FANUC

ROBODRILL α-DiB5 series

High-performance vertical machining center

Automated machining
for more versatile milling,
drilling and tapping

Versatility, Speed, Intelligence

The new-generation ROBODRILL promises unrivaled quality and precision at great hourly rates. With an unbeatable tool change time of 0.7 seconds and a turret capable of handling tools weighing 4 kg, the new advanced version is both the fastest and strongest vertical machining center on the market. With by far the shortest cycle times on most machining operations, all ROBODRILL machines offer incredible performance and unbeatable efficiency.

ultra fast tool changer

NRTL Rated Machine

highly dynamic BT30 spindle

rigid servo drive control

HIGH-PERFORMANCE

STABLE MACHINING • HIGH

UNPARALLELED RELIABILITY • HIGH MAINTAINABILITY

MINIMIZE DOWNTIME

FANUC
ROBODRILL
α-D21MiB

Smart is the new powerful

Using intelligent cutting strategies, ROBODRILL achieves the same results as more powerful machines in less time, regardless of whether your application involves high-speed machining, mold making or 5-axis machining.

Future-proof investment

FANUC's legendary reliability coupled with easy preventative maintenance procedures keeps downtime to an absolute minimum. And thanks to their extreme longevity, ROBODRILL machines also provide an unbeatable return on investment.

CE MACHINING

H-SPEED • WIDE RANGE OF APPLICATIONS

optimal acceleration
and deceleration control

latest CNC and
servo technology

extraordinarily stable
machining and accuracy

INTUITIVE USER INTERFACE • FLEXIBLE • SIMPLE INTEGRATION

EASY TO USE

The multipurpose solution to your efficiency needs

Designed to meet every need, the ROBODRILL α-DiB5 series comprises six completely re-designed models in S, M and L sizes, available in either standard or advanced versions. With a rigid servo drive control and a highly dynamic BT30 spindle, these high-speed all-rounders are suitable for all vertical machining applications, from short production runs requiring fast turnaround times to flawless mass production. With 210,000 machines installed since 1972, its future-proof versatility and easy adaptability make the ROBODRILL the best-selling machine in its class.

α-D14SiB5 α-D21MiB5

ROBODRILL standard version: focus on efficiency

The standard version ROBODRILL α-DiB5 is a fast, high-quality all-rounder. With a number of different spindle options to choose from, it's perfect for standard applications. Excellent repeatability makes this model ideally suited to applications such as high-speed drilling, boring and tapping.

- **rigid design** and a rugged cast cross table
- **easy maintenance** thanks to direct access to all components
- **easy operation** thanks to quick and simple, intuitive setup options
- **new iHMI** for utmost user-friendliness and full maintenance planning
- **dedicated maintenance screen** – easy instructions ensure quick recovery if, for example, zero points are lost due to incorrect operator input
- **early issue detection** thanks to an integrated early warning system providing enhanced quality assurance
- **70-bar center through coolant pressure** for non-stop deep and small diameter hole drilling
- **flexibility at any time** thanks to a wide range of components to suit your needs including rotary and tilting tables

ROBODRILL advanced version: extra-strong and superfast

Advanced ROBODRILL α-DiB5 ADV models are designed for cutting-edge high-speed machining and set the performance benchmark in their class. Providing the ultimate in precision and repeatability, they are perfect for long, fully automated production runs and represent a versatile alternative to larger machines. Advanced models come with a range of highly advanced features not available on standard models.

Additional advanced model features:

- **0.7-second tool change** for superfast cycle times
- **4-kg tool handling capability** for multistep tools
- **400-mm z-axis latitude** for larger parts and less interference between tools and workpieces

α-D21LiB5

The secret's in the speed

Tool-on-tool changes on ROBODRILL α-DiB5 models are extremely fast – ranging from 0.9 seconds on our standard versions to an incredible 0.7 on the advanced. Cut to cut that means 1.5 seconds for standard and 1.3 seconds for advanced versions. That's the secret to our speed machine!
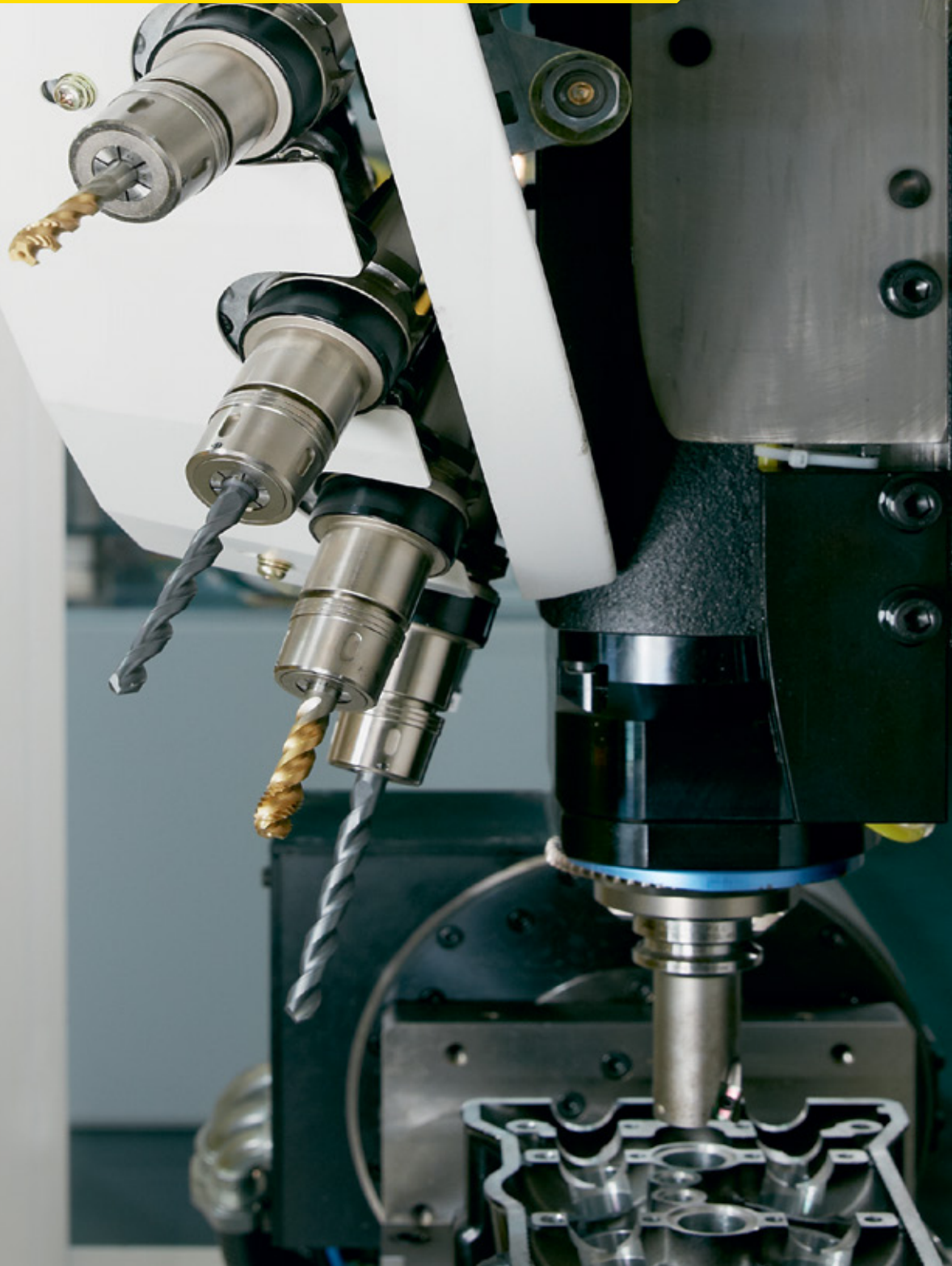
Improved swarf evacuation

To maximize uptime, the ROBODRILL α-DiB5 series has been fitted with a number of swarf evacuation options: from the coolant tank and chip flush methods to a piping system for wall coolant. Advanced versions minimize swarf interference with a dome-shaped Y-axis front cover. It also offers an optional fully-enclosed spindle cover that separates the machining area from the mechanism.

Stronger turret for bigger tools

Advanced model ROBODRILLs feature an even stronger turret. Offering even more versatility, this enables the tool changer to handle heavy, customized cutting tools weighing up to 4 kg while still realizing ultra-quick tool changing times of 1.1 seconds.

The tool changer

At the heart of every ROBODRILL is a patented high-speed tool changer that can carry 21 tools and offers the best reliability in its class. Its manufactured efficiency lies in its solid metal construction and BIG-PLUS BBT30 spindle. This makes it extremely resistant to radial forces and enables it to deliver unbelievably efficient machining.

High-precision control

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.

