ROBODRILL
WORLD RENOWN FOR HIGH RELIABILITY, PRECISION, & SPEED

α-DiA·SERIES

FANUC 31i-B
THE STANDARD FOR RELIABILITY
**ROBODRILL**

The world’s most popular small machining centers.

RobbyDrill VMCs offer milling capabilities unmatched in a 30 taper machine. Available in three sizes with BIG-PLUS spindles, (14 & 21) station tool changer and the high performance FANUC 31i-B5 Nano control, RoboDrill VMCs provide lightning fast milling, drilling, tapping, and ease of operation.

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Short-bed</th>
<th>Medium-bed</th>
<th>Long-bed</th>
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</thead>
<tbody>
<tr>
<td><strong>TRAVEL</strong></td>
<td></td>
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<tr>
<td>X-Axis Travel</td>
<td>inches</td>
<td>11.8</td>
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<tr>
<td>Y-Axis Travel</td>
<td>inches</td>
<td>11.8</td>
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<tr>
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<td>inches</td>
<td>13</td>
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<td>Spindle to Table</td>
<td>inches</td>
<td>5.9 – 18.9</td>
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<tr>
<th><strong>TABLE SIZE</strong></th>
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<tbody>
<tr>
<td>Table Size</td>
<td>inches</td>
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<tr>
<td>Table Capacity</td>
<td>lbs</td>
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<thead>
<tr>
<th><strong>DIMENSIONS/WEIGHT</strong></th>
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<tbody>
<tr>
<td>Machine Size w/ Coolant Tank (W/D/H)</td>
<td>inches</td>
</tr>
<tr>
<td>Machine Weight</td>
<td>lbs</td>
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</tbody>
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### SPINDLES

- **Spindle taper**: BBT-30 Big Plus
- **10,000 rpm**
  - hp: 18.7 / 5.4 **
- **24,000 rpm**
  - hp: 34.8 / 7.3 **
- **Max Torque**
  - (10000 rpm / 24000 rpm) lbs-ft (1 min): 58.8 / 25.8

### FEEDRATE

- **X axis rapid traverse** in / min: 2125
- **Y axis rapid traverse** in / min: 2125
- **Z axis rapid traverse** in / min: 2125
- **Contouring** in / min: 1181 (2362 opt.)
- **Acceleration** G: 1.5

### ATC

- **ATC Turret Capacity**: 21 tools (14 OPT)
- **Max. tool weight** (magazine) lbs (kg): 4.4 / 6.6
- **Max. total tool weight** lbs (kg): 33 / 48
- **Tool to tool change time** sec: 0.9 / 1.1
- **Chip to chip change time** sec: 1.6 / 2.1
- **Max. tool length** in (mm): 9.8
- **Max. tool diameter** in (mm): 3.14

Specifications subject to change without notice.

* 1 min rating
** Continuous

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[Diagram of spindle performance and other specifications]
An economical workhorse VMC for years of continuous milling, drilling, & tapping.

FANUC CNC 31i-B5
Achieve high speed rigid tapping with FANUC Serial Servo Bus communication. 1000 block look-ahead, 0.4 millisecond bps

STANDARD FEATURES
- Rigid tapping up to 5,000 rpm
- High speed reverse tapping
- “Quick” tap recovery system
- 3 axis simultaneous machining
- Nano CNC system
- Part program storage: 1280 meters
- Custom macro B
- Canned cycles for drilling
- Coordinate system rotation
- Coordinate system setting
- Tool compensation memory C
- Tool offset pairs 200-pairs
- Thread milling
- Helical interpolation
- AI Contour Control I
- 1 millisecond servo response time
- Thermal growth compensation
- Simultaneous ATC / table positioning
- On screen display of spindle ‘rpm’ and ‘load’ meters

OPTIONAL FEATURES
- Rotary tables & indexers
- 4 & 5 axis simultaneous machining
- Robotic loading
- Methods turnkeys

