FANUC

ROBODRILL α-DiB SERIES
VERTICAL MACHINING CENTERS

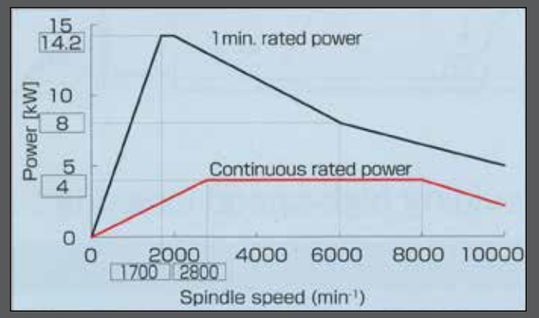
Exceptional Performance
Uncompromising Reliability

D21 ADVANCED

More of Everything!
Power - Rigidity - Speed - Capability

- Column Design Change, Better Clearance, More Ridged
- Longer Z-Axis Stroke 400 mm
- Servo Turret
- Greater Tool Weight Capacity 4 kg
- Up to 880 Table Load Capacity
- Increased Y-Axis Clearance to Column
- Improved Y & Z-Axis Way Covers
- Improved Spindle Head Cover
- Faster Tool Change Time 0.7 Tool-to-Tool 1.3 Chip-to-Chip
- Improved Electrical Cabinet Design
- Power Fail Backup Module Included
- 31*i*B5 *i*HMI Control, Touch Screen
- Smart Overlap Cycle Time Reduction Features
- 32,000,000 Pulse Encoders with Least Input Increment of 0.1 um Program Command
- Full 5-Axis Capable

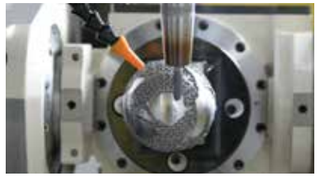
10,000 rpm



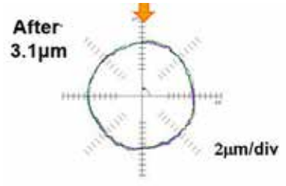
24,000 rpm

Feature	Unit	D21S*i*B5ADV	D21M*i*B5ADV	D21L*i*B5ADV
TRAVEL				
X-Axis	in (mm)	11.8 (300)	19.7 (500)	27.6 (700)
Y-Axis	in (mm)	11.8 (300)	15.7 (400)	15.7 (400)
Z-Axis	in (mm)	15.7 (400)	15.7 (400)	15.7 (400)
TABLE				
Table Size	in (mm)	24.8 x 13 (630 x 330)	25.6 x 15.7 (650 x 400)	33.5 x 16.1 (850 x 410)
Max. Table Load	lbs (kg)	441 (200)	882 (400)	
GENERAL				
Machine Weight	lbs (kg)	4,740 (2,150)	4,850 (2,200)	5,070 (2,300)
Floor Space	in (mm)	39.1 x 87.4 (995 x 2,220)	63.5 x 80.7 (1,615 x 2,050)	85.2 x 80.7 (2,165 x 2,050)
Height	in (mm)	88 (2,236)		
Controllable Axes	-	5		
Controller	-	31*i*-B5		

Feature	Unit	D21S*i*B5ADV	D21M*i*B5ADV	D21L*i*B5ADV
SPINDLE				
Spindle Speed	rpm	10,000 | 24,000		
Spindle Taper	-	BIG PLUS BBT-30		
Rigid Tapping Speed	-	6,000 | 8,000		
FEED RATE				
Rapid Traverse Rate	in/min (m/min)	2,125 (54)		
TOOLING / TURRET				
Tool Capacity	-	21		
Max. Tool Diameter	in (mm)	3.15 (80)		
Max. Tool Length	in (mm)	7.5 (190)	9.8 (250)	
Max. Tool Weight	lbs (kg)	8.8 (4)		
Tool-to-Tool Time	sec	0.7		
Chip-to-Chip Time	sec	1.3		



