Intelligent High Speed CNC Drill with Versatility

FANUC ROBODRILL

α-T21iFs/T21iF/T21iFL
α-T14iFs/T14iF/T14iFL
α-T21iFe/T21iFe/T21iFe
α-T14iFe/T14iFe/T14iFe
FANUC ROBODRILL α-iF series is a high speed versatile AI CNC drill with spindle taper size No. 30 for high precision and high efficiency production.

**High speed, high precision, and ultimate efficiency**

**Nano CNC System**
- Has a ultra-precision pulse coder for control with interpolation and feedback in nanometers

**High acceleration positioning**
- Acceleration over 1.5G

**Rigid structure of machine mechanism**
- High precision machining at high efficiency

**AI contour control I & HRV control**
- Greatly reduces profile errors caused by servo delays

**DDR260i**
- Enables easy addition of one additional axis.
- High precision simultaneous 4-axis machining with a synchronous built-in servo motor.
- Considerably reduced index time (to 1/3 of conventional ones).

**Intelligent Control**

**AI contour control II**
- Implements very smooth machined surfaces

**AI tool life management/ AI tool monitoring**
- Tool life management based on frequency and time of use, and cutting load

**AI thermal displacement compensation**
- Compensation for thermal displacement that may occur when the spindle and feed axis operate

**Robot system**
- From a compact

**Standard**
- Program transfer from a personal computer

**FANUC®**
- Easy equipment
**Robotization, Networking, and System integration**

- **em** machining cell to a large-scale production line
- **Ethernet** inter and network building
- **CIMPLICITY® iCELL** achieving programs and monitors the operating status onal computer
- **tom PMC function** creation of sequence programs suitable for your peripheral pmation

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**Operational Excellence**
- MANUAL GUIDE 
- Quick editor
- Production control and tool counter
- Setup file

**Safety Excellence**
- Conformance on the European and Chinese safety standards
- Dual check safety function
- Front door with an electromagnetic lock

**Management Excellence**
- ISO9001 certified
- ISO14001 certified
Versatile Applications to Meet Wide-variety of Machining Needs

**Auto parts machining**
Highly rigid mechanism achieves heavy machining efficiently in milling, boring and side cutting. Multi-face machining and contouring makes auto parts machining easier.

**Electrical parts and small parts**
High speed axis feed, high speed spindle operation and optimal acceleration and deceleration control provides efficiency of machining and reduced cycle time. This series is also suitable for machining of electrical and small parts, from high-speed cutting of light metal such as aluminum to cutting of stainless steel.

**Three-dimensional machining**
High-speed and High-precision machining for resin models, electrodes and precision parts, is possible with high speed processing. NURBS interpolation and super-minute line segment program provide smooth machined surfaces requiring little finishing, in a short time.

**Deep and small hole drilling**
Deep hole over 30 times deeper than the hole diameter and small hole about 0.1mm at its diameter can be drilled.

**Deburring and chamfering**
Precise high-speed contouring allows deburring and chamfering for sophisticated parts such as magnesium mold, die cast, forged or cast parts. This series is also available for machining the datum plane at the succeeding process.
High-precision indexing is made possible by using a closed loop

**High speed and high power spindle**
- Spindle is directly coupled with its motor.
- Least maintenance due to grease sealed bearings.
- The high speed and high precision ball bearing is used for the high-speed spindle.
  (Some of touch switches may not be used according to the type of LT.)

**Spindle output (10,000min⁻¹)**

<table>
<thead>
<tr>
<th>Speed (min⁻¹)</th>
<th>Output (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000</td>
<td>1.50</td>
</tr>
<tr>
<td>6300</td>
<td>2.00</td>
</tr>
<tr>
<td>8500</td>
<td>2.50</td>
</tr>
<tr>
<td>10,000</td>
<td>3.25</td>
</tr>
</tbody>
</table>

