

FANUC

ROBODRILL α -DiB Series Vertical Machining Centers

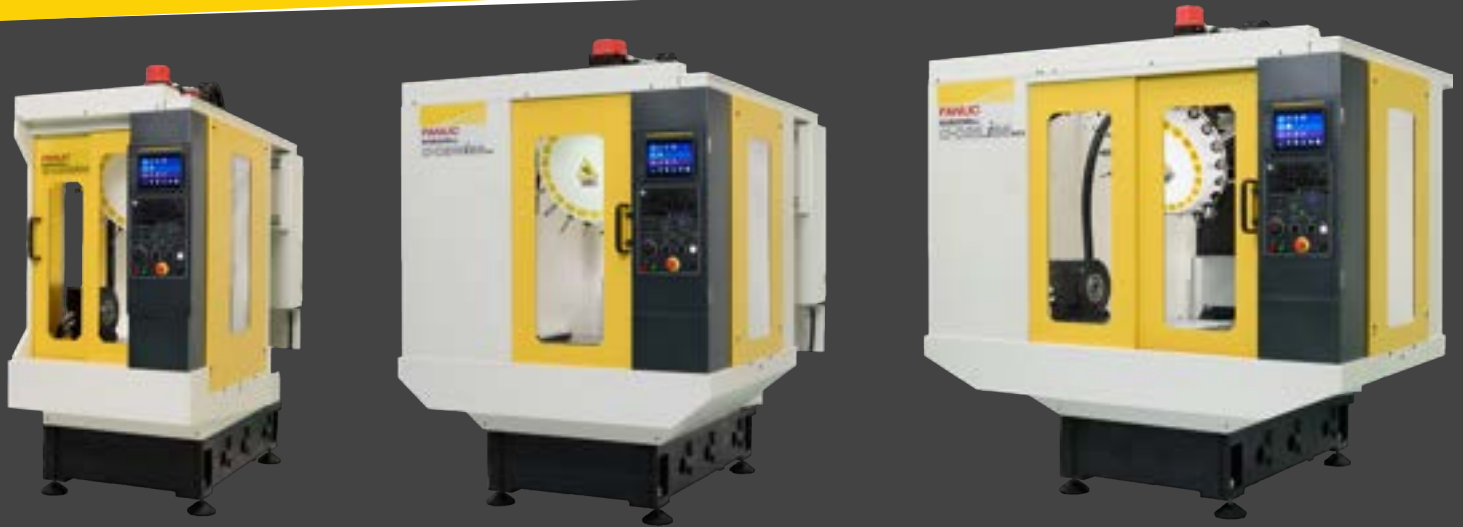


Exceptional Performance
Uncompromising Reliability

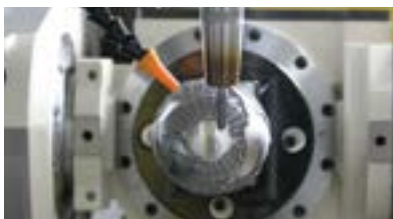
D21 ADVANCED

More of Everything!

Power - Rigidity - Speed - Capability



Feature	Unit	D21SiB5 _{ADV}	D21MiB5 _{ADV}	D21LiB5 _{ADV}
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	-	31i-B5		



Up to
8,000 rpm Tapping

- 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
- 31iB5 iHMI 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

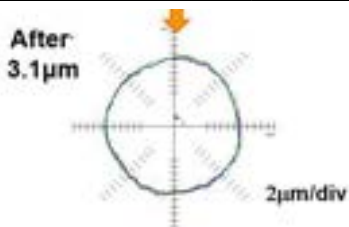
10,000 rpm



24,000 rpm



Feature	Unit	D21SiB5 _{ADV}	D21MiB5 _{ADV}	D21LiB5 _{ADV}
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		



Ultra Precise 32,000,000 Pulse Encoders

ROBODRILL D14 & D21

Power - Rigidity - Speed - Capability



- 31iB Control D14
- 31iB5 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

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	D14MiB	D21SiB5	D21MiB5	D21LiB5
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	-	31i-B	31i-B5		

