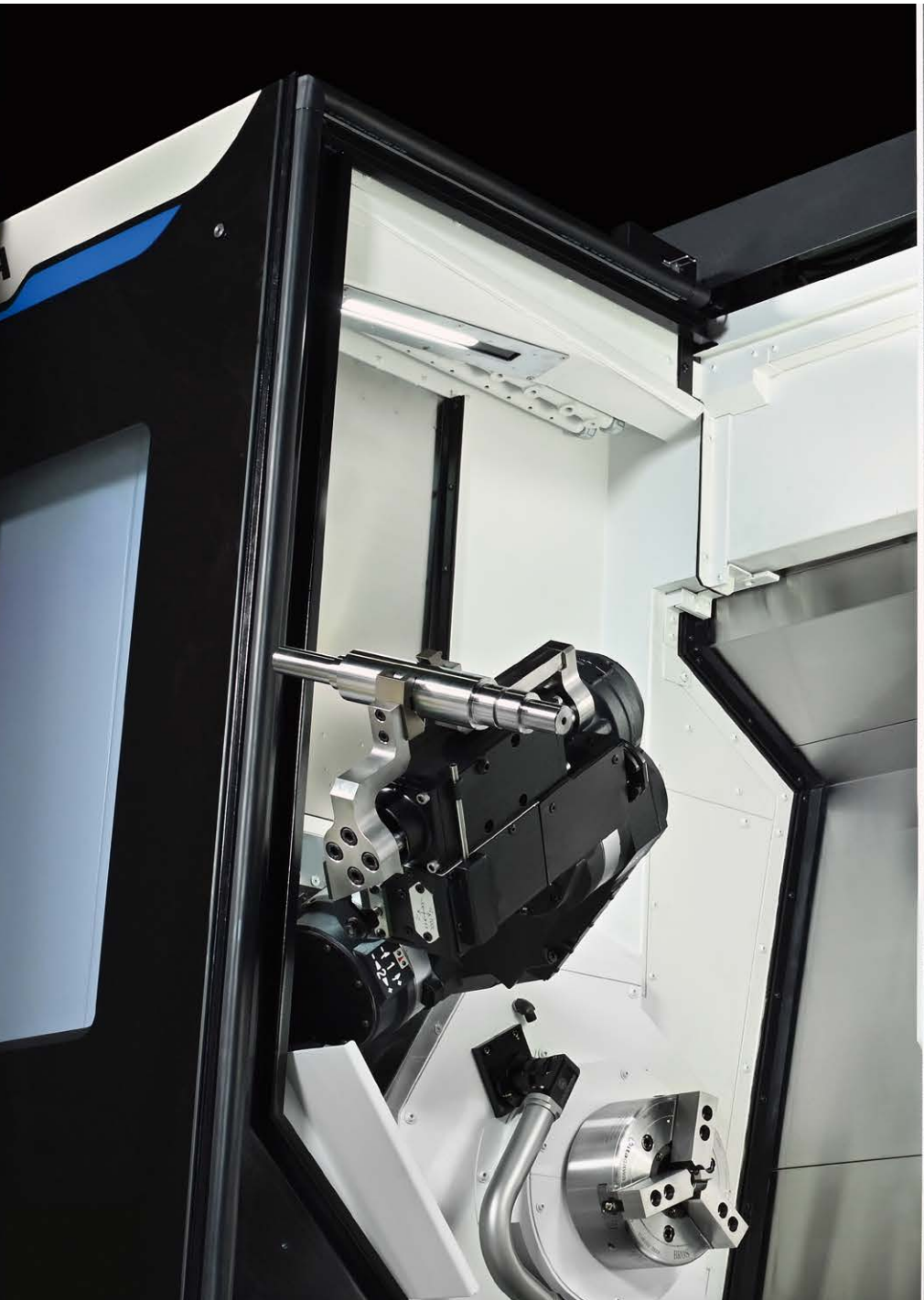
OKUMA

OPEN POSSIBILITIES

ARMROID

Next-Generation Robot System



Robots for Tomorrow,

ARMROID was born from a perfect union of machine tool and robotic engineering. This next-generation robot system can fundamentally change the various issues facing manufacturing. By doing the work that was previously done by human hands, the robot will perform every job imaginable, increase productivity overall, and deliver on its promise to be the key player in tomorrow's production systems.
That automation will enable humans to perform higher value-added activities, and focus on future challenges. This is what Okuma is proposing.