Specifications subject to change without notice

LIGHTNING FAST & COST EFFECTIVE  30 TAPER VMC
14.75 HP 10000 RPM DIRECT DRIVE SPINDLE 39 FT-LBS TORQUE
Pre-Engineered Automation: Flexible - Easy to Setup - Easy to Use

Optional 4th axis and workholding fixture available

Power Requirements
- RoboDrill power: 15 KVA
- RoboDrill compressed air: 80 PSI

Optional 4th axis and workholding fixture available

Maximize unattended spindle time

Adjustable infeed / outfeed conveyor for a variety of work

Single or multi-machine configurations available

JobShop.Cell

• Available on all model RoboDrills
• Robot interface and robot side auto door
• Robot safety guarding with safety interlock
• Inbound conveyor: 12" x 60"
• Outbound conveyor: 12" x 72"
• Collision guard software (optional)
• 1 Pneumatic double-acting valve for workholding
• Chip management system: Flush and air blow (does not include chip conveyor)
• 1 Positive pressure nozzles for part blow-off
• Triple alarm light

FANUC RoboDrill VMC
• Horsepower: Up To 35 @ 1,700 RPM
• Spindle speed: 10,000 RPM or 24,000 RPM
• Toolchanger: 14 or 21 tools
• Torque: Up To 56 ft.lbf (.750 tap in 303 SS)
• X Axis travels: 300 mm, 400 mm, or 700 mm
• Y Axis travels: 300 mm or 400 mm
• Tool change time: 9 seconds tool to tool
• Rigid tapping: Up To 5,000 RPM (8,000 RPM optional)
• Accelerations (X, Y, Z): 1.5 G
• Rapid traverses: 2,125 IPM
• Feed rate: 1,181 IPM (2,362 IPM optional)
• Coolant-thru-spindle ready
• High-speed reverse tapping
• Thread milling
• Basic top cover
• Memory: 312 K
• 1,000 registerable programs
• Tool comp C (length and diameter)
• 54 work offsets
• Custom macro B
• Thermal compensation

FANUC LR Mate 200i Robot
• Axes: 6
• Payload (at wrist): 6.6 pounds
• End-of-arm tooling: Double gripper
• Teaching pendant: Color graphics
• Standard load/unload programming sequences
• Standard robot workcell documentation
• On-site robot training (operation and maintenance)

JobShop.Cell

- Intuitive multi window displays and flyout menus
- Multiple program editing
- Integrated help & diagnostics

AUTOMATED SOLUTIONS FOR SMALL AND MEDIUM VOLUMES
**Power Requirements**

- **RoboDrill power:** 15 KVA
- **RoboDrill compressed air:** 80 PSI

**Med Cell**

- **Available on all model RoboDrills**
- **Robot interface and robot side auto door**
- **Robot safety guarding with safety interlock**
- **Inbound conveyor:** 60" long
- **Outbound conveyor:** 72" long
- **1 Pneumatic double-acting valve for workholding**
- **Chip management system:** Flush and air blow (does not include chip conveyor)
- **1 air nozzle for part blow off**
- **Tsudakoma RTT-111-CA 4th and 5th axis rotary table** with built-in pneumatic pallet clamping system
- **System designed to handle 70mm square pallets (3R, Hirshmann, Erowa), pallets not included**
- **Triple alarm light**

**FANUC LR Mate 200i Robot**

- **Axes:** 6
- **Payload (at wrist):** 6.61 pounds
- **End-of-arm tooling:** Single gripper
- **Teaching pendant:** Color graphics
- **Standard load/unload programming sequences**
- **Standard robot workcell documentation**
- **On-site robot training (operation and maintenance)**

**Power Requirements**

- **JobShop Cell power:** 110 VAC / 15 A
- **JobShop Cell compressed air:** 90 PSI