CF card

USB

easy-to-clean membrane keyboard

optional integrated 5-axis functions

manual pulse generator

- 10.4" colour display
- intuitive *i*HMI screen
- easy data input and minimal keypad entry
- improved interface to robot operation screen

- precise predictive maintenance
- easy auto programming
- easy-to-use control screen
- supports multiple languages

optimized data compatibility

- Ethernet interface
- USB interface
- CF card slot

The freedom to adapt

Whether it's a new setup or changing unit numbers, ROBODRILL's inherent versatility saves you money within a wide range of applications and industries. With everything on board from flexible 3, 4 and 5 simultaneous axes, every model has been designed to grow with your needs.

The intelligent alternative to big machines

Spreading your machining across several ROBODRILLs instead of relying on a dedicated transfer machine allows you to benefit from cheaper production and higher flexibility in the face of changing production numbers. Inherently adaptable, FANUC ROBODRILL also represents a great addition to your production facilities since you can use it to absorb extra demand, thereby freeing up your larger vertical machining centers for bigger jobs.
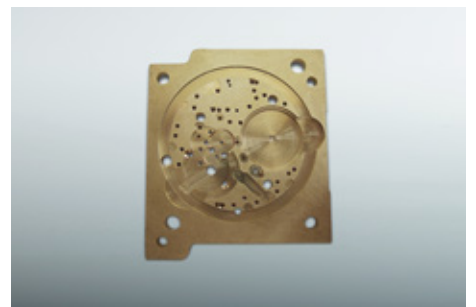
FANUC ROBODRILL for the automotive industry

Mass-producing parts for the automotive industry requires a versatile machining center that combines speed with repeatable accuracy. It needs to continuously produce flawless parts with minimal downtime and quick acceleration all while delivering fast cycle times. To maximize availability and cut costs, it has to be easy to maintain and operate. On-board monitoring should make it fully predictable and ensure that preventative maintenance procedures are always focused, timely and necessary. Given rapidly changing production runs, it needs to be quick and simple to program and set up. Doing all of this and more, ROBODRILL is ideally suited to automotive applications.

Adding fixtures

For more flexible fixture integration, the control panel is available with 220 optional PMC functions and can be customized to include dedicated buttons and lights. An additional PMC function allows operators to create their own I/O options. To ensure maximum uptime, clamping fixtures are secured automatically and the process is confirmed by sensors.

Easy automation

Thanks to a direct robot interface – for 24hr unmanned production, lower costs, easy CNC operation and communication via multiple interfaces, including PROFIBUS and FL-net. Fast Ethernet, FL-Net, PROFIBUS, Devicenet, I/O Link and other high-speed network interfaces offer flexibile connectivity options.
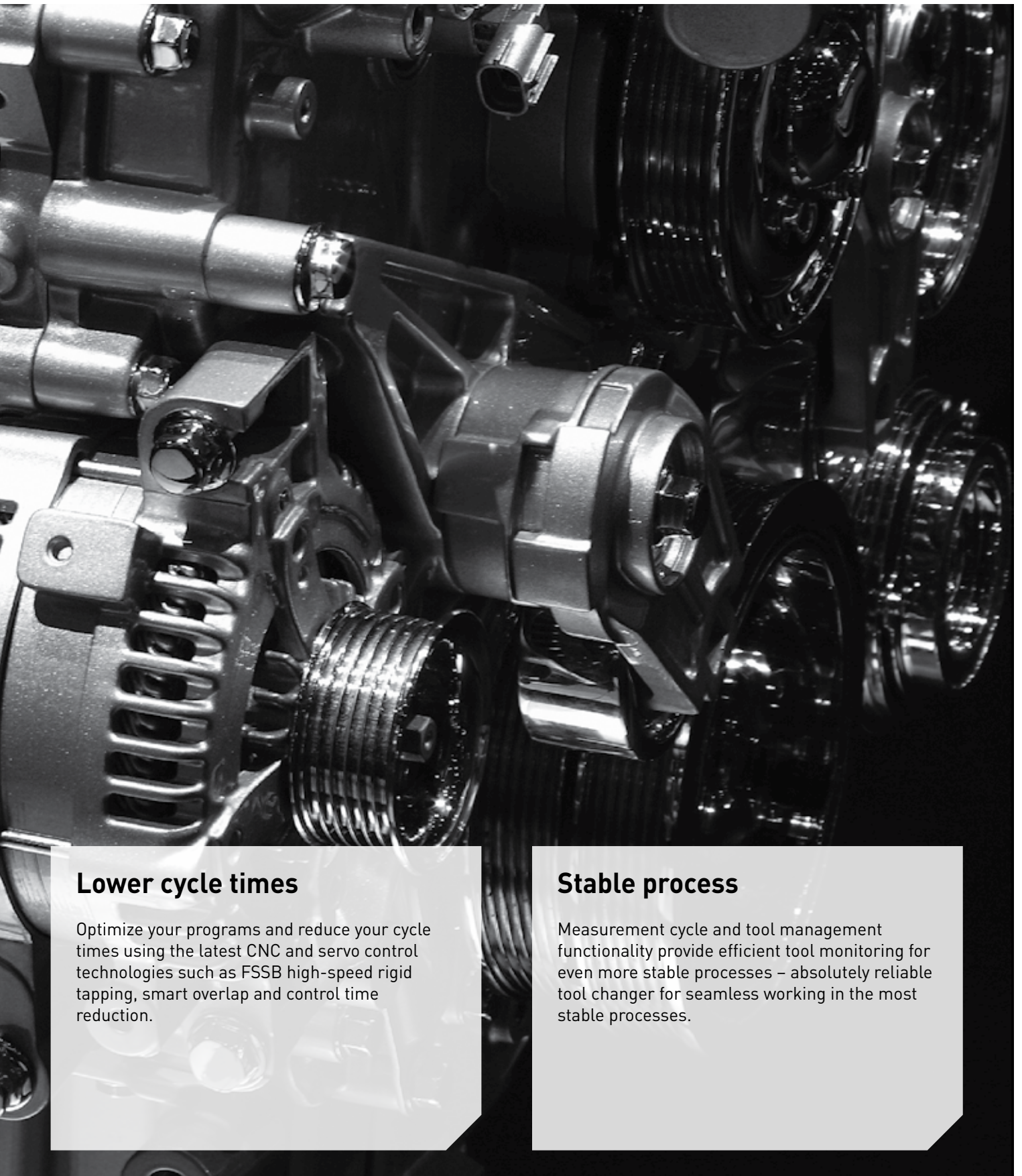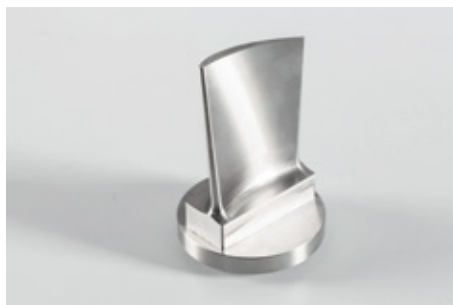
Lower cycle times

Optimize your programs and reduce your cycle times using the latest CNC and servo control technologies such as FSSB high-speed rigid tapping, smart overlap and control time reduction.

Stable process

Measurement cycle and tool management functionality provide efficient tool monitoring for even more stable processes – absolutely reliable tool changer for seamless working in the most stable processes.

Versatile 5-axis machining

To turn your ROBODRILL into a 5-axis machine, all you need to do is add the hardware. Simultaneous 5-axis control and CNC-related requirements such as indexing and simultaneous operation are already in the CNC. Intelligent options such as look-ahead data sets, interpolation and smart smoothing functions mean you can manufacture top-quality molds, electrodes and other 3D parts quickly and precisely.

FANUC ROBODRILL DDR*i*B rotary table – the ideal add-on axis

Thanks to its direct drive motor and improved rigidity for more accurate machining, the FANUC ROBODRILL DDR*i*B makes the perfect additional axis for your ROBODRILL. Benefits include an indexing time of just 0.55 seconds, ultrafast clamping and a clamp torque of 700 N-m. Extremely precise and reliable, the DDR*i*B offers the best value for your money.
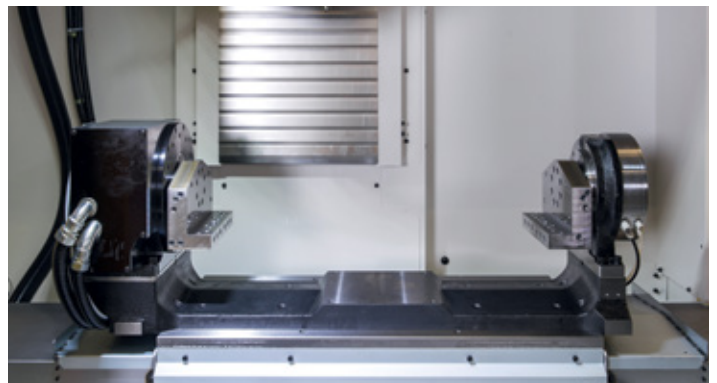

FANUC ROBODRILL DDR-T*i*B – the solution for parts up to 200 kg

Depending on the application, we can equip your ROBODRILL with an extremely rigid DDR-T trunnion system that features all the benefits of the DDR rotary table and includes a support spindle and L-brackets. Its improved rigidity ensures even higher degrees of machining accuracy. All you need to do is add the fixture plate. The DDR-T's practical design ensures that the existing X-axis travel remains the same as on the 3-axis design. Clamp torque on the DDR-T*i*B is 1100 N-m.