Up to 8,000 rpm Tapping



Ultra Precise 32,000,000 Pulse Encoders

ROBODRILL D14 & D21

Power - Rigidity - Speed - Capability

Lightning fast & the most reliable machine on the market

5 million cycle ATC design for highly reliable manufacturing

10,000 & 24,000 rpm direct drive spindle delivers

Feature	Unit	D14M*i*B	D21S*i*B5	D21M*i*B5	D21L*i*B5
TRAVEL					
X-Axis	in (mm)	19.7 (500)	11.8 (300)	19.7 (500)	27.6 (700)
Y-Axis	in (mm)	15.7 (400)	11.8 (300)	15.7 (400)	15.7 (400)
Z-Axis	in (mm)	13 (330)	13 (330)	13 (330)	13 (330)
TABLE					
Table Size	in (mm)	25.6 x 15.7 (650 x 400)	24.8x13 (630x330)	25.6 x 15.7 (650 x 400)	33.5 x 16.1 (850 x 410)
Max. Table Load	lbs (kg)	660 (300)	440 (200)	660 (300)	
Rigid Tapping Speed	-	6,000			
SPINDLE					
Spindle Speed	rpm	10,000	10,000 | 24,000		
Spindle Taper	-	BT-30			
GENERAL					
Machine Weight	lbs (kg)	4,400 (1,996)	4,290 (1,946)	4,400 (1,996)	4,620 (2,096)
Floor Space	in (mm)	63.5 x 80.7 (1,615 x 2,050)	39.1 x 87.4 (995 x 2,220)	63.5 x 80.7 (1,615 x 2,050)	85.2 x 80.7 (2,165 x 2,050)
Height	in (mm)	88 (2,236)			
Controllable Axes	-	4	5		
Controller	-	31*i*-B	31*i*-B5		

- 31*i*B Control D14
- 31*i*B5 Control D21
- Short Bed
- Medium Bed
- Long Bed
- Standard 10K or 24K BT Spindle
- 14/21 Tool ATC
- 1,889 ipm Rapids

- Prepped for Coolant Thru (D21 Only)
- 1.6 second Chip to Chip ATC
- 1.5G Acceleration
- DDR / DDR-T Compatible
- JobShop Cell Compatible
- Optional
  - Top Cover
  - High Pressure Coolant Thru Pump (D21 Only)
  - Probe

Optional Features

- Rotary tables & indexers
- 1,000 PSI coolant through
- Robotic loading
- Methods turnkey

PC2 Pallet Changer

Trodemaster

The smart choice for high precision 3D graphite machining

Receiver base with chip flush ensures change repeatability

Pneumatic and Hydraulic fixture capable

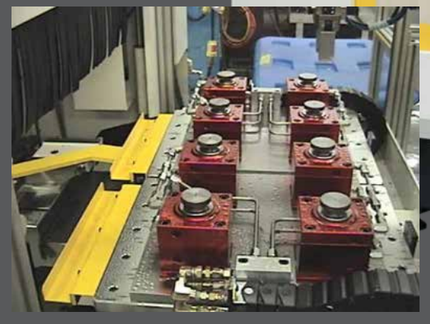
10,000 or 24,000 rpm spindle

Dual pallet shuttle

Intigrated 1,000 CFM Torit Downflo® Oval dust collector provides up to 25% more filtration capacity than other same-sized cartridge collectors

An Economical and Complete Electrode and Composite Machining System

(Graphite, Copper, Composites, Plastics)