Humans for Future Generations.

5 ARMROID advantages for innovative manufacturing

Point 1 Easier to use

Expertise in robotics, or robot system integrators—not required

Since machine and robot are controlled by one operation panel, they can be easily handled with similar operations. By just following the guidance system for motion settings, the robot automatically generates the optimal movement path.

Point 2 Higher functionality

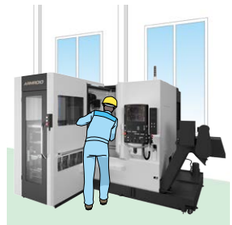
Letting robots do the robotic human tasks

Part loading/unloading comes naturally for the robot, and it takes over the in-machine cleaning jobs as well. Moreover, providing in-process robotic support became possible—to let production continue without human interference.

Point 3 More flexibility

Human and robot work sharing

With the built-in robot and a mobile stocker, the human and robot can work with the machine and share their tasks. A variety of production applications can be configured.



Point 4 Smaller footprint

Additional robot floor space not required

ARMROID's robot arm is built-in, so only the workpiece stocker requires space. Valuable shop floor space can be used effectively, in addition to being easy to relocate.

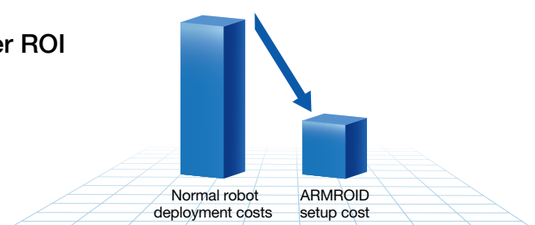
Conventional installation space

ARMROID + stocker footprint

Point 5 Lower costs

Lower investment and running costs and higher ROI

Because system integrators are not required, deployment costs and time are reduced drastically. Setup changes can also be handled in-house, meaning less downtime and lower costs.



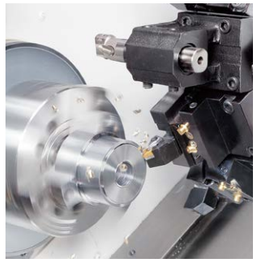
Okuma built-in robots bring more breakthrough innovations

Being simple

The ROID Navi was developed specifically for machine tool operators, eliminating the need for complex robot programming.

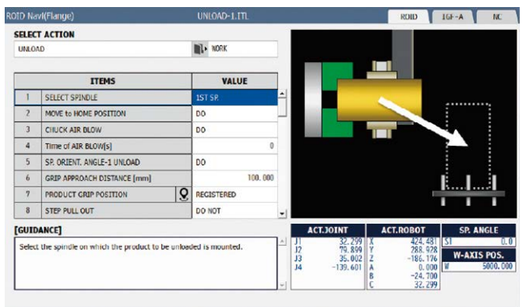
Easy machine tool or robot operation by any operator

Okuma's intelligent machine tool CNC enables real time gesture control of both the robot and machine tool.



