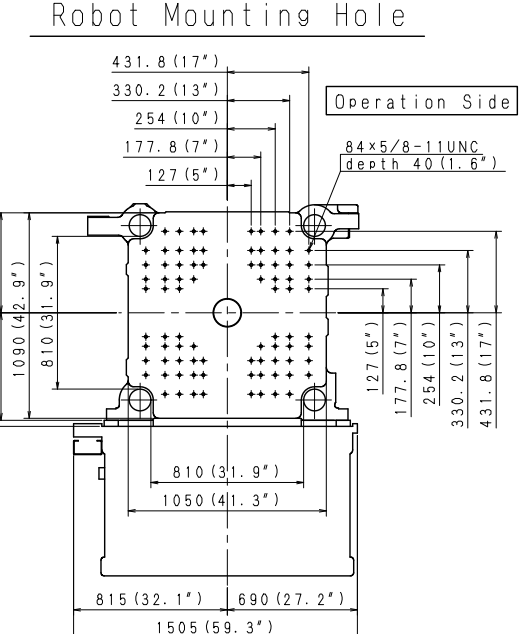
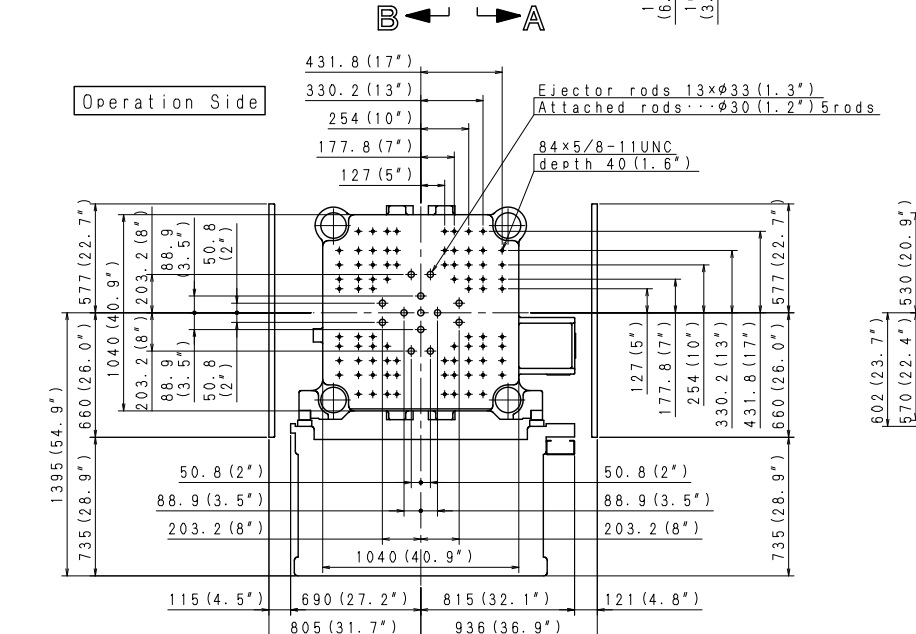
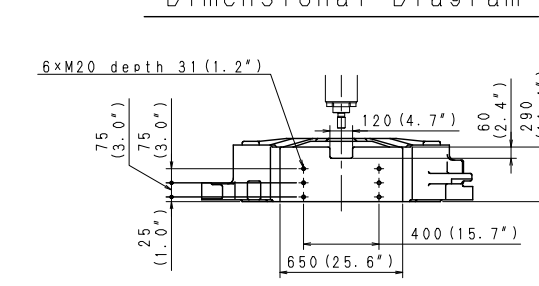


Mold Mounting Dimensional Diagram

External Dimension Diagram (MD385S7000)