Heavy-duty machining

ROBODRILL isn't just for small parts. Thanks to ROBODRILL's strong spindle and rigid structure, it is also ideally suited to heavy-duty machining applications, including high-speed operations involving high volumes of swarf. ROBODRILL even takes large diameter tools normally only found on bigger machines.
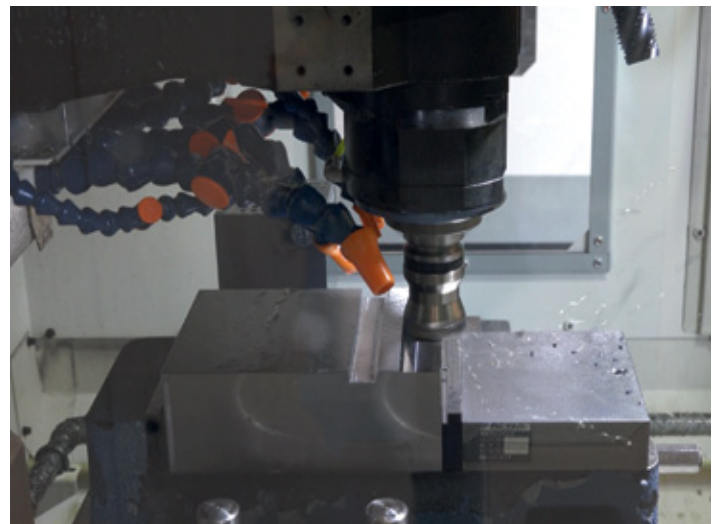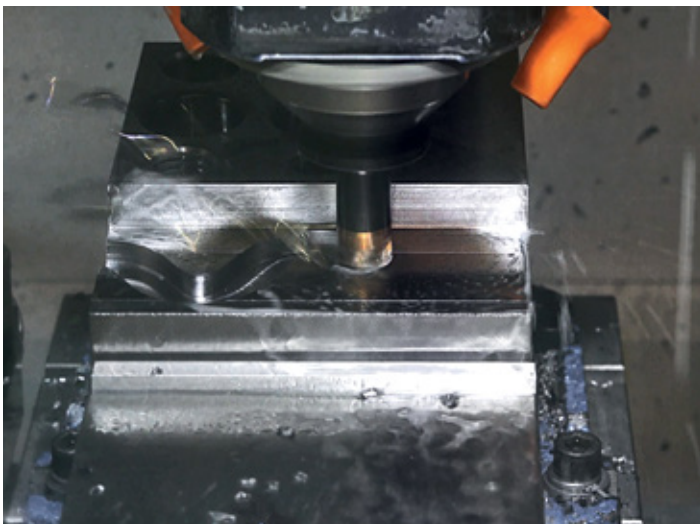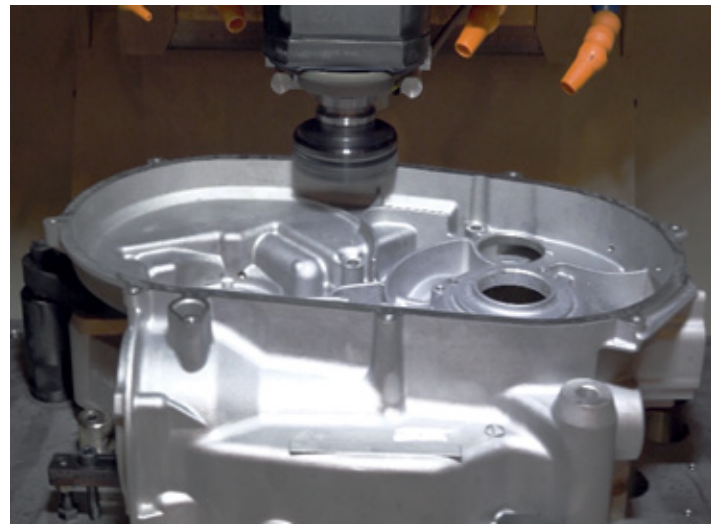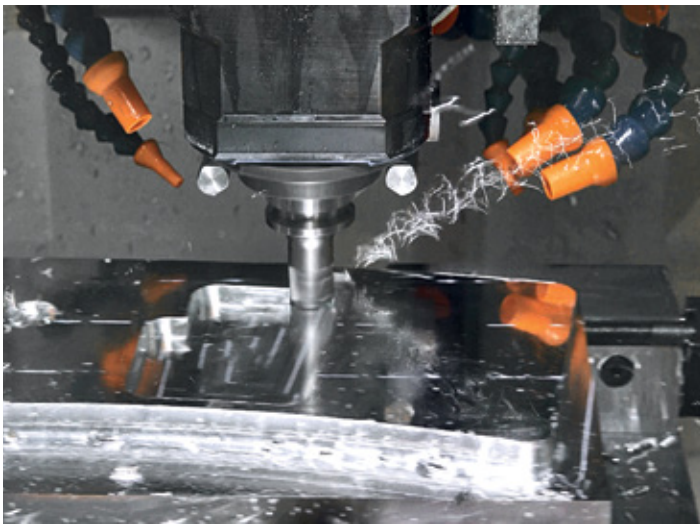
Machining Capability				
Spindle Specification	**High-torque spindle**		**High-acceleration spindle** **High-speed spindle**	
Machining	**Drilling** Tool dia. (mm) × Feed (mm/rev)	**Tapping** Tool dia. (mm) × Feed (mm/rev)	**Drilling** Tool dia. (mm) × Feed (mm/rev)	**Tapping** Tool dia. (mm) × Feed (mm/rev)
Carbon Steel C45	Dia.30 × 0.15	M20 × 2.5	Dia.20 × 0.10	M16 × 2.0
Grey Cast Iron	Dia.30 × 0.30	M27 × 3.0	Dia.20 × 0.25	M22 × 2.5
Die Cast Aluminium Alloy	Dia.32 × 0.40	M30 × 3.5	Dia.22 × 0.25	M24 × 3.0

DESIGNED FOR EASY AUTOMATION

ROBODRILL's compact design and easy accessibility from all sides make it ideally suited for trouble free machine tending. Adding tending robots is easy thanks to our Quick and Simple Startup Packages. All FANUC products speak the same language and share common servo and control platform – something that makes learning and operation extremely easy.

For Example, the ROBODRILL a-D*i*B5 series is designed to meet your changing parts needs. It allows you to not only integrate a FANUC robot into your system but will also enable you to switch seamlessly from different part variances with minimal down time.

FANUC's new flexible solutions for light component manufacturing is the perfect system for all of your Repetitive Manufacturing needs. It is able to make nearly any part with high-speed and accuracy!

FANUC's ROBODRILL a-D*i*B5 series features:
• Automation support function for easy robot integration with the ability to have one robot service two machines
• The flexibility to manufacture unlimited components and part variances for any industry
• High-speed automatic front and side doors open in just 0.8 seconds
• Easy all-round access for robots providing you the freedom to operate the cell automatically
• Just in time manufacturing
• Maximum Productivity, minimal down time and high-speed accuracy – the combination of speed, flexibility and precision!

Remote monitoring with ROBODRILL-LINK*i*

Equipped with a new graphic interface, LINK*i* is an updated production and quality information management tool that allows you to monitor machine status as well as operation conditions of up to 100 ROBODRILL machines in real time from remote PCs or smart devices. Specific information is available for each machining job, and push notifications can be sent to different devices. The extremely user-friendly and intuitive interface gives you access to preventative maintenance functions as well as consumable and repair services.

Status monitor
- layout monitoring
- device monitoring/ device detail monitoring

Operation results
- group operation results
- machining results

Diagnosis
- alarm history
- program history

Maximum uptime

Simple maintenance – early detection: the intuitive visual maintenance interface on ROBODRILL's 31*i*-B5 CNC facilitates faster recoveries after servicing. The integrated early warning system identifies errors before they occur, ensuring maximum precision and consistent quality standards.