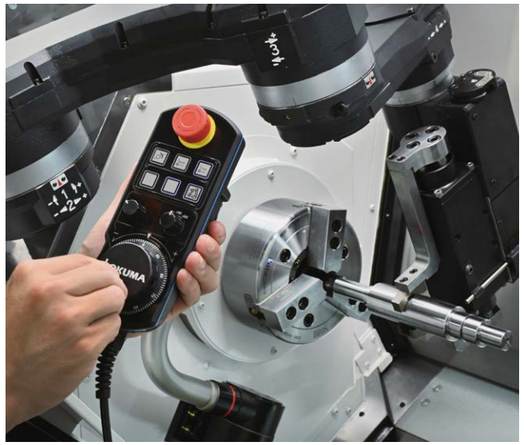
ROID Navi (Interactive robot programming tool)

The robot's motion program automatically generates an optimal motion path that does not collide, simply by displaying the input start and end points and the parameters according to guidance prompts. Even beginners in robotics can learn the ropes to operate from day one.

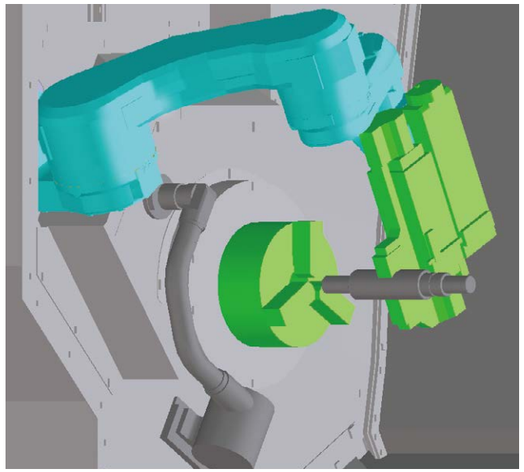


Ease of use

With the machine's pulse handle, robot operations can be performed easily with almost surgical precision.



Pre-op 3D simulation to confirm robot collision avoidance.



A multifaceted technician

Letting robots consistently perform better than skilled machinists on routine, repetitive tasks.

Achieve high-level processing support possible only with built-in robots

Providing in-process support in the machining chamber that is impossible with conventional robots.

Part load/unload

For shaft and flange workpiece
Portable workpiece mass: 10 kg

Chatter suppression

Workpiece support rollers suppress chatter during turning.

Chip removal

Eliminating chip entanglement by mixed blasts

In-machine cleaning

Preventing chip accumulation in the machining chamber

Changing the way we work

Operators work in the day and the robots work at night. Striving for zero overtime, and the coexistence of humans and robots.

Improving production efficiency through human and robot work sharing

- Easily switch from a single machine to a robot automated cell simply by adding a mobile workpiece stocker.
- For example, the robot can be on standby during the day while the operator handles small batches of part load/unload and other flexible jobs, and then automatic operations done by the robot can be done at night.

The workpiece stocker is positioned to the machine by pins, which can be removed to easily move the stocker.

When used as a single machine, the robot stays in the standby compartment adjacent to the machining chamber.

Various configurations available to meet production needs

ARMROID's lineup of applications

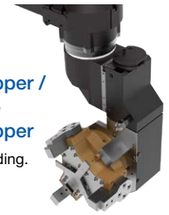
LB3000 EX Ⅲ ARMROID
[CNC Lathe + Built-in Robot]

Photo shows the MULTUS B250Ⅱ ARMROID

MULTUS B250Ⅱ / B300Ⅱ ARMROID
[Multitasking Machine + Built-in Robot]

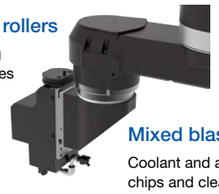
End effectors

Long stroke
2-finger parallel gripper
Shaft part loading.



3-finger gripper /
Long stroke
3-finger gripper
Flange part loading.

Workpiece support rollers
Workpiece support during machining, also suppresses chatter.



Mixed blasting nozzles
Coolant and air blasts remove chips and clean the machining chamber while cutting.

End effector stocker

Three end effectors can be stored and changed automatically.
An arrangement without end effector stockers is also available.

Photos show end effector stocker for the MULTUS B300Ⅱ ARMROID.