Optional Features

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

PC2 Pallet Changer

Receiver base with
chip flush ensures
change repeatability

Pneumatic and
Hydraulic fixture
capable

10,000 or 24,000
rpm spindle

Dual pallet shuttle



Pneumatic and Hydraulic Fixtures

2-Pallet Shuttle Design



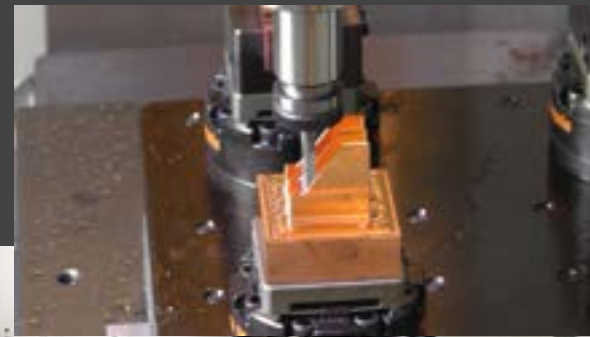
Trodemaster

The smart choice for high precision
3D graphite machining

Integrated 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)



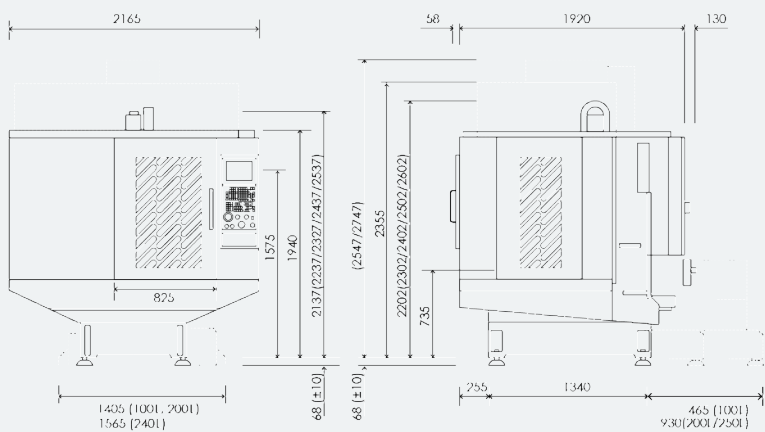
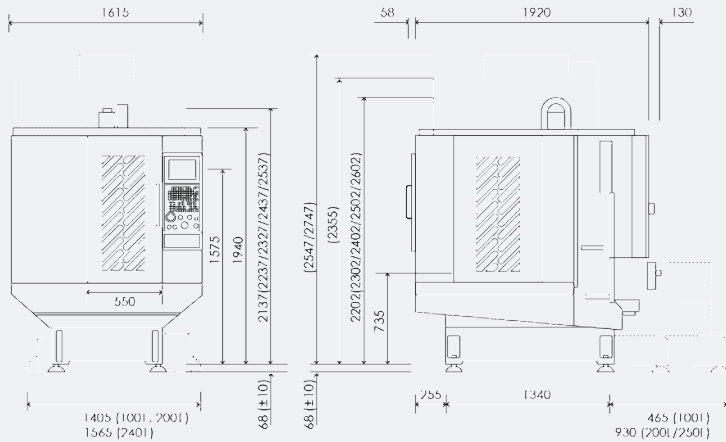
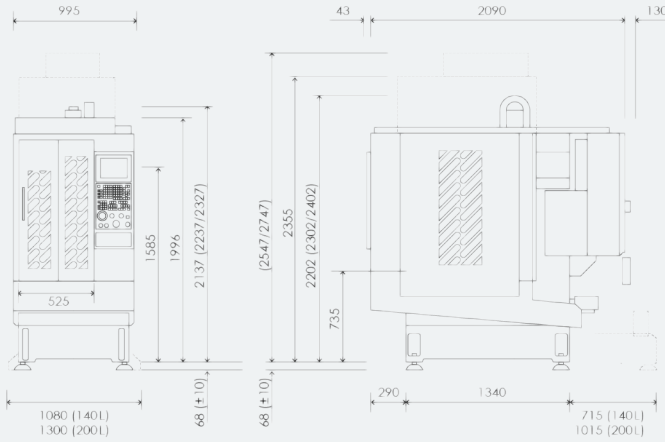
**Full Torit dust
collection system**

FANUC Control

The world's most reliable CNC FANUC 31i-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.



Floor Plans



Options

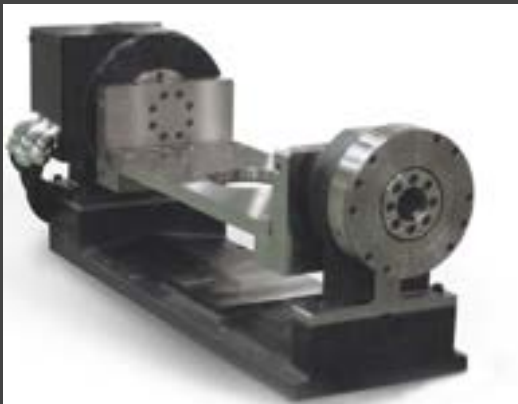
DDR / DDR-T

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 31i-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.