**Standard Features**

- **FANUC RoboDrill (All models available)**
- **Horsepower:** Up To 35 @ 1,700 RPM
- **Spindle speed:** 10,000 RPM or 24,000 RPM
- **Toolchanger:** 14 or 21 tools
- **Torque:** Up To 73 ft.lbf (.750 tap in 303 SS)
- **X Axis travels:** 300 mm, 400 mm, or 700 mm
- **Y Axis travels:** 300 mm or 400 mm
- **Tool change time:** 9 seconds tool to tool
- **Rigid tapping:** Up To 5,000 RPM (8,000 RPM optional)
- **Accelerations (X, Y, Z):** 1.5 G
- **Rapid traverses:** 2,125 IPM
- **Feed rate:** 1,181 IPM (2,362 IPM optional)
- **Coolant-thru-spindle ready**
- **High-speed reverse tapping**
- **Thread milling**
- **Basic top cover**
- **Memory:** 512 K
- **1,000 registerable programs**
- **Tool comp C (length and diameter)**
- **54 work offsets**
- **Custom macro B**
- **Thermal compensation**

**iPendant™**

- Intuitive multi-window displays and flyout menus
- Multiple program editing
- Integrated help & diagnostics
**PC2 Pallet Changer**

The flexibility of a stand alone machine with the productivity of a pallet shuttle.

- **10,000 or 24,000 RPM spindle**
- Receiver base with chip flush ensures change repeatability
- Dual pallet shuttle

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**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Unit</th>
<th>PC2</th>
<th>Specification</th>
<th>Unit</th>
<th>PC2</th>
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<td><strong>FEEDRATE</strong></td>
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<tr>
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<td>X axis rapid traverse</td>
<td>in/ min</td>
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<td>X axis travel</td>
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<td>Maximum tool weight</td>
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</tr>
</tbody>
</table>

**OPTIONAL FEATURES**

- Rotary tables & indexers
- Robotic loading
- Pneumatic fixtures
- Methods turnkeys
- Helical Interpolation
- Rigid Tapping 5,000/8,000 RPM
- Thread milling
- High Speed Reverse Tapping
- “Quick” Tap recovery system
- Custom macro B
- Canned cycles for drilling
- Coordinate system rotation
- Coordinate system setting
- Simultaneous ATC / table positioning
- On screen display of spindle ‘rpm’ and ‘load’ meters

**FANUC CNC 31i-B5**

Achieve high speed rigid tapping with FANUC Serial Servo Bus communication. 1000 block look-ahead, 0.4 millisecond bps

Specifications subject to change without notice.
**Trodemaster**

The smart choice for high precision 3D graphite machining.

**FANUC MACHINES**

- Torit DFO 2-1,000 cfm graphite dust collector
- Alpha numeric keypad
- 1,000 registerable programs
- 54 work offsets
- RS 232
- 3 axis simultaneous machining
- 31i-B5 Nano CNC system
- Ultra precise 16,000,000 pulse/rev encoders
- AI Contour Control II & high speed processor
- Thermal growth compensation
- Rigid tapping up to 8,000 rpm
- Part program storage: 1280 meters
- Tool compensation memory C
- Helical interpolation
- Ethernet
- Fast data server w/1GB program storage
- Nano smoothing
- Jerk control
- 1,000 block look ahead w/.04 millisecond response time
- Renishaw NC-4 laser tool measurement

All models available in Short Bed, Medium Bed, and Long Bed.

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**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Unit</th>
<th>Trodemaster α-D21S</th>
<th>Trodemaster α-D21M</th>
<th>Trodemaster α-D21L</th>
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<td>X axis</td>
<td>in</td>
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<td>19.7</td>
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<td>5.9 – 18.9</td>
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</tbody>
</table>

**TABLE SIZE**

| Table size | in | 24.8 x 13 | 25.6 x 15.7 | 33.5 x 16.1 |
| Table capacity | lbs | 440 | 660 | 660 |