Workpiece stockers

General-purpose rail (2-shelf)

For shaft workpiece applications

Workpieces are positioned by their own weight in a rack (sloped rails or trays). Racks are available for blanks and finished parts, and are mainly used for simple shaft shapes.

Pitch feed part conveyor (18/36 stations)

Shaft workpiece applications

V-shaped parts catchers are moved in a conveyor-type pitch feed mechanism. There are 18 or 36 parts catchers, and there is no contact between parts to avoid dents or scratches. Irregularly shaped shafts are also easy to handle.

Stackable parts elevating worktable (6/10 stations)

Flange workpiece applications

Workpieces can be stacked on elevator lift plates. There are 6 or 10 stations on the worktable, and the lift plates operate in two locations for blanks and finished parts. A large number of workpieces can be stacked, to save space.

Specifications

AVL: Available, NA: Not available
Opp spdl: Opposing spindle

Machine Model		LB3000 EX Ⅲ ARMROID	MULTUS B250Ⅱ ARMROID	MULTUS B300Ⅱ ARMROID
Machine Specification		Turning/Multitasking DBC: 500 Spindle: Standard / Big-Bore / Standard high power Tailstock: AVL / NA / Sub-spindle Y-axis control: AVL / NA	DBC: 750 Spindle: Std / Std high power Tailstock: AVL / NA / Opp spdl	DBC: 900 Spindle: Std / Big-Bore / Std high power Tailstock: AVL / NA / Opp spdl
Standard Specifications				
ROID Navi		EZ Operating Tool		
End effector Max carrying load		Long stroke 2-finger parallel gripper (shafts) 10 kg		
Air panel for ARMROID		○		
Robot in-machine wash coolant Pump motor output (50/60 Hz)		Through-robot coolant (including filter)		
		0.75/0.55 kW	1.1/0.75 kW	
Auto front door open/close		○		
Portable pulse handle with enable switch		○		
Thermo Active Stabilizer – Construction		○		
Collision Avoidance System		○		
Door interlock		ISO 10218, CE compliant		
Auto chuck open/close		○		
Workpiece stocker preps		○		
Optional Specifications				
End effector stocker		3-station		
End effector	Gripper Portable workpiece mass	3-finger gripper / long stroke 3-finger gripper (Flanges) 10 kg		
	Machining support	Mixed blasting nozzles Workpiece support rollers		
Workpiece stocker	Shaft applications	2-shelf general-purpose rail		
		Pitch feed part conveyor: 18 stations		
		Pitch feed part conveyor: 36 stations		
	Flange applications	Stackable parts elevating worktable: 6 stations		
		Stackable parts elevating worktable: 10 stations		
Chuck air blower (blast)		○		
Tailstock air blower		○		
Coolant sensor		Lower limit detection		
Door open/close, tailstock advance speed change		For hydraulic quill tailstocks	–	

ARMROID Robot Specifications

Machine Model		LB3000 EX Ⅲ ARMROID	MULTUS B250Ⅱ ARMROID	MULTUS B300Ⅱ ARMROID
Control axis		4 axes (J1, J2, J3, J4)		
Maximum payload *1 (workpiece + end effector mass)		22 kg		
Maximum working range (End effector connector center)		669 mm		
Repeatability		±0.05 mm		
Maximum working range	J1	340° [–90° to +250°]	340° [–120° to +220°]	
	J2	200° [–114.9° to + 85.1°]		
	J3	325° [–165° to + 160°]		
	J4	380° [±190°]		
Maximum operating speed *2	J1	92 deg/s (15.3 min^{-1})		
	J2	149 deg/s (24.8 min^{-1})		
	J3			
	J4			
Drive system		Electric servo drive by AC servomotor		
Ingress Protection rating		IP67 equivalent		

*1. Affected by the workpiece gripping and center of gravity positions. *2. Maximum axis feed rates can not be reached in short distances.