**Continuous rating (95% rated):**

- 8500: 2.50 kW
- 10,000: 3.25 kW

**Spindle output (24,000min⁻¹)**

<table>
<thead>
<tr>
<th>Speed (min⁻¹)</th>
<th>Output (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000</td>
<td>1.25</td>
</tr>
<tr>
<td>6300</td>
<td>1.75</td>
</tr>
<tr>
<td>8500</td>
<td>2.25</td>
</tr>
<tr>
<td>10,000</td>
<td>3.00</td>
</tr>
</tbody>
</table>

**Continuous rating (95% rated):**

- 8500: 2.25 kW
- 10,000: 3.00 kW

**Spindle organization**

<table>
<thead>
<tr>
<th>Spindle</th>
<th>Coolant</th>
<th>BT tooling</th>
<th>DIN tooling</th>
<th>NC tooling</th>
<th>BIG-PLUS tooling</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000min⁻¹</td>
<td>External coolant</td>
<td>Possible (BT30)</td>
<td>Possible (DIN69871-A30)</td>
<td>Possible (NC5-46)</td>
<td>Possible (BTBT30)</td>
</tr>
<tr>
<td>Center through coolant</td>
<td>Possible (BT30)</td>
<td>Possible (DIN69871-A30)</td>
<td>Impossible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24,000min⁻¹</td>
<td>External coolant</td>
<td>Possible (BT30)</td>
<td>Possible (DIN69871-A30)</td>
<td>Impossible</td>
<td>Possible (BTBT30)</td>
</tr>
<tr>
<td>Center through coolant</td>
<td>Possible (BT30)</td>
<td>Possible (DIN69871-A30)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Compact, very rigid basic structure and high-speed, fast-acceleration axis feed**
- Rapid traverse speed: 54m/min with FANUC Series 31i-A5/
  48m/min with FANUC Series 31i-A
- Max. Acceleration:
  - over 1.5G with FANUC Series 31i-A5/
  - over 1.3G with FANUC Series 31i-A
- Z-axis travel: 330mm

<table>
<thead>
<tr>
<th>X-axis travel</th>
<th>Y-axis travel</th>
<th>Table working space</th>
<th>Table loading capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>300mm</td>
<td>300mm</td>
<td>630x330mm</td>
<td>150kg</td>
</tr>
<tr>
<td>500mm</td>
<td>400mm</td>
<td>650x400mm</td>
<td>250kg</td>
</tr>
<tr>
<td>700mm</td>
<td>400mm</td>
<td>850x410mm</td>
<td>250kg</td>
</tr>
</tbody>
</table>

(*) The additional amount of 100 mm is provided for improving approach characteristics during work.

**High speed rigid tapping**
- Max tapping up to 8,000min⁻¹ (at 24,000min⁻¹ spindle)/5,000min⁻¹ (at 10,000min⁻¹ spindle)
- Reduced tapping cycle time by quick extraction with override up to 20 times.

**Superior performance for machining**

Versatile machining is possible including drilling, tapping, milling and profiling.

**A machining sample with 10,000min⁻¹ spindle (**1)**

<table>
<thead>
<tr>
<th>Workpiece</th>
<th>Medium carbon steel</th>
<th>Gray cast iron</th>
<th>Aluminum alloy die casting</th>
<th>Workpiece</th>
<th>Medium carbon steel</th>
<th>Gray cast iron</th>
<th>Aluminum alloy die casting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drill diameter</td>
<td>25 dia. HSS</td>
<td>25 dia. HSS</td>
<td>25 dia. HSS</td>
<td>Tap size</td>
<td>M16</td>
<td>M16</td>
<td>M16</td>
</tr>
<tr>
<td>Drill material</td>
<td>Drill material</td>
<td>Drill material</td>
<td>Drill material</td>
<td>Feed hole</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Spindle speed</td>
<td>3500</td>
<td>3500</td>
<td>3500</td>
<td>Spindle speed</td>
<td>S</td>
<td>S</td>
<td>S</td>
</tr>
<tr>
<td>Feedrate F</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>Feedrate F</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Coolant</td>
<td>Water-immiscible cutting fluid</td>
<td>Emulsion type water-immiscible cutting fluid</td>
<td>Coolant</td>
<td>Water-immiscible cutting fluid</td>
<td>Emulsion type water-immiscible cutting fluid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load meter %</td>
<td>140</td>
<td>140</td>
<td>140</td>
<td>Tolerance class</td>
<td>6H</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Enhanced high speed and high acceleration spindle reduces machining cycle time significantly.**