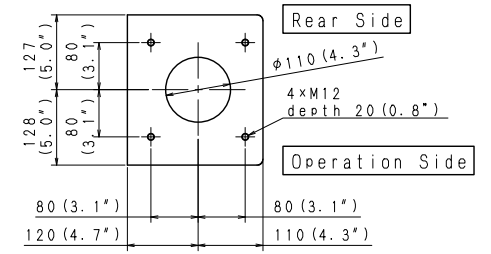
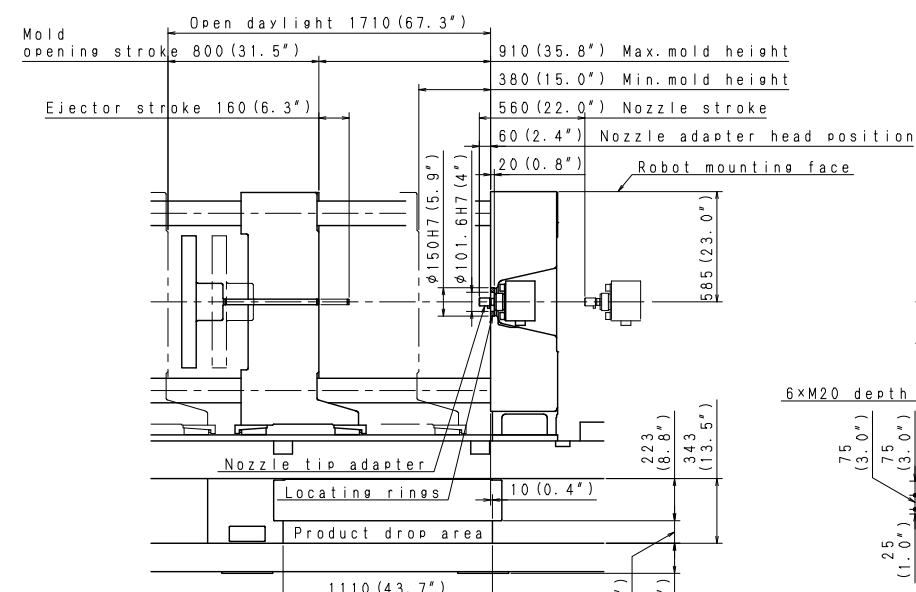
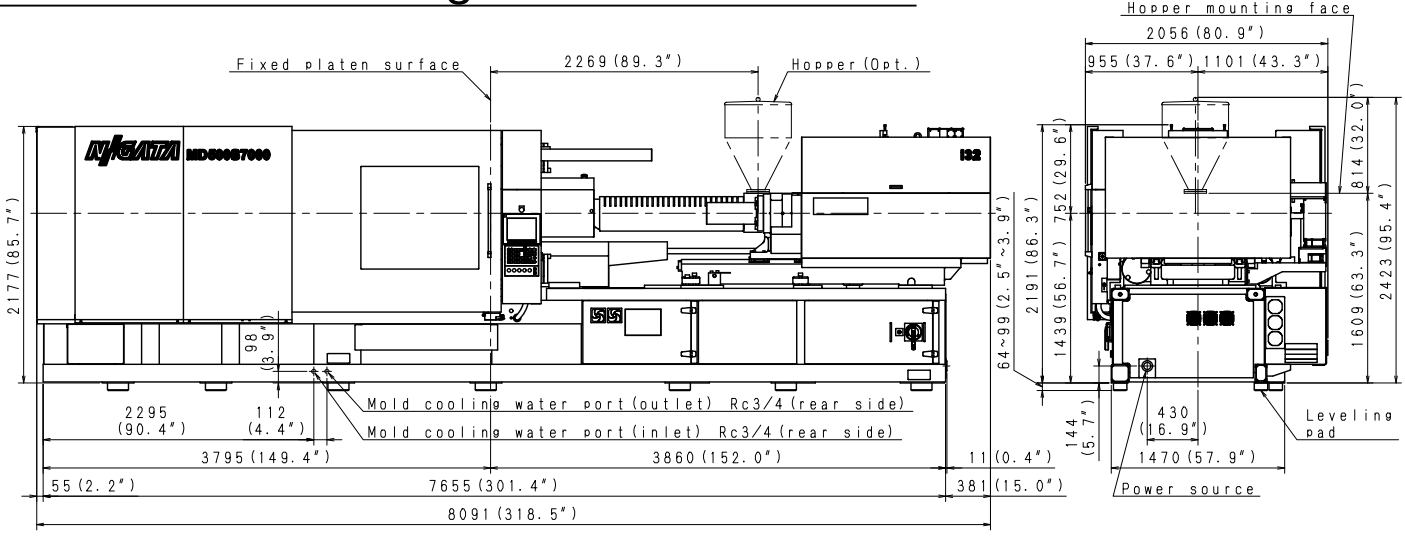