End Effector Specifications

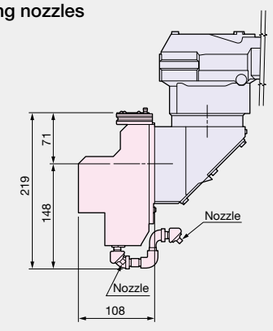
Gripper	Long stroke 2-finger parallel gripper	3-finger gripper	Long stroke 3-finger gripper
Workpiece shape	Shaft	Flange	
Portable workpiece mass	10 kg		
Clamping force	1,400 N	1,900 N	1,800 N
1 side effective stroke	32 mm	8 mm	16 mm
Part gripping dia*	ø20 to ø80 mm	ø30 to ø150 mm	

Note 1. Because the robot movement range may be limited depending on the workpiece shape, the in-machine setup of the chuck, tools, etc., confirming the suitability of each workpiece will be required. The workpiece dimensions listed are only a guide, and simulator checks per operation will also be required.
Note 2. Consultations with Okuma representatives required to determine support for each requested workpiece.
Note 3. The long-stroke 3-finger gripper requires an air pressure booster.
Note 4. A workpiece presser for turret mounting is required.
* A gripper suitable for each workpiece size is required.

Machining Support

Mixed blasting nozzles

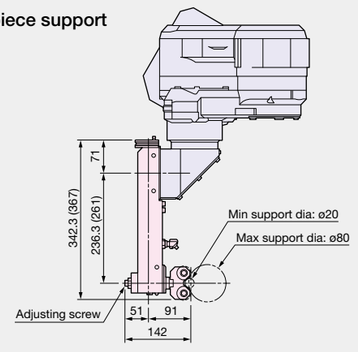
Unit: mm



Mixed blasting: Alternating air/coolant application
Nozzles: 2 places
Dischargeable pressure: 0.6 MPa
Coolant pump output: 0.75/0.55 kW (60/50 Hz)
Nozzle discharge direction adjustments possible, which should be made to apply coolant on the required locations.

Workpiece support rollers

Unit: mm

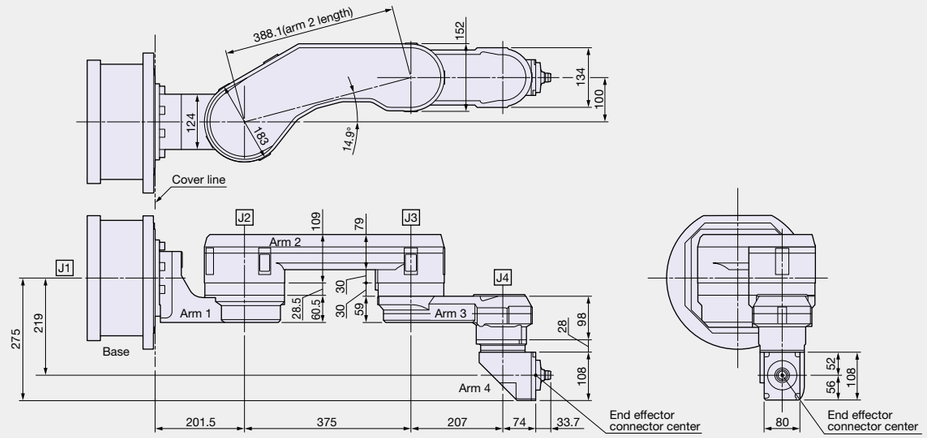


Note: Drawing shows meajurements for LB3000 EX Ⅲ ARMROID.
Meajurements inside ( ) is for MULTUS B250Ⅱ ARMROID / MULTUS B300Ⅱ ARMROID.

Range of diameters: ø20 to ø80 mm
Roller width / diameter: 11.2 / ø30 mm
Workpiece pressing force: 33.0 to 126.3 N
Workpiece support pressing force can be increased or decreased by the adjusting screw.