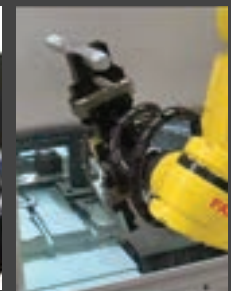
Other Options



Coolant through spindle



Chip conveyor



Automation



Part probe



Laser tool setter



Mist Collector

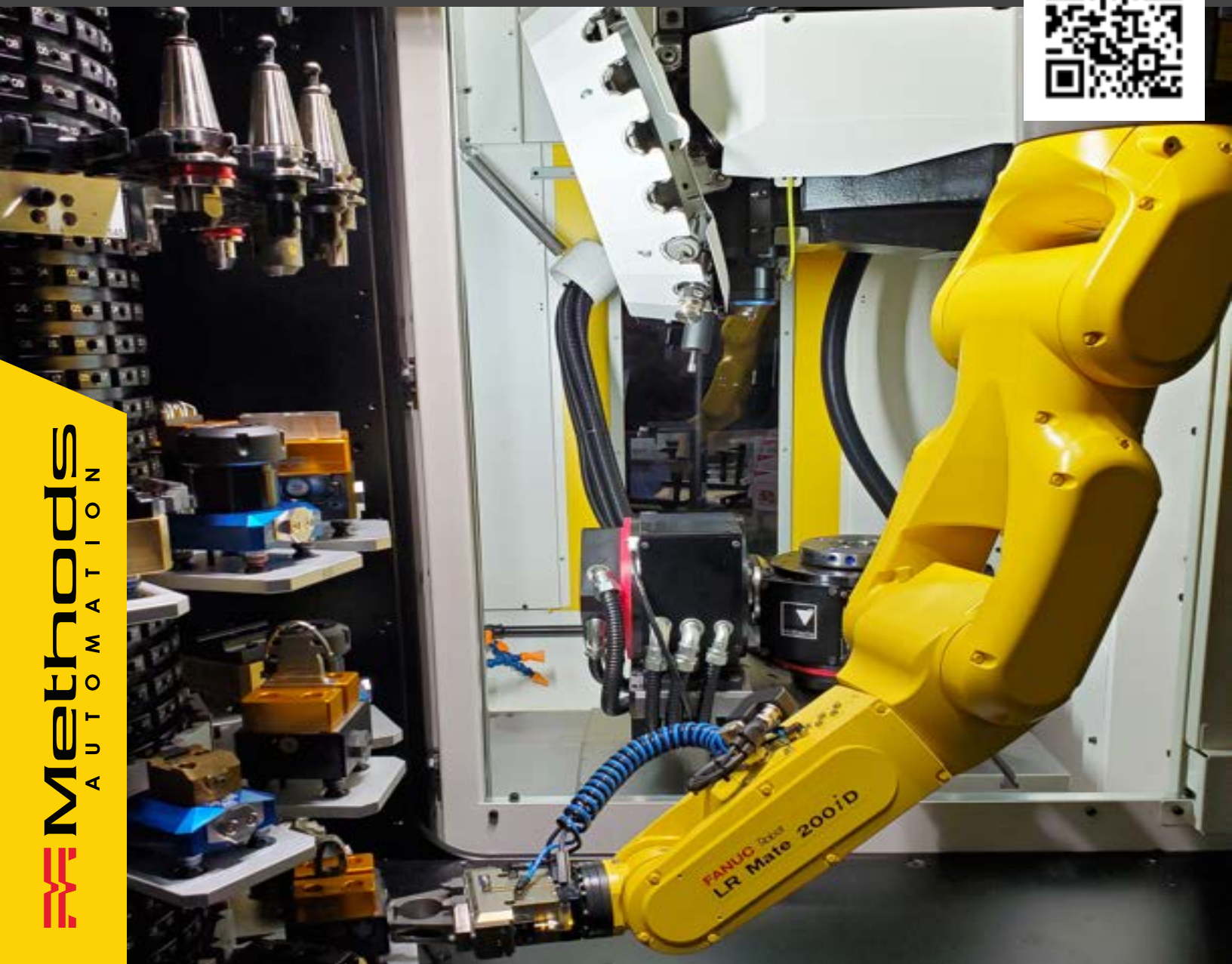
Standard Features

- 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



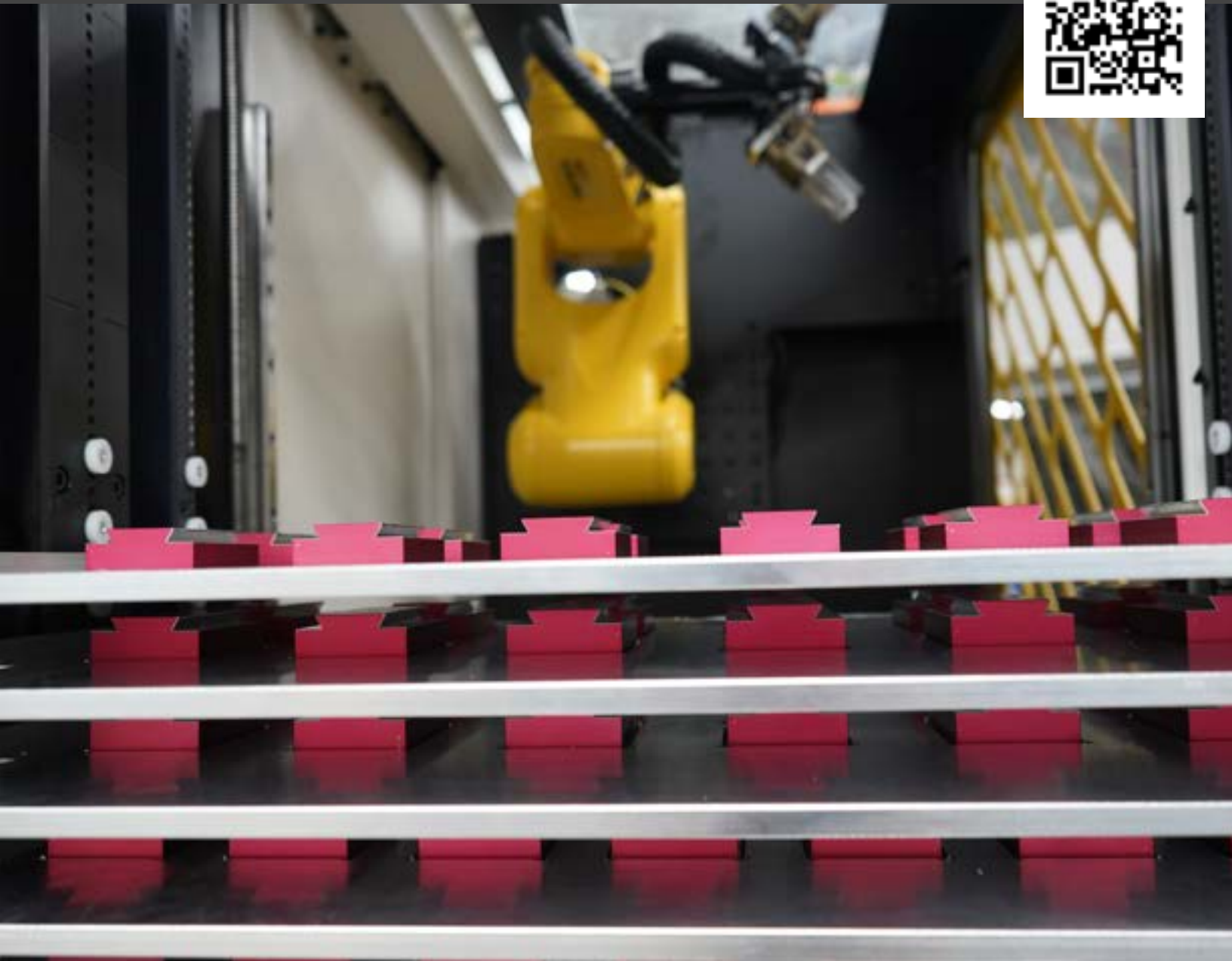
The Plus-K and Plus-K60 is a pre-engineered robotic automation system for storing, loading, and managing workpieces/pallets and additional tools for the medium bed Advanced FANUC ROBODRILL. Two different versions allow adding up to 60 workpiece/pallets and/or over 100 tools depending on the configuration.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