Hopper Mounting Dimensional Diagram

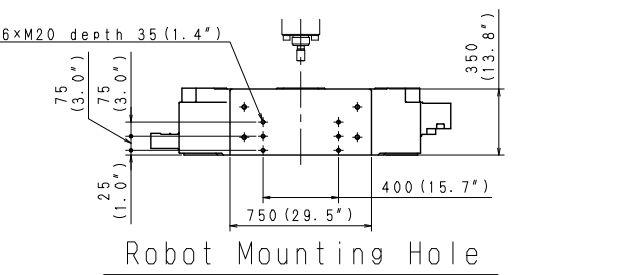


Mold Mounting Dimensional Diagram

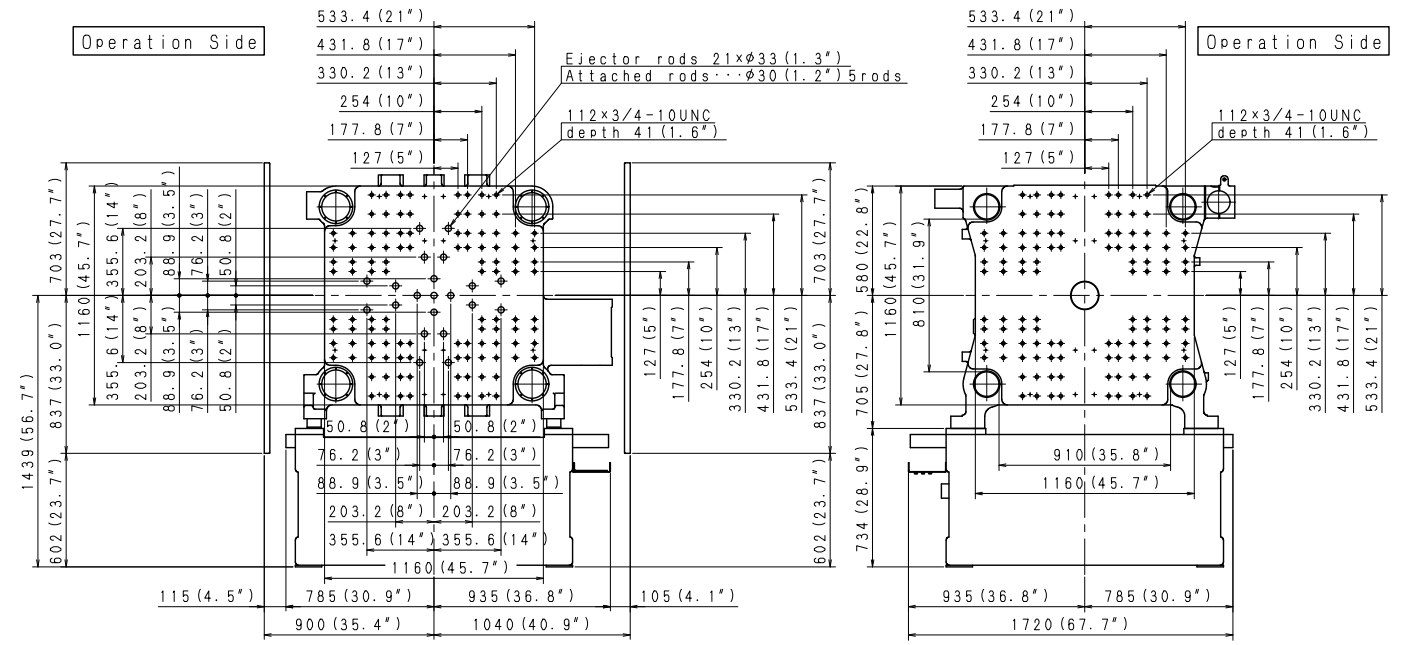
External Dimension Diagram (MD500S7000)



Hopper Mounting Dimensional Diagram



Robot Mounting Hole



Mold Mounting Dimensional Diagram

Standard accessories & functions

General	1. Operation mode (adjust, manual, semi-automatic, full-automatic, purge)
	2. Automatic lubrication
	3. Emergency stop button with lock
	4. Sourcing type control circuit (PNP)

Injection	1. Multistage injection control
	1) Injection speed control : max. 10 speeds, Filling pressures for each speed stage
	2) Injection pressure control : max. 10 speeds, Holding speeds for each pressure stage
	2. Low friction injection mechanism (Linear guide type) (50t, 100t, 130t machines only)
	3. Balance Pressure Filling control
	4. Constant Pressure Filling control
	5. Sealed ball screw
	6. Multistage charging control :3 speeds, 3 back pressures
	7. Automatic purge (4 modes)
	8. Nozzle temperature group control
	9. Cylinder follow-up temperature control for nozzle zone
	10. PID fuzzy control led temperature regulation of heating cylinder
	11. Cold screw starting prevention
	12. Double-layer structure cylinder heater cover
	13. Charging under no back pressure in manual mode
	14. Hopper base temperature control (PID)
	15. Purge guard (with interlock)
	16. Nozzle retract (retract time setting)
	17. Delay timers for injection, Charging, Nozzle retract
18. Digital load cell device (High-precision detection of injection pressure and back pressure)	
19. Anti wearing screw cylinder	