Major energy savings

FANUC ROBODRILL delivers considerable energy savings compared to its larger rivals. In addition to numerous intelligent features designed to reduce energy consumption, every component has been chosen to provide the highest possible performance for the least possible energy. Power used by the servo, spindle and peripheral devices is calculated by software and displayed on the Energy Saving Screen, enabling you to monitor and optimize power consumption.
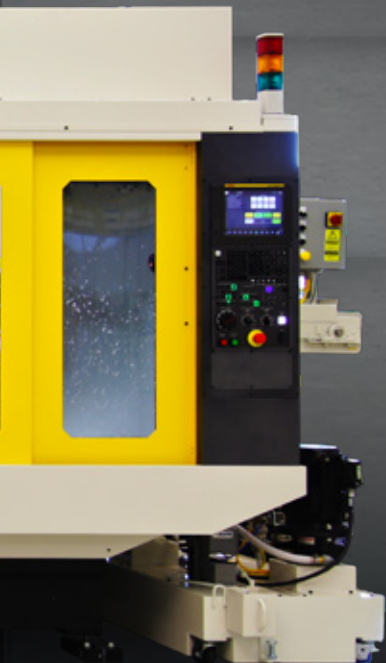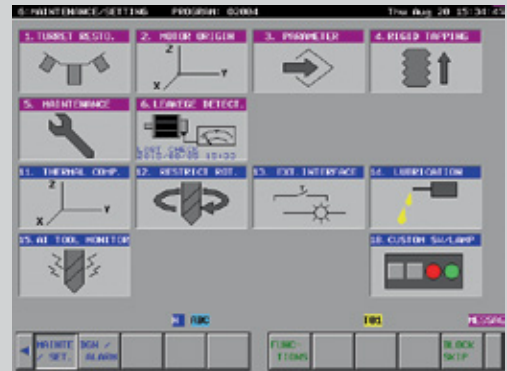
Standard functions

MANUAL GUIDE *i*

Designed to reduce the total time it takes you to get a drawing into production, FANUC MANUAL GUIDE *i* features an ergonomic Graphical User Interface (GUI) and user-friendly icons. Users also benefit from assisted and conversational programming of machining cycles, easy parts programming and simulation.

Quick Screen

To save you time, ROBODRILL's control panel includes four Quick Screens for fast programming and maintenance. These comprise screens for:

- quick CNC program editing
- coordinates and tool compensation settings
  – including the ability to protect and restore data
- machine operation settings – including machining and energy modes according to program
- maintenance settings – including turret restoration and motor referencing


Machining Mode Setting Function

Using this feature, it is possible to set and optimize machining and energy modes according to the program. Servo parameters can be altered to suit machining conditions and machining mode parameters changed via M-code during machining in order to create the best possible conditions for process.


Preventive Maintenance Guidance

Offering a complete overview of ROBODRILL's leakage detection functionality, ROBODRILL's maintenance guidance screens flag up insulation resistance and power leakage issues early, thus avoiding breakdowns by indicating the need for preventative maintenance. Likewise, the screens support periodical maintenance through schedules and reminders. These processes can also be easily customized to suit your exact needs.
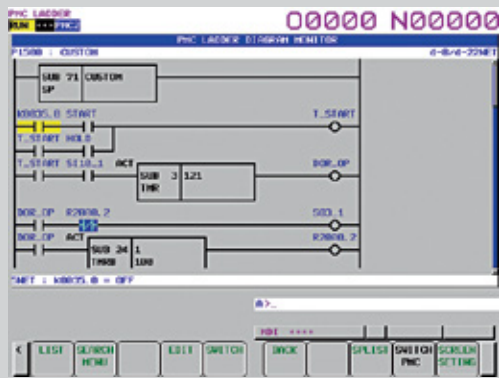
Custom PMC

ROBODRILL's custom PMC features easy-to-create LADDER programs for peripheral devices, including the ability to set LADDER program I/O and customize I/O signals. Its custom control panel includes the ability to monitor the status of peripheral devices, control the ON/OFF on machining programs, create ON/OFF, lamp and pulse switches. Using the panel, peripheral devices are easy and inexpensive to construct and maintain.
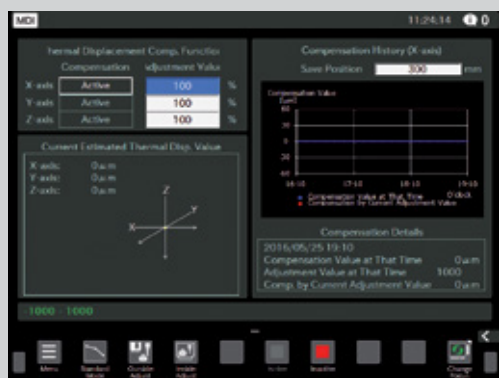

AI Thermal Displacement Compensation

Easy to set up, this function significantly reduces machine warm-up times and ensures accurate machining under thermal growth conditions that can affect dimensional accuracy. By monitoring the operational status of the spindle, the function adjusts the machining process to compensate for any elongation that occurs.

List of standard functions

1. new *i*HMI
2. 10K high-torque spindle
3. basic top cover
4. LED interior lighting
5. automatic oil lubricating
6. Dual Check Safety (DCS)
7. NRTL rated machine
8. 10.4" colour LCD dynamic graphic display
9. multiple language selection
10. alphanumeric operator's panel
11. manual pulse generator
12. data I/O interface (USB, PCMCIA, Ethernet)
13. Quick Screen (ROBODRILL HMI)
14. preventive maintenance guidance
15. external I/O function (free I/O terminal DI16/DO16, 16 free M-codes)
16. custom PMC LADDER function
17. custom operator's panel function
18. production counter
19. Quick Editor
20. AI thermal displacement compensation (X/Y/Z axis)
21. machining mode setting function
22. energy saving function
23. MANUAL GUIDE *i*
24. program simulation
25. background editing
26. canned cycles for drilling
27. FSSB high-speed rigid tapping
28. spindle orientation (M19)
29. sub program call (M98[M198]/M99)
30. custom macro
31. optional block skip
32. high-speed skip
33. AI Contour Control
34. helical interpolation
35. coordinate system rotation (G68)
36. part program storage size 512 KB (optional up to 8 MB)
37. number of registrable programs 1000 (optional up to 4000)
38. addition of workpiece coordinate system 48 pairs (optional up to 300)
39. tool offset memory C
40. HRV+ Servo Control
41. rapid traverse overlap function

Optional functions
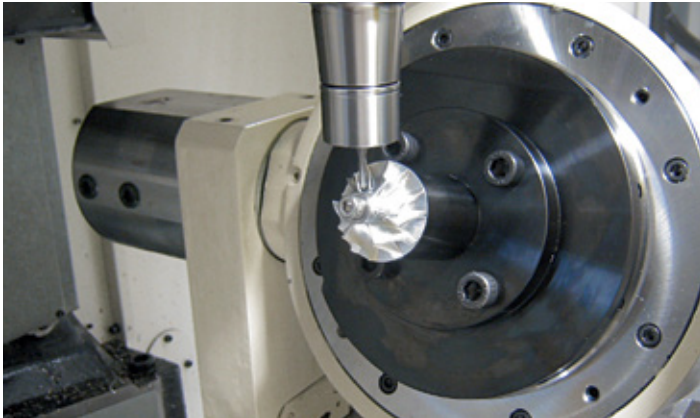
Additional axis interface (4/5 axes)

The standard 31*i*-B5 CNC already contains the functionality required to turn ROBODRILL into a 5-axis machine. All you need to add is the hardware and software option. Simultaneous 5-axis control capability is already in the CNC. Various third-party rotary tables can also be easily fitted to ROBODRILL using an additional servo amplifier and cable connector. On applications involving rotary tables, FANUC Tilted Working Plane Indexing also makes programming holes and pockets in tilted planes extremely easy.

Robot Interface 2

FANUC's Robot Interface 2 enables easy and inexpensive construction of a machining cell with safety issue. You can easily connect four ROBODRILLs and one ROBOT without an additional system controller – the complete control software is included in the ROBODRILL PMC. In addition, the robot controller supports an automatic side door or an automatic front door.

Smoothing functions

FANUC ROBODRILL's Nano Smoothing functionality reduces the need for manual finishing on processes, such as mold machining, that require sculptured surfaces. Look-ahead blocks expansion enables higher-precision machining on processes, such as die and mold machining, that involve cutting complex part forms defined by numerous tiny program blocks. AI Contour Control I/II enables high-precision machining at optimal machining speeds, eliminating errors and increasing feed rates.

Touch probe system

For the exact measurement of tools and workpieces as well as contract-free tool breakage monitoring, ROBODRILL can be equipped with state-of-the-art touch probes and tool measurement devices from a third party.

AI Tool Monitor

The AI Tool Monitor function monitors the load on a spindle during hole machining and, to prevent breakages, issues an alarm should load parameters be exceeded. Designed to prevent breakages and costly downtime from occurring, if a breakage does occur, this feature stops the machine automatically.

