

o NUMERICAL CONTROLS (NC)

The numerical control unit is installed next to the main control panel to ensure operational convenience. Data are read from the program tape and machine-operating commands are executed by the numerical control system.

o COOLANT UNIT

The coolant unit is installed on the left side of the front bed and can be pulled out on the caster wheels for cleaning. It supplies coolant to the machine and recovers the coolant and chips discharged from the machine. The lift-up chip conveyor can be connected to the discharge port to remove the chips from the tank.

o AIR DRYER

The air dryer is used for drying the air that is supplied from an air compressor before sending it into the machine's air system. This is necessary because the compressed air is normally hot and humid.

2. SPECIFICATIONS

Specifications	MC1210	MC1510	MC1513
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o MAXIMUM WORK DIMENSIONS

Length x Width x Height	1200 mm (49") x 800 mm (31 1/2") x 1000 mm (39 1/2")	1500 mm (59") x 800 mm (31 1/2") x 1000 mm (39 1/2")	<del>1500</del> mm (59") x <del>800</del> mm (31 1/2") x <del>1000</del> mm (39 1/2")
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o RANGE OF MOVEMENTS

Table (X-axis)	1250 mm (49")	1500 mm (59")	1500 mm (59")
Spindle (Y-axis)	1000 mm (39 1/2")	1000 mm (39 1/2")	1300 mm (51 1/2")
Column (Z-axis)	800 (1000) mm 31 1/2 (39 1/2")	800 (1000) mm 31 1/2 (39 1/2")	800 (1000) mm 31 1/2 (39 1/2")
Spindle center to pallet top	50 ~ 1050 mm 2 ~ 41 1/2"	50 ~ 1050 mm 2 ~ 41 1/2"	<del>50 ~ 1350</del> mm 2 ~ 53 1/2"

Specifications	MX1210	MC1510	MC1513
Spindle nose to pallet center	200 ~ 1000 mm 8 ~ 39 1/2"	200 ~ 1000 mm 8 ~ 39 1/2"	<del>200 ~ 1000 mm</del> 8 ~ 39 1/2"
o SPINDLE			
Spindle nose	ISO No. 50	ISO No. 50	ISO No. 50
Front bearing dia.	120 mm	120 mm	120 mm
Spindle speed	10 ~ 4000 rpm (Stepless)	10 ~ 4000 rpm (Stepless)	10 ~ 4000 rpm (Stepless)
Spindle drive motor (cont./30 min)	AC 18.5/22 kW AC 25/30 HP	AC 18.5/22 kW AC 25/30 HP	AC 18.5/22 kW AC 25/30 HP
o TABLE AND PALLET			
Minimum indexing angle	1° (360 positions)	1° (360 positions)	1° (360 positions)
Table type	Pallet mounting type	Pallet mounting type	Pallet mounting type
Pallet dimension (Refer to Fig. 2.3)	□800 (□900) mm □31-1/2 (□36)"	□1000 (□900) mm □39-3/8 (□36)"	□1000 (□900) mm □39-3/8 (□36)"
Pallet top (T slot)	22H8 x 5 mm 13/16 <sup>+0.0013</sup> <sub>-0</sub> x5	22H8 x 5 mm 13/16 <sup>+0.0013</sup> <sub>-0</sub> x5	22H8 x 5 mm 13/16 <sup>+0.0013</sup> <sub>-0</sub> x5
Allowable load on pallet	3000 kg (6600 lbs)	3000 kg (6600 lbs)	3000 kg (6600 lbs)
Allowable load on pallet with pallet magazine	1600 kg (3500 lbs) *3000 kg (6600 lbs)	1600 kg (3500 lbs) *3000 kg (6600 lbs)	1600 kg (3500 lbs) *3000 kg (6600 lbs)
Work positioning	Edge locator	Edge locator	Edge locator
o MACHINE WEIGHT (Approx.)			
Z=800 (includes hydraulic unit)	16800 kg (37000 lbs)	17800 kg (39300 lbs)	18300 kg (40500 lbs)
Z-1000 (not includes hydraulic unit)	17000 kg (37400 lbs)	18000 kg (39600 lbs)	18500 kg (40700 lbs)