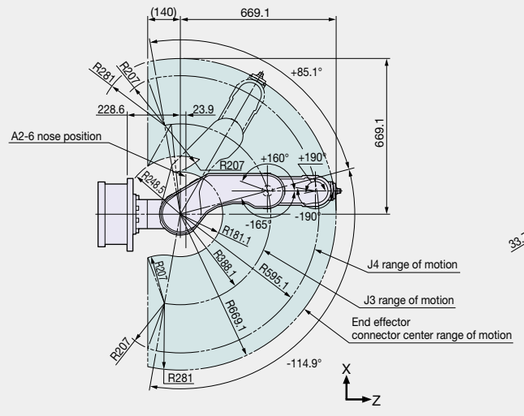
ARMROID Robot Dimensional Drawing

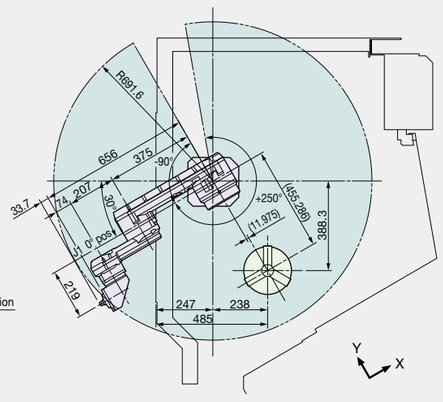
Unit: mm



LB3000 EX Ⅲ ARMROID Robot Working Range Drawing

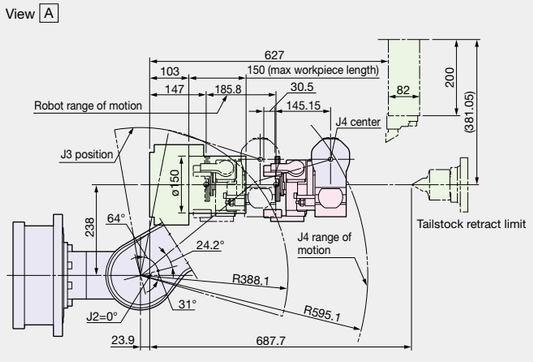
Unit: mm

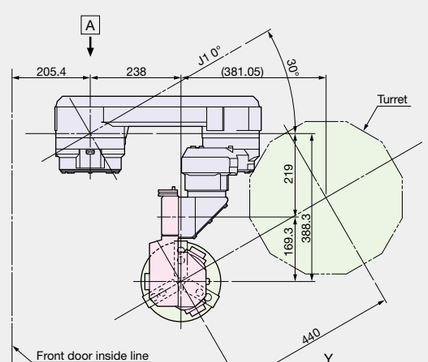




LB3000 EX Ⅲ ARMROID 3-Finger Gripper Range of Motion Drawing

Unit: mm

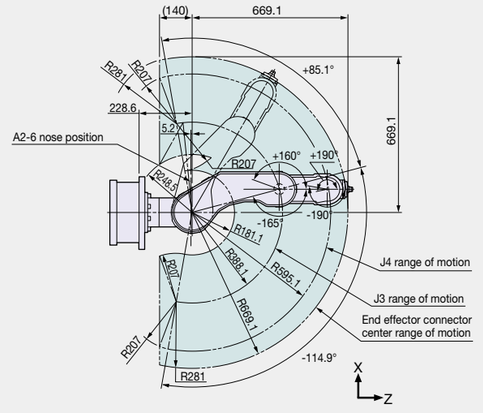


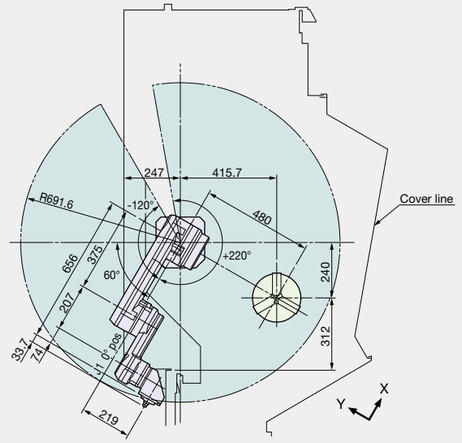


Note: Please contact an Okuma representative for the suitability of each workpiece application, which may require further consultations.