Network interfaces

Networking ROBODRILL with personal computers and robots is achieved easily via Ethernet. ROBODRILL supports various types of field networks and connections such as I/O Link, PROFIBUS-DP and FL-net.

List of optional functions

1. 10K high-acceleration spindle/ 24K high-speed spindle
2. 70-bar center through coolant
3. tooling system BIG-PLUS (BBT30)/DIN (SK30)
4. High Column (up to +300 mm) Standard
5. additional axis interface (4 axes/5 axes)
6. direct drive rotary table DDR/DDR-T
7. various coolant options (chip flush/CT coolant/tool taper cleaning)
8. automatic front door and/or side door
9. wide opening front door (M: 730 mm/L: 1100 mm)
10. side window of splashguard
11. chip flush improvement covers
12. fully closed top cover
13. automatic lubrication
14. signal lamp
15. tool run-out detection function
16. AI Tool Monitor
17. touch probe system (Renishaw/BLUM)
18. Robot Interface 2 function
19. network interface (Fast Ethernet, FL-net, PROFIBUS, Devicenet, I/O Link etc.)
20. various additional I/O modules for custom PMC function
21. Fast Data Server 2 GB or 4 GB
22. AI Contour Control II
23. high-speed processing and look-ahead blocks expansion (1000 blocks)
24. Nano Smoothing/Nano Smoothing 2
25. Tool Center Point Control (TCP/High-speed Smooth TCP)
26. 3D cutter compensation
27. 3D coordinate system conversion
28. Tilted Working Plane Indexing command
29. rotary table dynamic fixture offset
30. NURBS Interpolation
31. conical/spiral interpolation
32. cylindrical interpolation
33. Polar Coordinate Command
34. tool position offset/scaling/ programmable mirror image
35. single-direction positioning
36. small-hole peck drilling cycle
37. learning control for parts cutting
38. tool management function for ROBODRILL
39. power failure backup module
40. more FANUC CNC hardware/software functions on request

ROBODRILL α-D*i*B5 series: Standard and Advanced versions

The ROBODRILL α-D*i*B5 series comprises six completely re-designed models in S, M and L sizes, available in either standard or advanced versions.

ROBODRILL Standard version: focus on efficiency
The standard version ROBODRILL α-D*i*B5 is a fast, high-quality and versatile machine. With a number of different spindle options to choose from, it's perfect for standard applications. Excellent repeatability makes this model ideally suited to applications such as high-speed milling, drilling and tapping in the tooling and general industries.

ROBODRILL Advanced version: extra-strong and superfast
Advanced ROBODRILL α-D*i*B5 ADV models are designed for cutting-edge, high-speed machining and set the performance benchmark in their class. Faster tool change and better chip evacuation make the Advanced version perfect for long fully automated production runs and represents a versatile alternative to larger machines. Advanced models come with a range of highly advanced features not available on standard models.
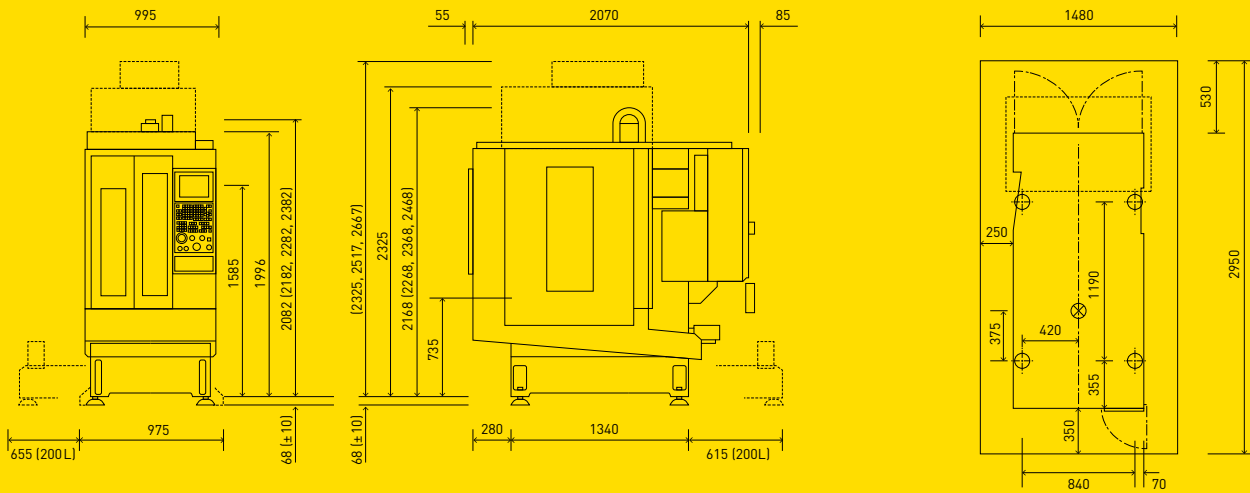
ROBODRILL α-D*i*B5 series

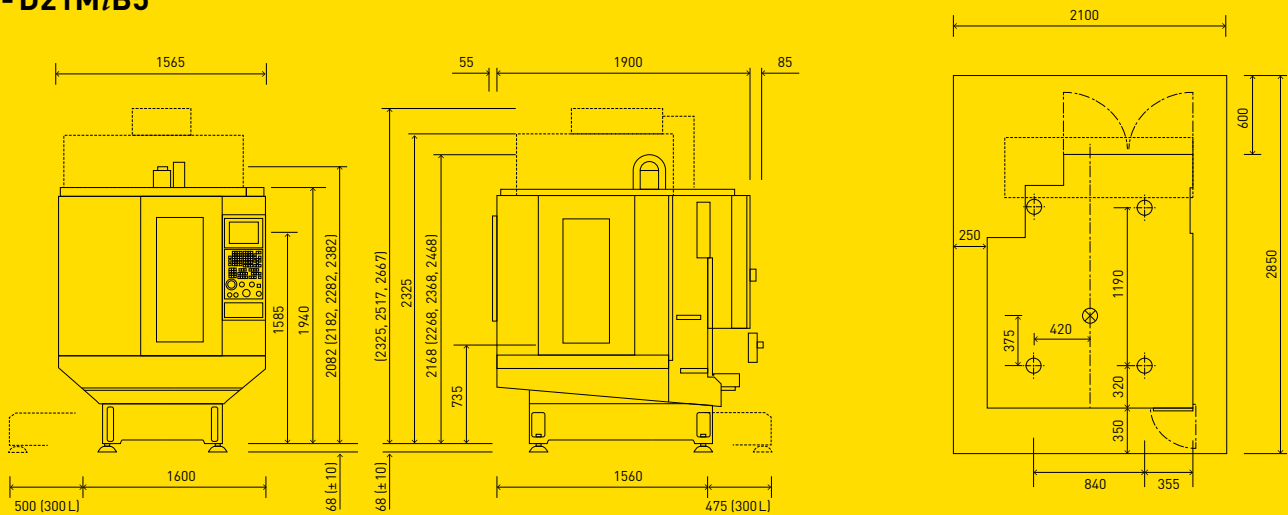| Item	D*i*B series (Standard) in comparison to D*i*A series	D*i*B ADV series (Advanced version) in comparison to D*i*B standard version
Machine's line-up structure	X axis stroke: 3 types (500 mm, 700 mm, 300 mm) Tool number: 2 types (14 tools, 21 tools) Max. control axes : 1 type (up to 5 axes)	Same as for standard D*i*B machines
Cycle time	Improvement of simultaneous operation of ATC with X, Y and additional axes	Improvement of simultaneous operation of ATC with X, Y and additional axes **Reducing tool change time of ATC by servo turret**
Stroke	No changes in comparison to D*i*A series Z axis stroke 330 mm	**Extended Z axis stroke (from 330 to 400 mm)** No change for X and Y axes stroke **Increased distance from Z axis cover to center of spindle (from 380 to 418 mm)** **Expanded Z axis cover to lower side (from table top +179 mm to -158 mm)**
Distance from table surface to spindle gauge plane	No changes in comparison to D*i*A series 150~480 mm (without high column option)	**80~480 mm (without high column option)**
Mechanical section	No change for main components in comparison to D*i*A series	**New design of machine structure resulting in improved Y axis travel** **Improved protection against chips** **Better chip evacuation**
Tool turret	No changes in comparison to D*i*A series Tool to tool (2 kg setting): 0.9 sec.	**Tool to tool (2 kg setting): 0.7 sec.** **Maximum tool mass. 4 kg** **Maximum tool length 250 mm on X500 and X700 with double front door option**

