

3. SPECIFICATIONS AND MACHINE PROPER

3-1) Machine Specifications (With Mark ※ means Op: Options.)

3-1-1) Axis strokes and distances (Refer to P-17.)

- (1) X-axis travel: ----- 600 mm
(Saddle longitudinal movement: Reference point/ + stroke end)
- (2) Y-axis travel: ----- 580 mm
(Spindle head vertical movement: Reference point/ + stroke end)
- (3) Z-axis travel: ----- 560 mm
(Table cross movement: Reference point/ + stroke end)
- (4) Distance from table top to spindle center line (Y-axis): 80 to 660 mm
- (5) Distance from table center to spindle end (Z-axis): 150 to 710 mm

3-1-2) Pallet table (Refer to P-21.)

- (1) Pallet working surface: ----- 400 mm x 400 mm
- (2) Pallet loading capacity (Uniform load): ----- 400 kg
- (3) Pallet surface configuration: 24 M16 tapped holes with 80 mm pitch
- (4) Shape of pallet clamp section: 4 (four) taper cone type clampers
- (5) Min. table index angle: (360 position index table) ----- 1°
※ Ditto : (NC table) ----- 0.001°

3-1-3) Spindle (Refer to P-16, 18 & 19.)

- (1) Spindle speeds: ----- 40 - 12000 min⁻¹
(1 min⁻¹ increment)
- (2) Type of spindle taper hole: ----- 7/24 taper (No. 40)

3-1-4) Feedrate

- (1) Rapid traverce: ----- (X, Y, Z) 40000 mm/min
- (2) Feedrate: ----- (X, Y, Z) 1 - 30000 mm/min
- (3) Jog feedrate: ----- (X, Y, Z) 1 - 2000 mm/min
(24 steps)

3-1-5) ATC (Automatic Tool Changer) (Refer to P-22 to 27.)

- (1) Type of tool shank: ----- BT40
※ CT40
- (2) Type of retension knob: ----- P40T-2 (30°)
(CT type is not available.)
- (3) Tool storage capacity: ----- 40 tools
※ 60/133/197/253 tools

- (4) Max. tool dia. (with adjacent tools): ----- 95 mm
 (40 and 60 tools type holder pitch 101.6 mm)
 (133, 197 and 253 tools type holder pitch 110.0 mm)
 (Max. tool dia. without adjacent tools: 200mm)
- (5) Max. tool length: ----- 350 mm
- (6) Max. tool mass: ----- 10 kg
- (7) Method of tool selection: -----
 40 and 60 tools type: Short cut random selection by pot designation
 133, 197 and 253 tools type: ----- Fixed position

3-1-6) Motors

- (1) For main spindle drive: -----
 For low speed winding, AC 18.5 kW (15 min)/ 15 kW (Cont.)
 For high speed winding, AC 22 kW (15 min)/ 18.5 kW (Cont.)
- (2) For axis feed: ----- (For X, Y, Z) AC 3.8 kW
 (For 360 div. table/B-axis) AC 0.9 kW
 ※(For NC table/B-axis) AC 2.1 kW
- (3) For hydraulic pump unit (For M/C bodies): ----- 2.2 kW
- (4) For guide ways and ball screws lubrication: ----- (0.02 kW
- (5) For spindle cooler: (Compressor/Pump/Fan motor) 0.75 kW/ 0.4 kW/ 0.05 kW
- (6) For spindle motor cooling: ----- (Fan cooler) 0.037 kW x 2 pcs.
- (7) For ATC changer: ----- 2.5 kW
- ※ (8) For ATC carrier drive (For Matrix ATC): ----- AC 1.0 kW x 2 pcs.
- (9) For internal chip conveyor: ----- 0.1 kW x 2 pcs.
- (10) For coolant pump (Flood coolant): ----- 0.365 kW

Note) On other motors, refer to 'M/C SPECIFICATION SHEETS' submitted.

3-1-7) Electric power & pneumatic source

- (1) Electric power source: ----- AC 200/220V ±10%, 50/60Hz ±2%, 58 kVA (Std.)
- Wires for electric power source: ----- 38 mm² x 3 pcs.
 - Grounding wire: ----- 14 mm² x 1 pc.
- (2) Pneumatic source: 0.49 MPa (5 kgf/cm²) or more, 500L/min (in atmospheric pressure) or more (For std. specification)
- Required air volume: 500L/min (in atmospheric pressure), continuous use
 - Use clean air with room temp. + 2°C or less.