Pneumatic and Hydraulic Fixtures

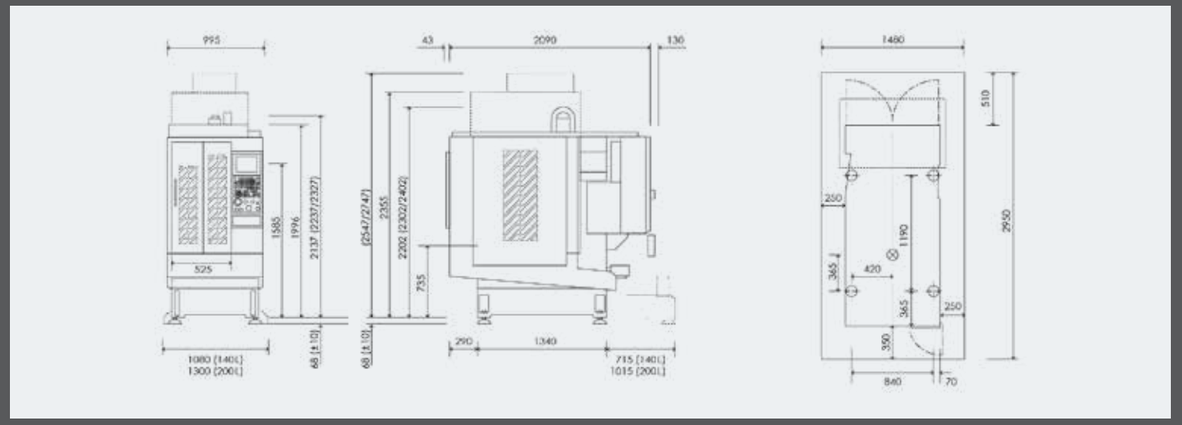
2-Pallet Shuttle Design

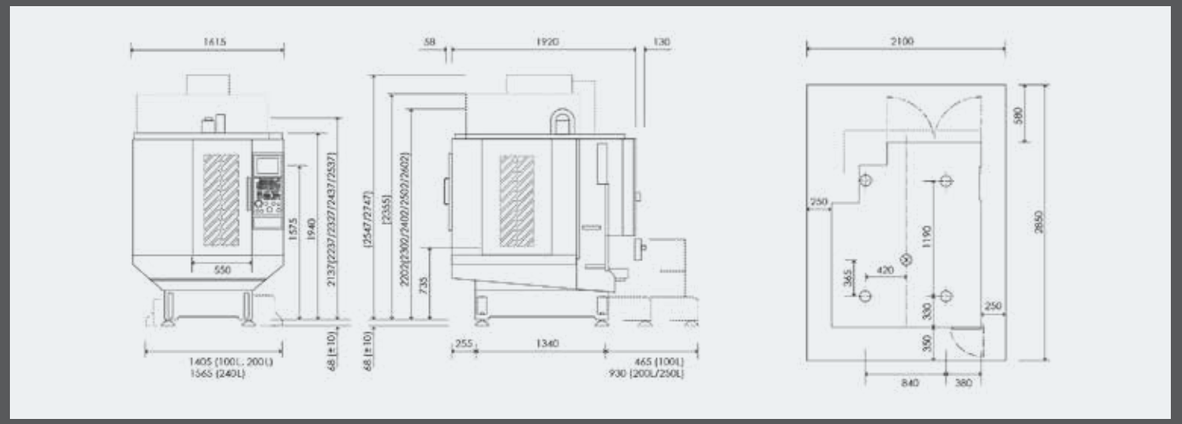
Full Torit dust collection system

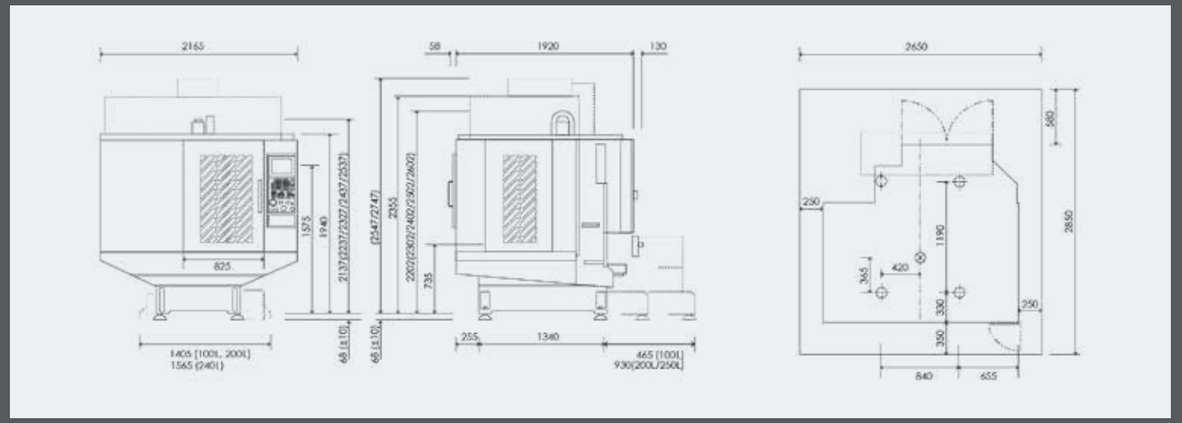
FANUC Control

Floor Plans

The world's most reliable CNC FANUC 31*i*-B5 is at the core of ROBODRILL. User-friendly and easy to program, it contains twenty easy-to-configure M-codes to control additional devices. Further customization is achievable via the custom PMC function.







Options

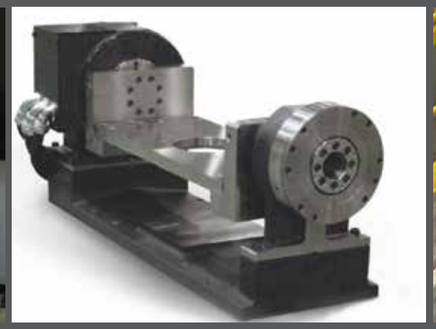
DDR / DDR-T

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 re-clamp 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.