ROBODRILL α-DiB5 series

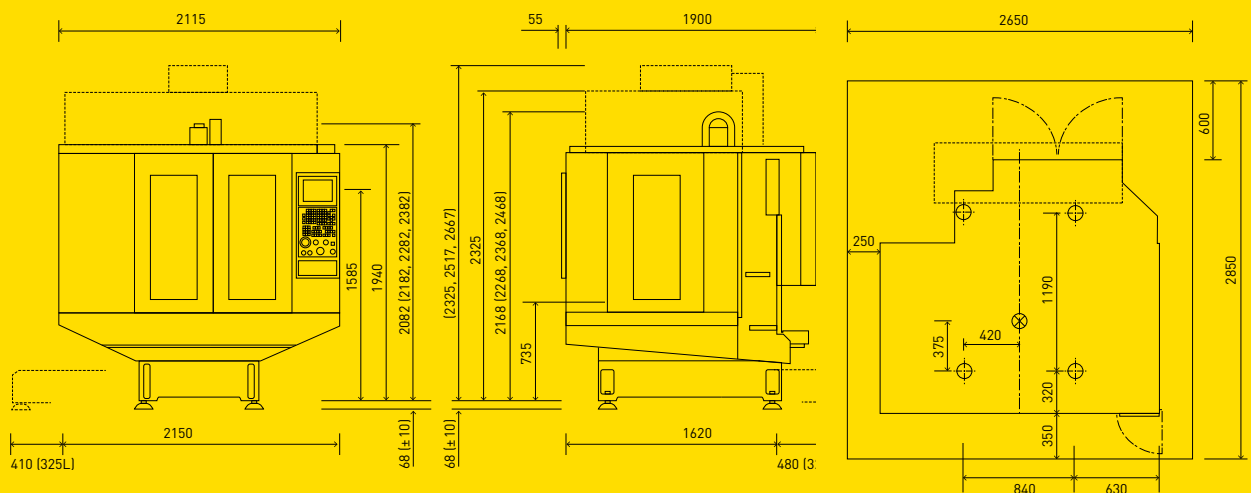| Item	DiB series (Standard)	DiB$_{ADV}$ series (Advanced version)
Splashguard	Changing width of machine compared to DiA series X500: 1565 → 1615 mm (extend +50 mm) X700: 2115 → 2165 mm (extend +50 mm) X300: No change (995 mm)	Changing width of machine compared to DiA series X500: 1565 → 1615 mm (extend +50 mm) X700: 2115 → 2165 mm (extend +50 mm) X300: No change (995 mm) **New excellent chip evacuation**
Coolant exit	No changes in comparison to DiA series	**Increased height and depth** No change for width
Operation screen	Adoption New iHMI Can use DiA series's screen on this new controller	Same as for standard DiB machines
Operator's Panel	New design New key layout One button for main power of ON/OFF 2 USB ports New additional button for chip flush RS232C (available as option) Program protect key removed (moved to management screen) Automatic power off button removed (setting on iHMI)	Same as for standard DiB machines
Cabinet (back side)	New wiring PCB New improved quick terminal blocks New Breaker unit Option plate for additional I/O unchanged compared to DiA series	Same as for standard DiB machines
Options included as standard	New full alphanumeric operator's panel (Former standard type is no longer available) The angle plate for LED illumination	New full alphanumeric operator's panel (former standard type is no longer available) The angle plate for LED illumination **X axis telescopic cover with 3 steps (only for X500, X700) Spindle head cover (newly designed top cover) Z axis metallic cover Column cover Bed cover Redesigned telescopic cover for Y axis for better chips evacuation (only for X500, X700)** Column sealing Improved protection for front door rail against chips Power failure back-up module
Obsolete options	Bottom guard for improved chip evacuation I/O unit model A (horizon type) Additional I/O terminal DI16/DO16 (input 4points NPN/Relay output) Additional I/O terminal DI16 (DI only)	Same as for standard DiB machines
New options	RS232C connection	**High column 400 mm (only for X500, X700)** RS232C connection
Rapid traverse	54 m/min	Same as for standard DiB machines
Cutting Feedrate Maximum	30000 mm/min	Same as for standard DiB machines

Technical data standard models
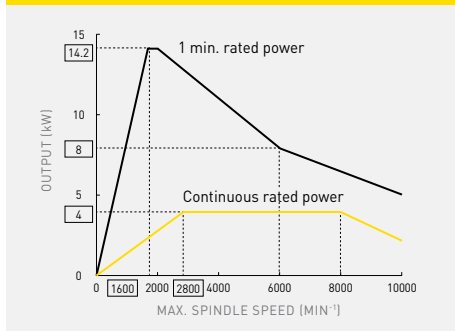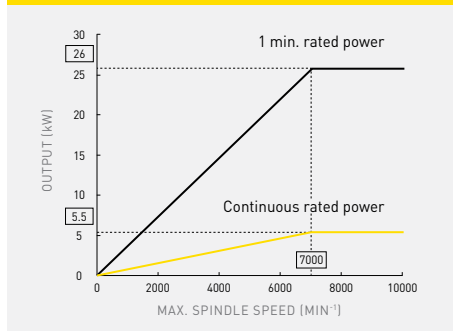
α - D21SiB5

α - D21MiB5

α - D21LiB5

| ROBODRILL α - D*i*B series			α - D21S*i*B5	α - D21M*i*B5	α - D21L*i*B5
Travel X/Y/Z	mm		300 x 300 (+100) x 330	500 x 400 x 330	700 x 400 x 330
Max. tool length (0–24,000 rpm)	mm		190	250	
Max. tool diameter	mm			HS80/100	
Table size	mm		630 x 330	650 x 400	850 x 410
Max. table load	kg		200	300	
Max. tool mass (0–24,000 rpm)	kg			3	
Distance from spindle nose to table (with HC100)	mm			250-580	
Controller				31*i*-B5	
Spindle speed	rqm			10000 | 24000	
Spindle load 10,000 rpm (1 min)	Nm | kW			80 | 14.2	
Spindle load 10,000 rpm (continuous operation)	Nm | kW			13.6 | 4	
Spindle load 24,000 rpm (1 min)	Nm | kW			35 | 26	
Spindle load 24,000 rpm (continuous operation)	Nm | kW			7.5 | 5.5	
Rapid traverse in all axes	m/min			54	
Programmable cutting feed	mm/min			30000	
Acceleration X/Y/Z [G] (100kg table load, 2kg-tool)			1.6/1.2/1.6		1.4/1.0/1.6
Number of tools				21	
Tool change time (2 kg-tool) (cut to cut)	s			1.6	
Spindle holder BT30/SK30 DIN 69871A				●	
Spindle holder BBT30				○	
Bidirectional accuracy of positioning of an axis (ISO230-2:1988)	mm			< 0.006	
Bidirectional repeatability of positioning of an axis (ISO230-2:1997,2006)	mm			< 0.004	
Air pressure consumption	L/min | Mpa			150 | 0.35–0.55	
Machine mass/with DDR-T			2000/2200KG	2000/2200KG	2100/2300KG

● Available ○ Optional

Spindle output 10,000 min⁻¹ (high torque)

Spindle output 10,000 min⁻¹ (high acceleration)