Clamping	1. Highly rigid clamping mechanism (M Support System) (50t, 100t, 130t machines only)
	2. Multistage speed control device (up to 6 speeds)
	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
	8. All processes mold protection device
	9. Ejector advance position holding timer
	10. Ejector advance speed switching (2 speeds)
	11. Ejector motor with brake
	12. Mold closing safety device on the operator's side (mechanical & electrical)
	13. Mold closing safety device on the opposite side (mechanical & electrical)
	14. Hole processing of mounting hole for take-out robot (in our standard position)
	15. Delay timers for ejector
	16. Pre-releasing of clamping force
	17. Low pressure clamping force holding

Control	1. 12.1 inch color LCD touch panel
	2. NHN (Niigata Hiper Navi) Operation support, simplified setup device, easy setting function
	3. Simultaneous operation
	1) Mold open during charging
	2) Ejector on the fly
	3) Nozzle advance during mold close
	4) Injection start during mold close
	5) Output signal of take-out robot's entry during mold open
	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. Molding condition recording (384 in built-in memory, 384 in external memory)
	9. Recording of trial molding condition (10 conditions)
	10. Motion/No-motion selector switch
	11. Cylinder follow-up temperature control for nozzle zone
	12. Operation selector switch during alarm activation
13. Alarm buzzer	
14. No-fuse breaker for main power supply	
15. Take-out robot interface circuit	
16. External memory interface (USB I/F)	
17. Event record (record of injection condition, temperature condition, clamping condition, activation of alarm and machine abnormality: 1,000 records respectively)	

Control	18. Instruction manual display
	19. Convenient functions (notepad, calculator etc.)
	20. Maintenance information
	21. Local password
	21. Output of external signal (multiple-choice)

Alarms Counters Monitors	1. Alarm device
	1) Automatic lubrication alarm
	2) Servo motor alarm
	3) Motor thermal alarm (nozzle / mold height)
	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) Cylinder temperature alarm (upper/lower limit)
	8) Hopper base temperature alarm (upper/lower limit)
	9) Heater break alarm
	10) SSR alarm
	11) Thermo couple break alarm
	12) Temperature regulator preparation alarm
	13) Resin lack alarm
	14) Clamping alarm
	15) Cushion position (min. / finish) alarm (upper/lower limit)
	16) Peak pressure alarm (during filling/injection, upper/lower limit)
	17) Screw operation prohibition alarm
	18) Low-pressure mold protection alarm
	19) Injection unit alarm
	20) Injection start position alarm (upper/lower limit)
	21) Operator's gate alarm
	22) Grease lubrication alarm
	23) Monitoring alarm for screw position (arrival time, injection pressure)
24) Resin retention monitoring alarm	
2. Counter device	
1) Total shot counter (preset type)	
2) Production shot counter (preset type)	
3) Preparation shot counter (preset type)	
4) Shot counter for external conveyer (preset type)	
5) Reject shot counter (preset type)	
6) Continuous reject shot counter (preset type)	
3. Shot monitor (10000 shots)	
1) Cycle time	
2) Injection starting position	
3) Cushion position (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) Charging time	
12) Nozzle (N1, N2) temperature	
13) Cylinder 1, 2, 3, 4 temperature	
14) Hopper base temperature	
15) Power consumption in one cycle	
4. Graphical monitor (Injection, mold open/close, ejector, screw rotation etc.) Overwriting, simultaneous display of max. 8 waveforms, Data reading function from the graphics	
5. Servo motor monitor	
6. Statistical processing of monitoring data	
7. History monitor (record of temperature range inside of control box, accumulated running distance of ball screw, shot count etc.)	
8. Ladder monitor	
9. Power consumption monitoring device	

Others	1. Safety specifications (conforming to the safety rules of the Japan Society of Industrial Machinery Manufacturers (JSIM) injection molding machines)
	2. Leveling pads
	3. Mold mounting kit (8 sets)
	4. Spare grease cartridge (for Automatic lubrication 700cc : 1 pc)
	5. Special tools

Optional accessories & functions

1. Anti wearing screw cylinder	10. Outlet 200V (20A, 30A)	19. Mold temperature regulator
2. Special design screw	11. Outlet 100V	20. Earth leakage breaker
3. Ejector compression system (ECS)	12. Specified color	21. High temperature heater
4. Resin hopper	13. Product chute	22. Core puller (with hydraulic / pneumatic unit)
5. Optional Nozzle (Long open nozzle, Spring needle nozzle)	14. Special locating ring	23. PC interface
6. Heat insulating board (thickness : 5mm,10mm)	15. Interface circuit for product fall detector	24. Flow molding device
7. Air jet / Air ejector	16. Product sorting chute (good / reject)	25. Intermediate stop of mold open/close
8. Signal tower	17. Signal for hot runner interface	26. Signal for valve gate control
9. Mold ejector plate return confirmation device	18. Interface for unscrewing device (motor excluded)	27. Quick Servo Press (QSP)



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