\* Optional

○ FEED RATES

	X, Y, Z axes
Least input increment	0.001 mm 0.0001"
Least command increment	0.001 mm 0.0001"
Jog rate	1 ~ 2,000 mm/min 0.04 ~ 78.7 in/min
Cutting feed	0.1 ~ 4,000 mm/min 0.004 ~ 157.4 in/min
Rapid feed	12,000 mm/min 476 in/min

○ MACHINE ORIGIN

Zero point detection	Grid system
Axis zero positions	X: Center of stroke
	Y: Plus end
	Z: Plus end
	B: 0° pos. of index table

○ AUTOMATIC TOOL CHANGER

Number of tools	30
Tool selection	Random
Tool shank	MAS403-BT50
Pull-stud	MAS407, Type I
Tool-to-tool time	Approx. 7 sec
When splash guards are equipped	Approx. 9 sec.
Metal-to-metal time	Approx. 18 sec
When splash guards are equipped	Approx. 20 sec
Max. tool dia	See Fig. 7 ~ 13
Max. tool length	550 mm 21.75"
Max. tool weight	20 kg 44 lbs (together with shank)
Max. tool moment	200 kgf-cm 173 lbs-in

○ AIR SUPPLY

Pressure	Over 5 kg/cm <sup>2</sup> 71.5 psi
Consumption	0.8 Nm <sup>3</sup> /min 220 Ngal/min

o AMBIENT CONDITIONS

Temperature 10 ~ 35°C  
 (-20 to 60°C for storage)

Relative humidity Below 75%  
 (Below 95% for short periods)

o POWER SOURCE

	kW (HP)		
Spindle drive	18.5/22 (24.6/29.3)		31 kVA
X-axis drive (20M)	1.8 (2.4)		3 kVA
Y-axis drive (30M)	2.8 (3.7)		5 kVA
Z-axis drive (30M)	2.8 (3.7)		5 kVA
B-axis drive (5M)	0.6 (0.8)		
Lubrication pump	0.025 (0.03)		0.03 kVA
Hydraulic pump	3.7 (4.9)		4.7 kVA
Spiral chip conveyor	0.2 (0.3)		0.25 kVA
Cooling fan	0.4 (0.54)		0.5 kVA
Air dryer *	0.24 (0.32)		0.3 kVA
Automatic spindle lubricant temperature regulator*			
Compressor	1.5 (2)	2P	
Cooling fan	0.2 (0.3)	4P	2.6 kVA
Pump	0.4 (0.54)	4P	
Coolant pump*			
8 nozzles	0.75 (1)	4P	0.94 kVA
Tool-through	0.75 (1)	4P	0.94 kVA
Spindle-through	0.75 (1)	4P	0.94 kVA
High power unit	0.4 (0.54)	4P	0.5 kVA
Work cleaning	0.18 (0.24)	4P	0.23 kVA
Lift-up conveyor*	0.4 (0.54)	4P	0.5 kVA
Oil skimmer*	0.02 (0.03)		0.0025 kVA

o POWER SUPPLY

Standard specification 55.5 kVA, 200/220 V  $\pm 10\%$   
 AC, 50/60 Hz

# FOUNDATION DRAWING

MC1510/1513

	Z=800 (31-1/2)	Z=1000 (39-1/2)
A	7331 (289-1/8)	7581 (398-1/2)
B	5945 (234-9/16)	6195 (243-15/16)
C	2020 (80)	2270 (89-3/8)
D	2020 (80)	2270 (89-3/8)
E	825 (32-1/2)	950 (37-1/8)
F	3600 (141-15/16)	3850 (151-5/16)
G	730 (28-3/4)	975 (38-3/4)
H	630 (24-13/16)	740 (29-1/8)
I	3000 (118-5/8)	3250 (128)
J	2010 (79-5/8)	2260 (89)
K	4506 (177-7/8)	4756 (187-1/4)