MULTUS B250Ⅱ/B300Ⅱ ARMROID Robot Working Range Drawing

Unit: mm

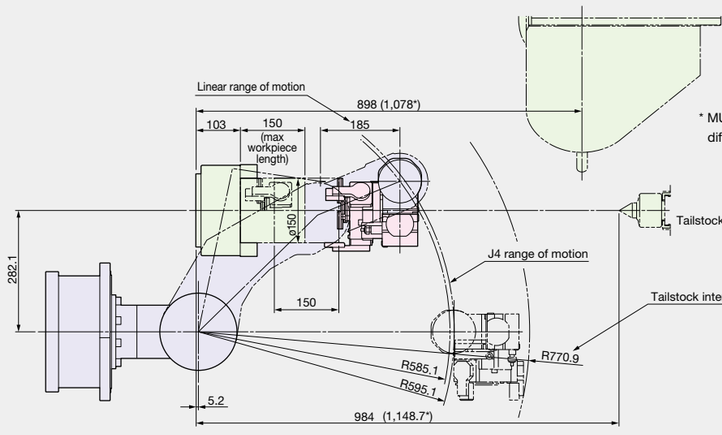


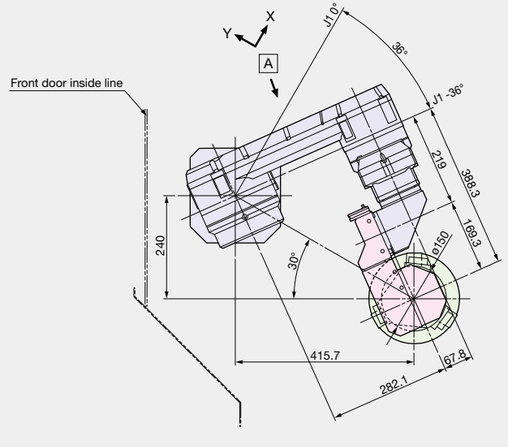


MULTUS B250Ⅱ/B300Ⅱ ARMROID 3-Finger Gripper Range of Motion Drawing

Unit: mm

View A





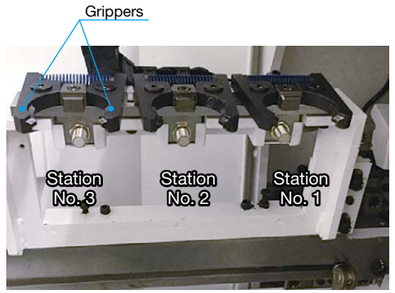
Note: Please contact an Okuma representative for the suitability of each workpiece application, which may require further consultations.

End Effector Stocker Specifications

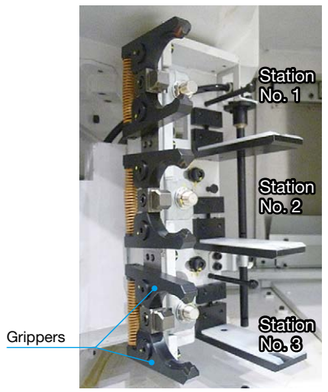
End effector stocker (equipped)	Stores up to 3 end effectors; auto changeable with robot
End effector stocker (not equipped)	End effector changes possible by the operator

End effector storage positions and gripper arrangements

LB3000 EX Ⅲ ARMROID
[End effectors removed]



MULTUS B250Ⅱ/B300Ⅱ ARMROID
[End effectors removed]



End Effector Storage Positions

Station No. 1 Any one effector	Long stroke 2-finger parallel gripper	
	3-finger gripper	
	Long stroke 3-finger gripper	
Station No. 2	Mixed blasting nozzles	
Station No. 3	Workpiece support rollers	

The MULTUS B250Ⅱ/B300Ⅱ ARMROID can store grippers in stations No. 1 and No. 3.
In that case, station No. 2 can not be used to store an end effector.