**DIMENSIONS/WEIGHT w/o DUST COLLECTOR**

| Width/depth/height | in | 39 x 87 x 94 | 62 x 87 x 94 | 83 x 87 x 94 |
| Machine weight | lbs | 4,290 | 4,400 | 4,620 |
| Max. tool weight | lbs | 4.4 / 6.6 |
| Max. tool length | in | 9.8 |
| Maximum Tool Dia. | in | 3.14 |
| ATC type | - | 14/21 station turret |
| Chip to chip change time | sec | 0.9 / 1.1 |
| Tool to tool change time | sec | 1.6 / 2.1 |
| Max. tool length | in | 9.8 |
| Max. tool wt. | lbs | 44 / 66.6 |
| Max. total tool wt. | lbs | 33 / 48 |
| Tool to tool change time | sec | 0.9 / 1.1 |

**OPTIONAL FEATURES**

- Rotary tables & indexers
- 4 & 5 axis simultaneous machining
- Robotic loading
- Methods turnkeys

**COMPACT COST EFFECTIVE ELECTRODE MANUFACTURING**

1000 CFM Downflo® Oval Dust Collector • 24000 RPM Spindle

* 1 min rating

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**TRODMASTER 24000 RPM SPINDLE**

- FANUC 31i-B5 Nano control with ultra precise 16 million pulse/rev encoders
- 1000 CFM Torit Downflo® Oval dust collector provides up to 25% more filtration capacity than other same-sized cartridge collectors.

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**OPTIONAL FEATURES**

- Rotary tables & indexers
- 4 & 5 axis simultaneous machining
- Robotic loading
- Methods turnkeys
The FANUC DDR is a full fourth-axis table designed specifically to complement the speed and versatility of the RoboDrill. Capable of 200 RPM, the FANUC DDR can unclamp, rotate 180°, and reclamp in less than 0.3 seconds. Virtually backlash-free, the DDR’s direct drive motor has no gears to wear out or sustain damage. If bumped, it can be easily tuned to original specifications.

A true milling fourth axis, the DDR has a part loading capacity of 220 lb and 369 ft-lb of torque, enough to handle even the most difficult applications. With its unique combination of speed, strength, and reliability, the DDR is ideal for small volume job shops or OEMs making millions of parts. Priced at thousands of dollars less than comparable fourth-axis tables, it is an exceptional value.

(1) or (2) additional axis control can be added to the Fanuc 31i-B5 to enable simultaneous contour machining. Utilizing an optional Fanuc DDR direct drive rotary table, or conventional 4th or 5th axis rotary tables, the RoboDrill becomes a high speed 4/5-axis VMC.

With 50 years of experience, Methods can engineer a turnkey solution to your production demands. Starting with an in-depth analysis of your company’s machining goals, problems, and quality control requirements, Methods will provide not only a machine, but a total package of tool research and selection, part programming, fixturing, robotic or automated loading, and machine customization.
Methods Machine Tools has provided innovative productive solutions to manufacturing technology for over fifty years. Strategically located throughout North America, our Methods team is more than 300 strong, and has installed more than 29,000 machines. Today, Methods’ solutions are at the heart of some of the most advanced automated metalworking operations in North America.

Methods has built an excellent reputation as the leading supplier of precision machine tools, closely partnering with machine manufacturers and end-user customers. With an unrivaled combination of leading machine technology, application expertise, and service, we’ve given manufacturers the ability to consistently obtain highly productive, profitable operations and quality parts.

Our partners include Nakamura-Tome for multi-tasking turning centers, FANUC for drilling and wire EDM, FEELER for machining centers, turning centers, bridge and boring mills, Exeron for EDM die sinking, and Kiwa-Japan for expandable horizontal machining centers. Methods also has dozens of other lead suppliers for automation, tooling, fixtures, and quality control.

THE POWER OF PRODUCTIVITY

FANUC has been relentless in machining research and development since 1956, when it began developing NCs. Since then, FANUC technology has built a worldwide reputation as a leader in the CNC and robotic manufacturing revolution. The FANUC product lineup includes their renown CNCs, RoboDrills, RoboCut EDMs, servo motors, and robotic arms. Their unmatched quality has earned them an excellent reputation throughout the world, including Japan, Europe, and other Asian countries, where FANUC has invested in an expansive customer service network of highly skilled, experienced engineers trained to assist customers with all of their maintenance needs.