**A machining sample with 24,000min⁻¹ spindle (**1)**

<table>
<thead>
<tr>
<th>Workpiece</th>
<th>Medium carbon steel</th>
<th>Aluminum alloy die casting</th>
<th>Workpiece</th>
<th>Medium carbon steel</th>
<th>Aluminum alloy die casting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drill diameter</td>
<td>20 dia. HSS</td>
<td>20 dia. HSS</td>
<td>Tap size</td>
<td>M16</td>
<td>M16</td>
</tr>
<tr>
<td>Drill material</td>
<td>Drill material</td>
<td>Drill material</td>
<td>Feed hole</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Spindle speed</td>
<td>3500</td>
<td>3500</td>
<td>Spindle speed</td>
<td>S</td>
<td>S</td>
</tr>
<tr>
<td>Feedrate F</td>
<td>90</td>
<td>90</td>
<td>Feedrate F</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Coolant</td>
<td>Water-immiscible cutting fluid</td>
<td>Emulsion type water-immiscible cutting fluid</td>
<td>Coolant</td>
<td>Water-immiscible cutting fluid</td>
<td>Emulsion type water-immiscible cutting fluid</td>
</tr>
<tr>
<td>Load meter %</td>
<td>140</td>
<td>125</td>
<td>Tolerance class</td>
<td>6H</td>
<td></td>
</tr>
</tbody>
</table>

(**1)** Sample data may vary on machining conditions

(**2)** Unit: mm/min
Intelligent Control

High-speed control
Bell-shaped acceleration/deceleration, in-position width switching for rapid traverse/cutting feed, rapid traverse overlapping, and other control functions, as well as AI contour control I for reading 30 blocks in advance, optimize axis motion and reduce machining cycle time.

Optimal acceleration/deceleration
During positioning, acceleration/deceleration is optimally controlled according to the torque and speed characteristics of the motor. Making full use of the motor characteristics at a low speed reduces positioning (rapid traverse) time, resulting in reduction in machining cycle time.

HRV control
The latest and quick response servo motor ai series with an high-precision pulse coder of 16,000,000/rev. resolution is adopted. And a combination of HRV control, which are leading-edge digital servo/spindle control technologies, reduces possible servo delay and allows the least tracking error on high-speed machining.

Nano interpolation
Nano-interpolation is ultra-precision interpolation which calculates a position command to be transmitted to the digital servo in nanometers (nm) even when the unit used for the command in the program is μm. Together with nano-feedback by the high-precision pulse coder with a resolution of 16,000,000/rev., nano-interpolation implements very smooth movement to improve the precision of machined surfaces.

AI contour control II (option)
AI contour control II implements high-speed, high-precision machining by reading 200 blocks in advance for acceleration/deceleration control. The number of blocks to be read in advance can be increased, thereby enabling up to 1,000 blocks to be read in advance for acceleration/deceleration control. This enables high-speed, high-precision machining without feedrate variations even for a program consisting of super-minute line segments. Nano-interpolation can be used to obtain smooth machined surfaces requiring little finishing.

Jerk Control (option)
Mechanical shock during machining is reduced more than ever before by performing acceleration/deceleration control (smooth bell-shaped acceleration/deceleration before interpolation) that keeps a low level of jerk, which is the rate of change of acceleration with respect to time. In a machining program, a portion in which a specified profile is smooth but significant change in acceleration cause mechanical shock is automatically determined, and controlled so that a suitable speed is achieved.

NURBS interpolation (option)
NURBS curves, which have become widespread as a method of representing free curves, can be specified in a program. High-precision interpolation is performed on each NURBS curve so that a smooth machined surface very close to the designed profile can be obtained. The size of a program can also be reduced as compared with that of a program consisting of minute straight line commands.