Simultaneous 4 or 5 Axis Machining

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

Other Options

Coolant through spindle

Chip conveyor

Automation

Part probe

Laser tool setter

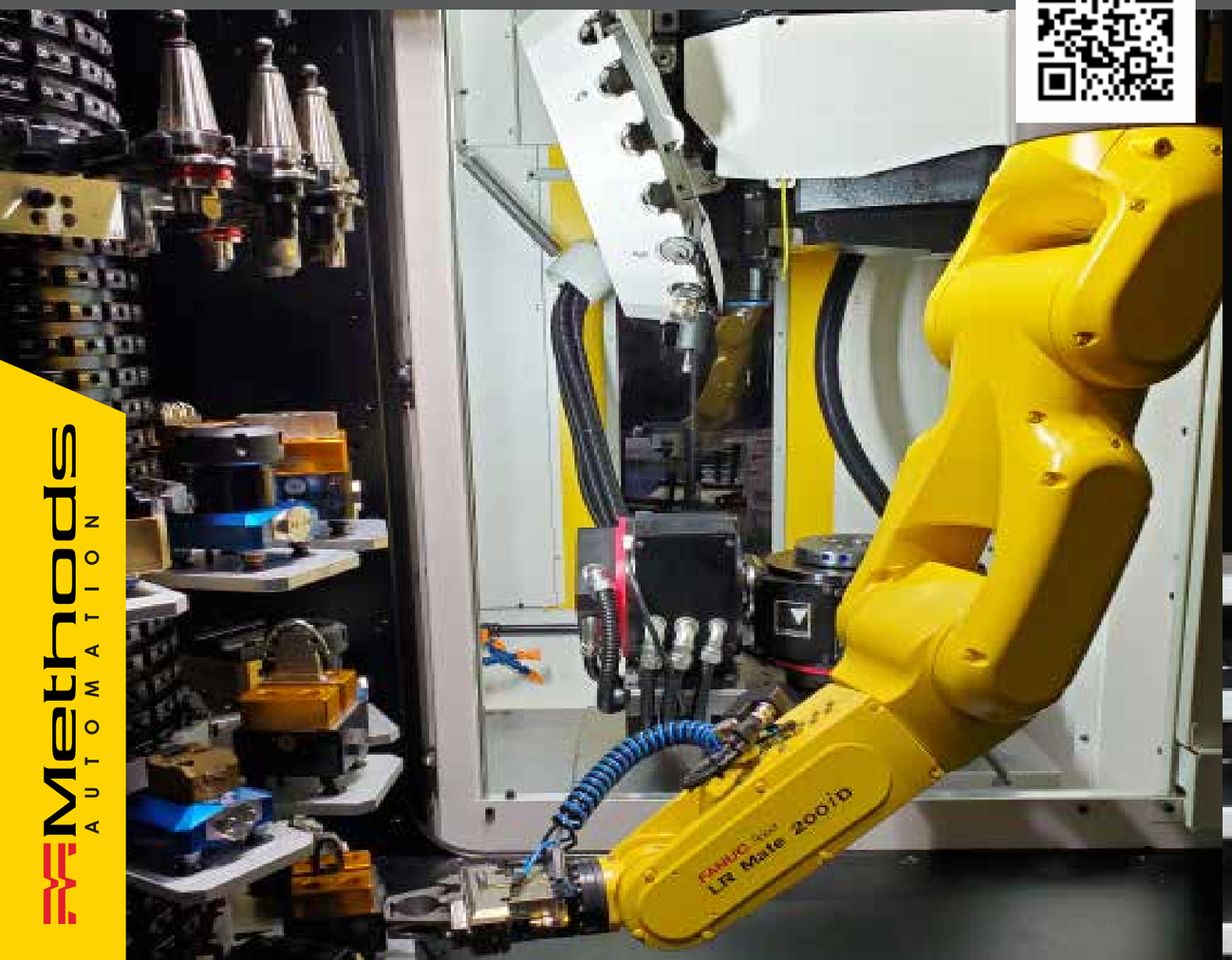
Mist Collector

Standard Features

- 21 Position, Bi-Directional Tool Changer
- "Quick" ATC Recovery System
- 5,000,000 Duty Cycle Time
- Rigid Tapping up to 6,000 / 8,000
- "Quick" Tap Recovery System
- High Speed Reverse Tapping
- Thread Milling
- Helical and Linear Interpolation
- 1 Millisecond Servo Response Time
- Three Axis Simultaneous Expandable to Five Axis Simultaneous (Except D14iB)
- Custom PMC
- Simultaneous ATC / Table Positioning
- 1,889 or 2,125 ipm Rapid Rate – X, Y, Z Axes
- Feed Rates to 1,181 ipm X, Y, Z
- Multi Step Skip
- AI Contour Control I with Upgrade to AICC II 1,000 Block Option
- Nano CNC System
- Ultra Precise 32,000,000 Pulses/Rev encoders
- 1.5 G Acceleration
- Thermal Growth Compensation
- 1,000 Registerable Programs
- Smart Backlash Compensation
- HRV3 Plus
- Tool Compensation Memory C
- Tool Offset Pairs 200 Pairs
- Part Program Storage 2 mb
- 6 + 48 Work Offsets
- Coordinate System Rotation (G68.G69)
- Coordinate System Setting (G92)
- Custom Macro B
- Canned Cycles for Drilling (G73, G74, G81~G89/G80)
- Manual Handle Feed
- Coolant System - 200 liter coolant tank and Spindle Coolant Nozzle
- Coolant & Chip Splash Guard
- 1,000 psi coolant thru prepped spindle (Except D14iB)
- Skip Function (G31)
- Background Editing
- Dynamic Graphic Display
- On Screen Display of Spindle 'rpm' and 'Load' Meters including cutting time count down
- Alpha Numeric Keyboard
- Automatic Lubrication System
- Periodic Maintenance Management
- Quick Side (Operator Interface)
- Manual Guide for Milling (Shop Floor Programming System)
- Manuals (1) Each: Operators, Maintenance, Parts, Operators CNC, & Maintenance CNC
- Interior Work Light - LED STYLE
- 2nd Control Slot

Plus-K | Plus-K60

The Plus-K and Plus-K60 is a pre-engineered robotic automation system for storing, loading, and managing workpieces/pallets and additional tools for the medium bed Advanced FANUC ROBODRILL. Two different versions allow adding up to 60 workpiece/pallets and/or over 100 tools depending on the configuration. The low to no setup makes this system very attractive to high mix and mid to low volume work.