- 3-1-8) Tank capacity
- (1) Hydraulic tank unit: ----- 25 L
 - (2) Lubrication tank: ----- 1.8 L
 (For guide ways and ball screws) 1.8 L
 (For spindle lubrication)
 - (3) Tank for spindle cooler: ----- 30 L
 - (4) Coolant tank: ----- 300 L

- 3-2) Standard M/C Accessories
- (1) Dummy tool: ----- 1 pc
 - (2) Standard tools (Spanners & wrenches): ----- 1 set
 - (3) Fuses (Spares): ----- 1 set
 - (4) Leveling bolts & Leveling sheets: ----- 1 set
 - (5) Installation components (Jet anchor type): ----- 1 set
 - (6) Internal chip conveyor (Spiral coil type): ----- 2 sets
 - (7) Flood coolant device: ----- 1 set

6 (six) nozzles, 0.365 kW pump (Pump discharge volume: 48/67 L/min (50/60 Hz)
 Water lift 10 m in normal temp. and clean water with no load by pump manufacturer's catalogue) are equipped.

CAUTION: NEVER USE CLEAN WATER ONLY AS COOLANT.

- (8) Coolant tank (Floor type, 300 L): ----- 1 set
- (9) Note) Tank must be cleaned in suitable interval for better M/C maintenance.
- (9) Work lamp (Fluorescent lamp, 8w x 2 pcs.): ----- 1 set
- (10) Alarm/Machining finish display lamp (2 story signal tower): ----- 1 set
 - Alarm display: Red
 - Machining finish: Yellow (Lit with M00, M01, M02, M30 & M60.)
- (11) Spindle speed meter/Override: ----- 1 set
 - Spindle speed meter: Displayed on CRT screen.
 - Override: External rotary switch operation
- (12) Spindle load meter (Displayed on CRT screen in percentage.): --- 1 set
- (13) Automatic power shut OFF device (Displayed and set on CRT screen.): --- 1 set
- (14) Spindle cooling device (Synchronized with temp. of M/C body.): 1 set
 - Compressor: 0.75 kW, Pump: 0.4 kW, Fan motor: 0.05 kW

(15) Cooler for spindle motor: ----- 1 set

• Fan cooler: 0.037 kw x 2 pcs.

(16) Plug socket (Convenience outlet), AC 100V (1 A): ----- 1 set
(Attached to main operating panel.)

(17) Door interlock (SPG door/ ATC magazine door): ----- 1 set

3-3) NC Unit Specifications

3-3-1) Model: FANUC SYSTEM 16MB

3-3-2) Standard specifications

Underlined specifications are NIIGATA STANDARD (FANUC Options).
Specifications marked ☆ (Op.: Option) are leveled up specification by
equipping optional specification.

☆(1) Control method: Controlled by AC Servo Motors and Pulse Coders.

(2) Controlled axes

☆ • Controlled axes: 3 axes (X, Y, Z)

☆ • Simultaneously controllable axes: 3 axes (Positioning: G00
Linear interpolation: G01)
2 axes (Circular interpolation:
G02/G03)

(3) Input command

- Least input increment: 0.001 mm
- Max. programmable dimension: ±99999.999 mm
- Absolute (G90)/ Increment (G91) programming
- Decimal point programming
- Inch / Metric conversion (G20/G21)
- Tape code: EIA/ISO auto judgement

(4) Feed

- Cutting feed rate: F5 digit programming in mm/min designation
- Dwell: G04
- Jog feed: 1 - 2000 mm/min (24 steps)
- Hand wheel feed: One manual pulse generator
0.001/0.01/0.1 mm per deviation
- Rapid traverse override: F0, 25 / 50 / 100 %
- Feed rate override: 0 - 200 % (10 % increment)

(5) Part program storage and edit

☆ • Part program storage: Equivalent with 80 m punched tape
• Background editing

Note) In ATC program; • Program 1 (one) number
• Program capacity: About 1 m
• Program No.: 0 9001
is used.