Plus-E



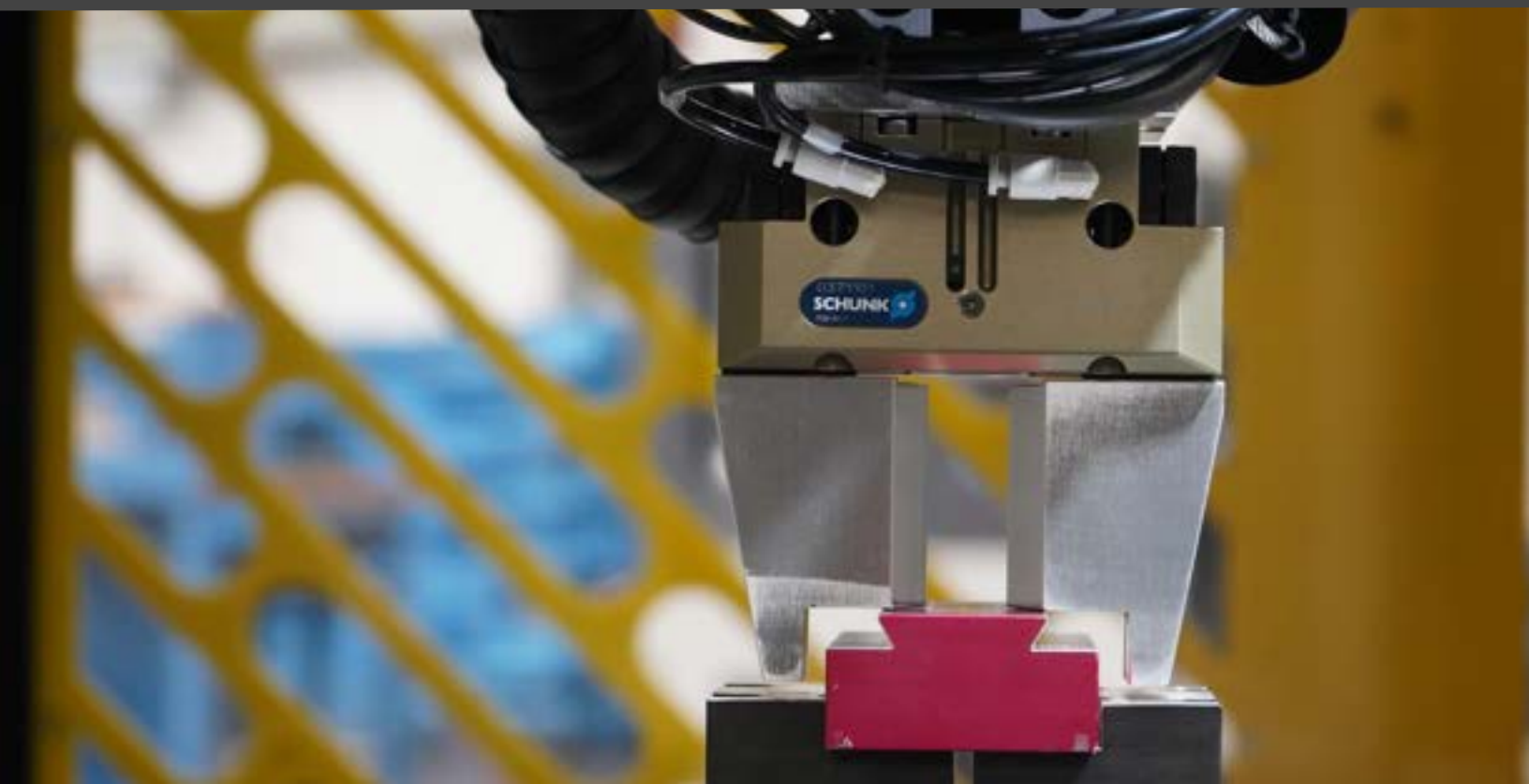
The Plus-E is a pre-engineered elevator based robotic automation system for a FANUC ROBODRILL. This system utilizing an elevator to manipulate a stack of pallets which in turn is accessed by the robot for loading and unloading into a FANUC ROBODRILL. Available with up to 32 pallets, this system offers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



JSC-PRO



The JSC-PRO is a pre-engineered automation system for the FANUC ROBODRILL D21SiB5_{ADV} with several different infeed/outfeed solutions available. The JSC-PRO can be configured with a lazy susan type two station exchange system holding vises or pallets, an over/under infeed and outfeed conveyor or even an interface for a vibratory feeder.



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.



Specifications subject to changes without notice.

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