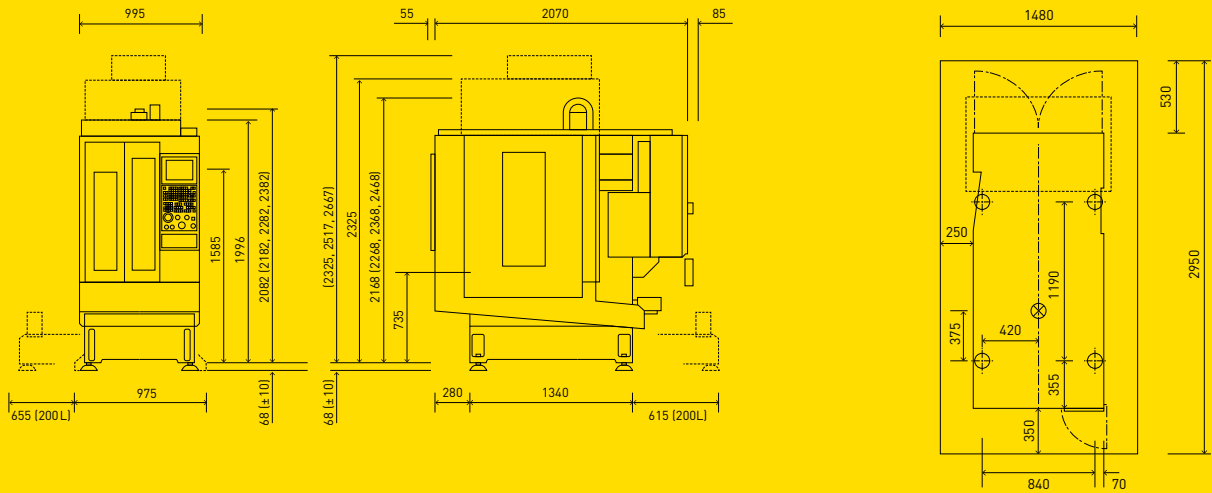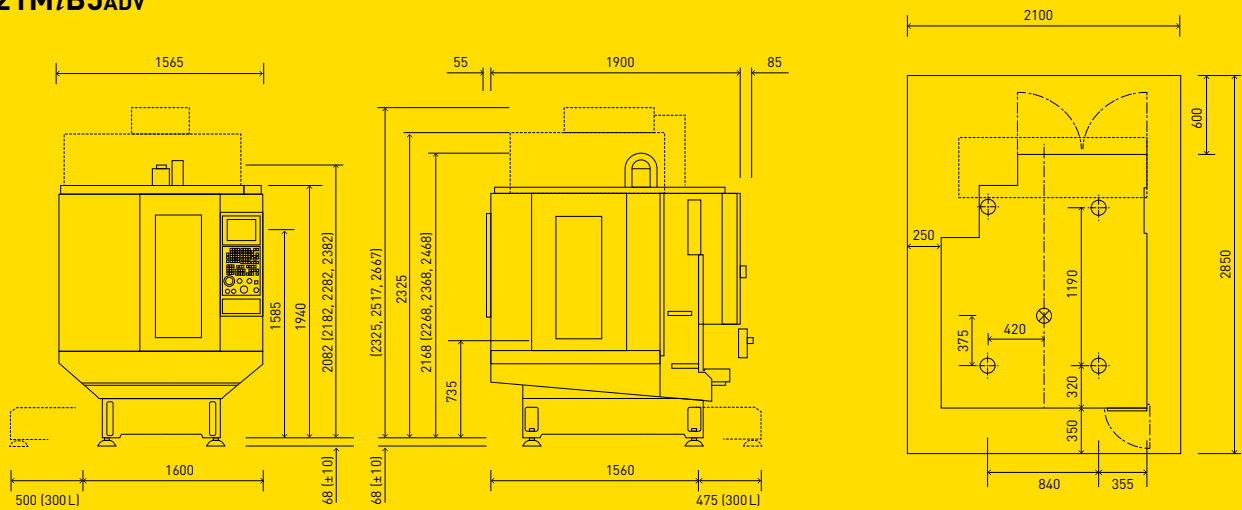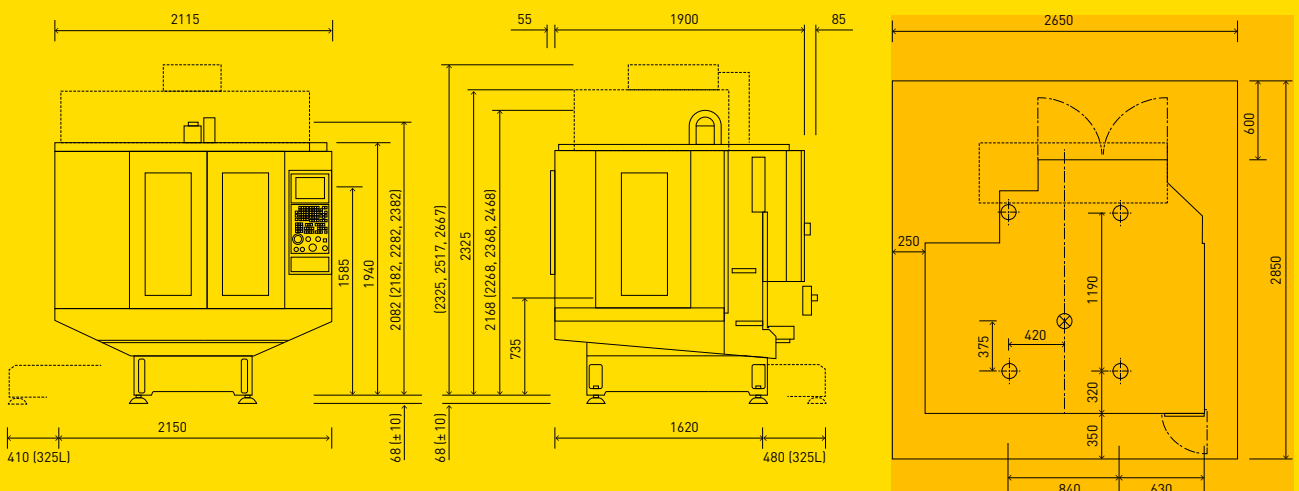### Spindle output 24,000 min⁻¹ (high speed)
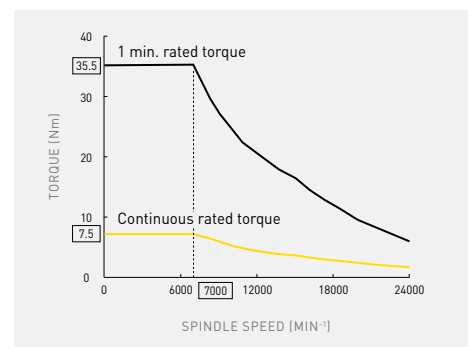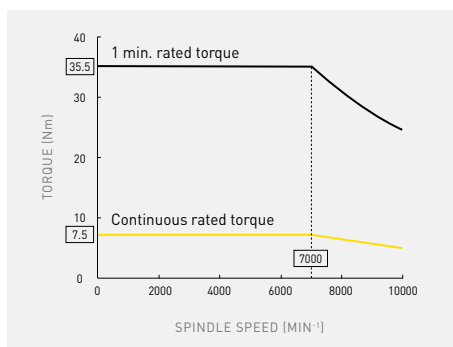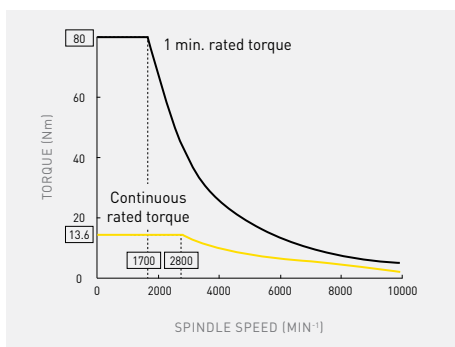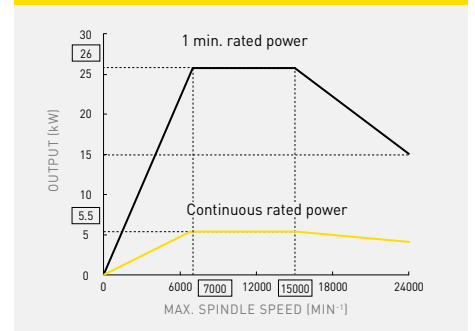
Technical data advanced models

α - D21SiB5ADV

α - D21MiB5ADV

α - D21LiB5ADV

| ROBODRILL α - DiBADV series			α - D21SiB5ADV	α - D21MiB5ADV	α - D21LiB5ADV
Travel X/Y/Z	mm		300 x 300 (+100) x 400	500 x 400 x 400	700 x 400 x 400
Max. tool length (0–24,000 rpm)	mm		190	250	
Max. tool diameter	mm		HS80/100		
Table size	mm		630 x 330	650 x 400	850 x 410
Max. table load	kg		200	400	
Max. tool mass (0–24,000 rpm)	kg		4		
Distance from spindle nose to table (with HC100)	mm		180-580		
Controller			31i-B5		
Spindle speed	rqm		10000 | 24000		
Spindle load 10,000 rpm (1 min)	Nm | kW		80 | 14.2		
Spindle load 10,000 rpm (continuous operation)	Nm | kW		13.6 | 4		
Spindle load 24,000 rpm (1 min)	Nm | kW		35 | 26		
Spindle load 24,000 rpm (continuous operation)	Nm | kW		7.5 | 5.5		
Rapid traverse in all axes	m/min		54		
Programmable cutting feed	mm/min		30000		
Acceleration X/Y/Z [G] (100kg table load, 2kg-tool)			1.6/1.2/1.6		1.4/1.0/1.6
Number of tools			21		
Tool change time (2 kg-tool) (cut to cut)	s		1.3		
Spindle holder BT30/SK30 DIN 69871A			●		
Spindle holder BBT30			○		
Bidirectional accuracy of positioning of an axis (ISO230-2:1988)	mm		< 0.006		
Bidirectional repeatability of positioning of an axis (ISO230-2:1997,2006)	mm		< 0.004		
Air pressure consumption	L/min | Mpa		150 | 0.35–0.55		
Machine mass/with DDR-TiB			2200/2400KG	2200/2400KG	2300/2500KG