Plus-E

The Plus-E is a pre-engineered elevator based robotic automation system for a FANUC ROBODRILL. This system utilizing an elevator to manipulate a stack of pallets which in turn is accessed by the robot for loading and unloading into a FANUC ROBODRILL. Available with up to 32 pallets, this system offers a lot of room for incoming parts and lends itself well to mid to high volume work.

Methods AUTOMATION

CUSTOM AUTOMATION

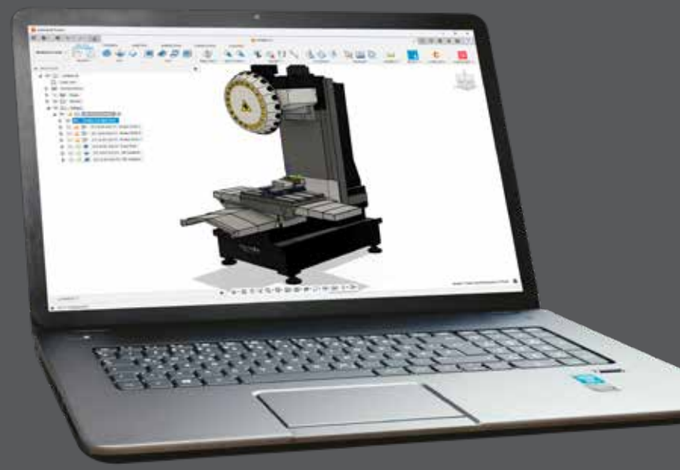
Sometimes there is not an off the shelf solution for your automation needs. In addition to the ever growing offering of standard automation, Methods Automation has a full team to design and build customized solutions to fit your requirements. This could be multiple machines, non-standard part handling, creative robot end of arm tooling, or post machining ancillary operations such as cleaning, measuring or deburring. Please refer to our Methods Automation brochure for more details on what Methods Automation can do for you.

MULTIAXIS

Methods and Multiaxis, LLC. teamed up to provide the Design and Manufacture Software Series. Combining the power Multiaxis' unique e-Learning platform with embedded artificial intelligence capabilities and the familiar Fusion CAD/CAM interface, the Design and Manufacture Series provides simplified and streamlined machine simulation to greatly reduce time spent in design processing, and accelerate production success with the 3-axis FANUC RoboDrill.

The Design and Manufacture Series is directly integrated with the purchase of any 3-axis FANUC RoboDrill from Methods, with direct customer success and technical support offered by Multiaxis, LLC.

More about the Design and Manufacture Series can be found at www.multiaxis.llc



SCAN HERE TO WATCH

View Methods Automation in action and see why many shops trust our systems.

Specifications subject to changes without notice.

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Methods

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