Nano-smoothing (option)
From a program consisting of minute line segments created with a CAD/CAM system, the original curved surface is estimated as NURBS curves. The generated NURBS curves are interpolated in nanometers, so that a smooth machined surface close to the designed profile can be obtained, thereby reducing the number of hand finishing process steps.

Fast data server (option)
A huge program for three-dimensional machining that contains continuous settings for small amounts of travel can be stored on the compact flash card built into the fast data server, and can be used for high-speed machining. DNC operation can also be performed from a personal computer. Memory-based operation can be performed using macro statements and subprogram calls. The compact flash card. Programs stored on the compact flash card can be edited.
AI thermal displacement compensation

Compensation for thermal displacement is carried out at real time by monitoring the operation status of the spindle and feed axis and estimating an elongation along the each axes. (The precision of compensation varies with the operating conditions.)

MANUAL GUIDE i

MANUAL GUIDE i can be used to perform all operations from creation of a program to machining on one screen simply. A conventional program using G codes can be created simply using a graphical menu guide. Hole position specification and pocketing can be entered simply without calculations. High-speed real animated simulation with a solid model allows simple machining simulation.

Safety

A dual check safety function is installed, which doubly monitors feedrate, position, and safety signals using two CPUs. Neither special operation nor waiting time for safety check is required. Together with the electromagnetic lock mechanism on each door, this function ensures the safety of the operators without reducing efficiency. The category-3 safety level defined in EN 954-1 is ensured.

AI tool life management / AI tool monitoring (option)

The tool life management traces tool status such as frequency or time of use and replaces a tool when its usage exceeds the preset value. This prevents any trouble on cutting tools such as broken drill. The built-in AI tool monitor watches actual load on drilling by detecting directly external disturbance load of the spindle motor. This provides superior tool management. (For usable ranges, contact FANUC.)

Compliance with safety regulation (option)

Compliance with safety regulation for EU countries (CE mark) and China is available.
Robotization, Networking and System Integration

Robotization
With its robot interface functions for ROBODRILL, the AI CNC drill makes it possible to configure machining systems easily for workpiece loading/unloading, deburring, and other purposes, using robots.

- Provides a built-in interlock function with consideration given to safety. (Interlock panel is not required.)
- Capable of accommodating not only one ROBODRILL with one robot but also two ROBODRILLS with one robot.
- Enables robot jogging, robot hand opening/closing, automatic side door opening/closing, system status display, and robot program selection on the robot operation screen.

It also makes it possible to configure machining robot systems that eliminate the need for peripherals by using multiple robots.

Network
The Ethernet function is available as standard communication for network.

Centralized management package FANUC SIMPLICITY®/CELL can be used on a personal computer connected to the network to manage ROBODRILL programs and monitor the operating status.

Equipment for system configuration
- Centering system
- Broken tool detection unit
- Mist separator
- Probe
- Receiver
- Coolant unit with chip conveyor
- 2-pallet type pallet changer installed at side
Easy Operation

Production control and tool counter
Two production monitoring counters and two accumulation counters are applicable for recognition of scheduled parts production, status display, termination of machining and so on. These counters are indispensable for production. The use status of tools with the tool life management function can also be checked using the tool counter on the same screen.

Setup file
Initial setting information can be stored such as parts coordinate system, offsets values, program identification and so on. Automated initialization for operation is available simply by calling a set of information for ease of use.

Quick editor
Quick editor used to create or edit a program is an easy-to-use full-screen editor, which can perform copy, move, search, cursor jump, and other operations like an editor for PCs. The guidance input function for G codes or M codes allows you to edit a program efficiently. Effective edit of programming is also possible through on-screen selection of G and M codes with guidance.

Compact operator’s panel and 10.4” color LCD
Standard display with 10.4” color LCD integrated with the operator panel features ease of use with least key stroke operations. The soft keys vertically provided to the right of the display unit can be used as machine operation menu keys.

In a memory card slot located at the side of the display unit, a compact flash card can be inserted to perform DNC operation or to enable the card to be used as a large-sized program memory device.