● Available   ○ Optional
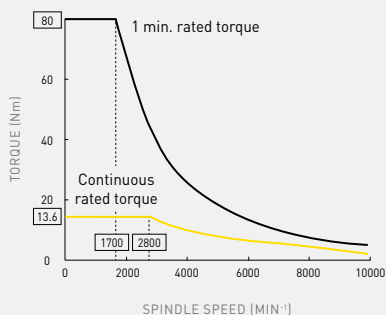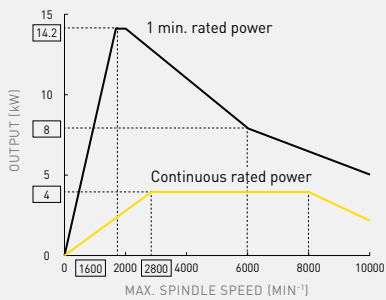
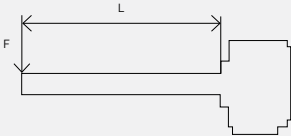### Spindle output
10,000 min⁻¹ (high torque)

Spindle output
**10,000 min⁻¹ (high acceleration)**
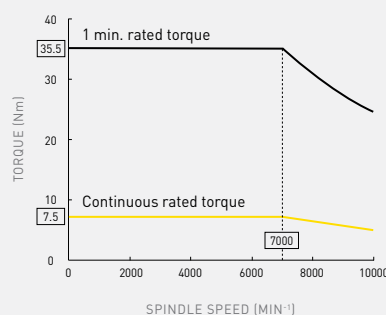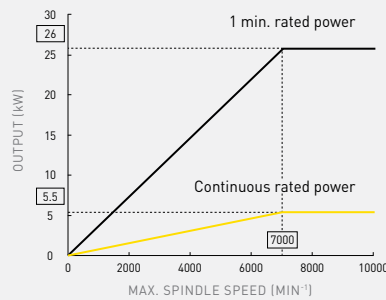
Spindle output
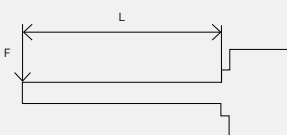**24,000 min⁻¹ (high speed)**
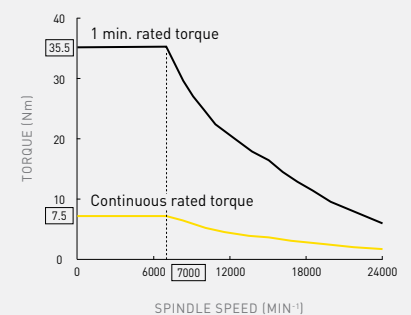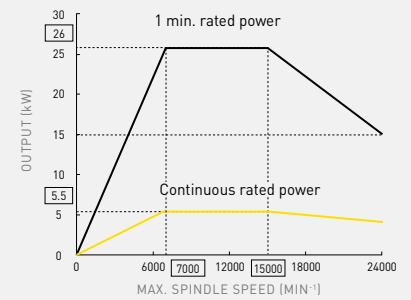
Technical tables DDR/DDR-T

FANUC ROBODRILL DDR rotary table	Specifications
Drive method	Direct drive
Motor	Synchronous built-in servomotor DiS 260/300
Continuous rating	50 Nm
Maximum torque	260 Nm
Table rotation speed	200 min^{-1}
Detector	Absolute Alpha$i$CZ sensor 512A
Least input increment	0.0001 degrees [IS-C]
Indexing precision	±0.0028 degrees (±10 s)
Clamp method	Air pressure + spring
Clamp torque	500 Nm for air pressure of 0.5 MPa
	350 Nm for air pressure of 0.35 MPa
	70 Nm when air pressure is shut off
Rotating-part inertia	J = 0.06 kgm2 (GD2 = 0.24 kgm2)
Permissible workpiece inertia [kg m2]	J = 0.99 kgm2 (GD2 = 3.99 kgm2)
Spindle outside diameter	Ø 90 mm
	Ø 140 mm when the end plate (option) is mounted
Spindle hole diameter	Ø 46 mm
	Ø 55 mm when the end plate (option) is mounted
Center height	150 mm
Main body mass	66 kg
Maximum loading capacity	100 kg
Permissible moment load	F x L = 600 Nm

FANUC ROBODRILL DDR-T	X300	X500	X700
Clamp torque	700 Nm (for an air pressure of 0.5 MPa)		
Maximum Swing Ø	φ 310 mm		φ 410 mm
Number of bracket ports (option)	6 (oil/air)		
Table rotation speed	200 min^{-1}		
Maximum loading capacity	45 kg	100 kg	
"Permissible workpiece inertia [Kg m^2]"	J = 0.5	J = 1.0	
Center height	200 mm	260 mm	
Main body mass	150 kg	190 kg	200 kg

DDR

DDR-T

The swing plate is not included.
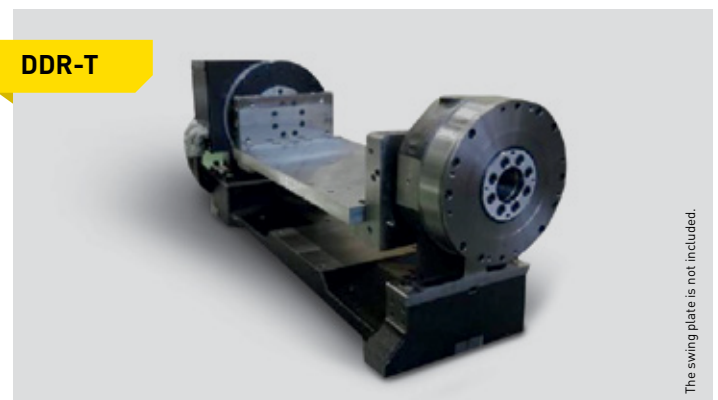
Technical tables DDR*i*B/DDR-T*i*B only available for D*i*B_{ADV} series

FANUC ROBODRILL DDR*i*B rotary table	Specifications
Drive method	Direct drive
Motor	Synchronous built-in servomotor D*i*S 50/300-B
Continuous rating	46 Nm
Maximum torque	275 Nm
Table rotation speed	200 min^{-1} I 300 min^{-1}
Detector	Absolute Alpha*i*CZ sensor 512A
Least input increment	0.0001 degrees (IS-C)
Indexing precision	±0.0028 degrees (±10 s)
Clamp method	Air pressure + spring
Clamp torque	700 Nm for air pressure of 0.5 MPa
	500 Nm for air pressure of 0.35 MPa
	100 Nm when air pressure is shut off
Rotating-part inertia	J = 0.04 kgm2 [GD2 = 0.16 kgf m2]
Permissible workpiece inertia [kg m2]	J = 1.0 kg m2 [GD2 = 4.0 kgf m2] I J = 0.25 kg m2 [GD2 = 1.0 kgf m2]
Spindle outside diameter	Ø 90 mm
	Ø 140 mm when the end plate (option) is mounted
Spindle hole diameter	Ø 46 mm
	Ø 55 mm when the end plate (option) is mounted
Center height	150 mm
Main body mass	80 kg
Maximum loading capacity	100 kg I 25 kg
Permissible moment load	F x L = 600 Nm

FANUC ROBODRILL DDR-T*i*B	X300	X500	X700
Clamp torque	1100 Nm (for an air pressure of 0.5 MPa)		
Maximum Swing Ø	φ 310 mm		φ 410 mm
Number of bracket ports (option)	6 (oil/air)		
Table rotation speed	200 min^{-1}	200 min^{-1} I 100 min^{-1} I 100 min^{-1}	
Maximum loading capacity	45 kg	100 kg I 150 kg I 200 kg	
"Permissible workpiece inertia [Kg m²]"	J = 0.5	J = 1.0 I J = 1.5 I J = 2.0	
Center height	200 mm	260 mm	
Main body mass	155 kg	190 kg	200 kg

DDR*i*B

DDR-T*i*B

The swing plate is not included.
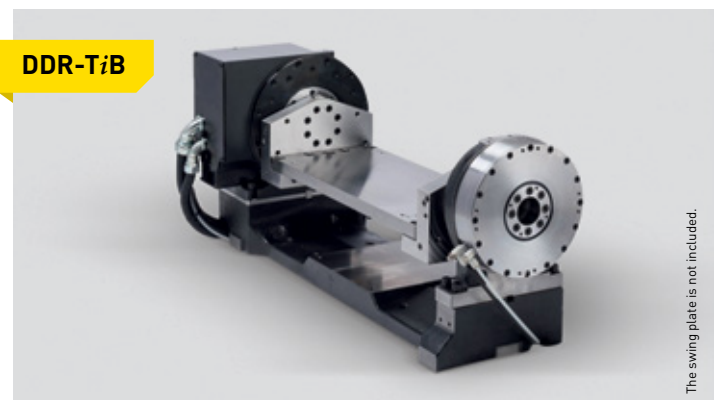
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