Program management
Large-sized program memory can be easily managed based on program folders and file names (each having up to 32 characters).
Accessory (option)

Wide opening door: 730mm for α-T14/F
Air blow for chips
Top cover
Signal lamp
Tool length switch for automatic measurement

Coolant unit (tank)
Center through coolant
Automatic fire extinguisher (Note)
Intermittent central lubrication
Operation panel with alphabetical key

Coolant unit with chip flush (spot gun provided)
Illumination
Indexing system DDR 260i
(Note) If machining "combustible materials" such as resin and magnesium or if using a water-immiscible cutting fluid, select an automatic fire-extinguishing system because of fire hazards. For information on the objects that can be extinguished by an automatic fire extinguishing system, contact your ROBODRILL sales representative.

Worldwide customer service and support

FANUC operates customer service and support system anywhere in the world through subsidiaries, affiliates and distributor partners. FANUC provides the highest quality service with the quickest response at the location nearest you.

FANUC training center

FANUC Training Center operates training programs on FANUC ROBODRILL i series throughout the year, which focus on practical operations and programming with machining know how and maintenance.

Inquiries: Yamanakako-mura,
Yamanashi, Japan 401-0501
Phone: 81-555-84-6000 Fax: 81-555-84-5540
Outer dimensions
FANUC ROBODRILL α-iF series

Machine (Standard)

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Capacity of workpiece mass</th>
<th>Working surface configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-axis travel (Lateral movement of table) 300mm</td>
<td>200kg (uniform load)</td>
<td>3T-slots, size 14mm pitch 125mm</td>
</tr>
<tr>
<td>Y-axis travel (Cross movement of saddle) 300mm</td>
<td>300kg (uniform load)</td>
<td></td>
</tr>
<tr>
<td>Z-axis travel (Vertical movement of spindle head) 330mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data from table surface to spindle face plane 150 to 400mm (When no high column is specified)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working space (X-axis x Y-axis) 620 x 330mm</td>
<td>650 x 400mm</td>
<td></td>
</tr>
<tr>
<td>Capacity of workpiece mass 200kg (uniform load)</td>
<td>300kg (uniform load)</td>
<td></td>
</tr>
<tr>
<td>Spindle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed range 100 to 10,000rpm*1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spindle (Call number)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedrate</td>
<td>Rapid traverse rate</td>
<td></td>
</tr>
<tr>
<td>1/4 taper No. 30 (with air blow)</td>
<td>54mm/min (X, Y, Z)</td>
<td></td>
</tr>
<tr>
<td>Feedrate</td>
<td>Tool change system</td>
<td></td>
</tr>
<tr>
<td>1 to 30,000mm/min</td>
<td>Turret type</td>
<td></td>
</tr>
<tr>
<td>Tooling</td>
<td>Type of tooling</td>
<td></td>
</tr>
<tr>
<td>JIS B 5339-1998 BT30, MAS 403-1982 P01-T145</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tool storage capacity</td>
<td>21 tools</td>
<td></td>
</tr>
<tr>
<td>α-T21i/Fα/T21i/Fα/T14i/Fα/T14i/Fα/T14i/Fα/T21i/Fα</td>
<td></td>
<td></td>
</tr>
<tr>
<td>α-T21i/Fα/T21i/Fα/T14i/Fα/T14i/Fα/T14i/Fα/T14i/Fα/T21i/Fα</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum tool diameter 80mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum tool length</td>
<td>200mm</td>
<td></td>
</tr>
<tr>
<td>α-T14i/Fα/T14i/Fα</td>
<td></td>
<td></td>
</tr>
<tr>
<td>190mm (Changed by specifications)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum tool mass</td>
<td>2kg (tool mass)</td>
<td></td>
</tr>
<tr>
<td>2kg (tool mass)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum tool mass</td>
<td>2kg (tool mass)</td>
<td></td>
</tr>
<tr>
<td>2kg (tool mass)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Method of tool selection</td>
<td>Random shortest path</td>
<td></td>
</tr>
<tr>
<td>Tool change time (Cut To Cut)</td>
<td>1.65 sec.</td>
<td>(When 2kg tool is specified)</td>
</tr>
<tr>
<td>Motors</td>
<td>Spindle drive motor</td>
<td>5.6kW (100Hz rating) 3.9kW (continuous rating)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Single direct positioning accuracy*1 0.006/3000mm</td>
<td></td>
</tr>
<tr>
<td>Positioning repeatability*2 ±0.002mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numerical control (Standard) (Note)</td>
<td>α-T21i/Fα/T21i/Fα/T14i/Fα/T14i/Fα</td>
<td></td>
</tr>
<tr>
<td>Option (Note) Some options applicable only to certain machine models and configurations.</td>
<td>α-T21i/Fα/T21i/Fα/T14i/Fα/T14i/Fα/T21i/Fα</td>
<td></td>
</tr>
</tbody>
</table>

- Control unit FANUC Series 31i-A5 (C) | Optimum torque acceleration/deceleration | |
- Control unit FANUC Series 31i-A9 (C) | | |
- Basic controlled axes 3 axes (X,Y,Z) | Back ground editing (Multi part program editing) | |
- Simultaneously controlled axes 3 axes | Quick editor | |
- HV control | Control unit incorporated type display unit | |
- Rapid traverse bell-shaped acceleration/ deceleration | With 10-color LCD*3 | |
- Rigidity testing (M29) | Reader/sounder interface | |
- Manual feed hold | Ethernet interface | |
- Part program storage size (S12Xbyte) | | |
- Number of registerable programs (1000) | | |
- Helical interpolation | | |
- 1-digit F code feed | | |
- Inverse feed time (G00) | | |
- Tool post program storage axis (G70byte) | | |
- Number of registerable programs (400) | | |
- Operation panel with alphabet key | | |
- Fast data server (with Compact Flash Memory 1GB) | | |
- Memory card | | |
- Fast Ethernet board | | |
- FANUC CIRCUMFERENCE CELL (for personal computer) | | |
- All tool monitoring | | |
- Tool position offset (G04, G49) | | |
- Adderisor of workpiece coordinate system | | |
- 360 pairs (G54.1) | | |
- Scaling (G05, G04) | | |
- Figure copy (G02, G17, G2) | | |
- Interpolation type vector macro (M08, M97) | | |
- Peak drilling cycle for small deep holes | | |
- Programmable mirror image (G51, G51.0) | | |
- 3-dimensional coordinate conversion (G68, G69) | | |
- Polarity command (G18, G16) | | |
- All contour control | | |
- Look-ahead blocks expansion | | |
- Tool compensation memory C | | |
- 4-digit code feed | | |
- High-speed spindles | | |
- Backup function for power failure | | |
- Additional 60D unit | | |
- Compliance with safety regulations | | |
- FANUC ADE/DE (for personal computer) | | |
- Additional 60D unit (for personal computer) | | |
- All tool monitoring | | |
- Tool post program storage axis (G70byte) | | |
- Number of registerable programs (400) | | |
- Operation panel with alphabet key | | |
- Fast data server (with Compact Flash Memory 1GB) | | |
- Memory card | | |
- Fast Ethernet board | | |
- FANUC CIRCUMFERENCE CELL | | |
- All tool monitoring | | |
- Tool position offset (G04, G49) | | |
- Adderisor of workpiece coordinate system | | |
- 360 pairs (G54.1) | | |
- Scaling (G05, G04) | | |
- Figure copy (G02, G17, G2) | | |
- Interpolation type vector macro (M08, M97) | | |
- Peak drilling cycle for small deep holes | | |
- Programmable mirror image (G51, G51.0) | | |
- 3-dimensional coordinate conversion (G68, G69) | | |
- Polarity command (G18, G16) | | |
- External touch panel interface | | |

**Installations (Note) Please make sure to comply with installation conditions specified by FANUC when installing ROBODRILL.**

- **Power supply**
  - 200 to 220 VAC 10 to 15% 3-phase, 50/60Hz ±1Hz 10kVA \*4
  - Compressed air supply 0.35 to 0.55MPa 0.5MPa is recommended (gauge pressure) 0.13m/min (ambient atmospheric pressure) \*5

- **Machine size**
  - Machine height 2,235 \± 10mm (When no high column is specified)