Workpiece Stocker Specifications

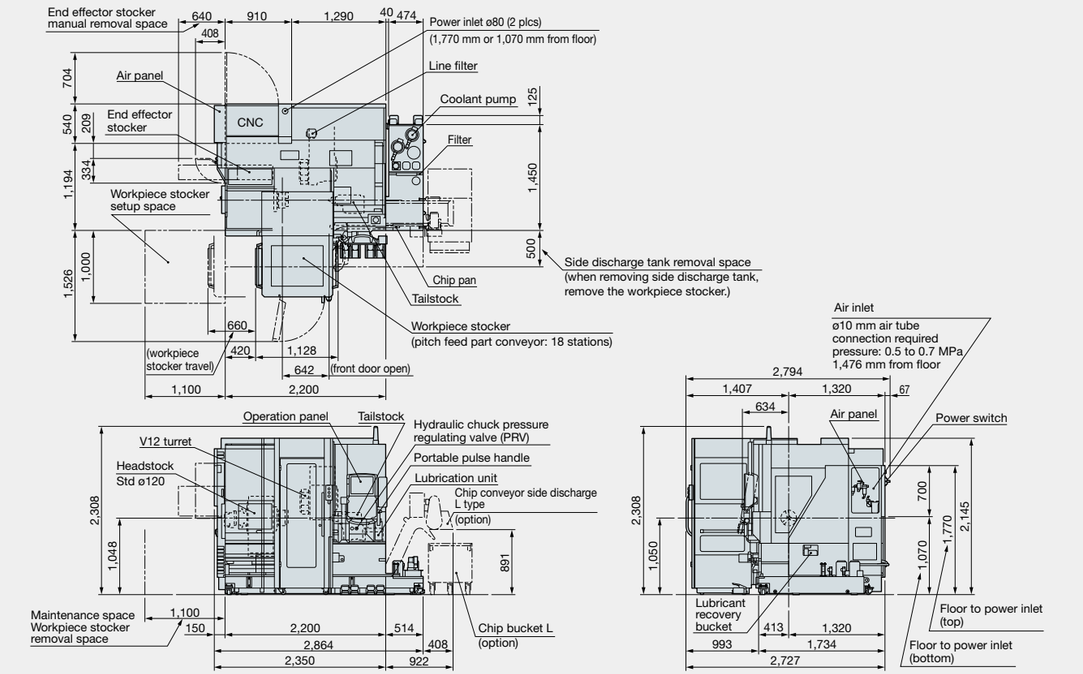
Stocker	General-Purpose Rails	Pitch feed part conveyor		Stackable parts elevating worktable	
Type	2 shelves Blanks/finished parts (1 shelf ea)	18 stations Blanks/finished parts (dual)	36 stations Blanks/finished parts (dual)	6 stations	10 stations
				Lift plates for blanks/finished parts (2 plcs)	
Workpiece shapes	Shaft			Flange	
Applicable gripper	Long stroke 2-finger parallel gripper			3-finger gripper	
Method	Rail	Cradle		Elevating lift plates	
Workpiece size	ø20 to ø80 mm (ø0.79 to ø3.15 in)		ø20 to ø50 mm (ø0.79 to ø1.97 in)	ø30 × L20 mm to ø150 × L150 mm (ø1.18 × L0.79 to ø5.91× L5.91 in)	
Loadable number of pieces	1 shelf × 4 pcs Chute L: 320 mm (12.60 in)	18 stations	36 stations	6 stations	10 stations
				Stacking height: 450 mm (17.72 in)	
Workpiece mass	10 kg	10 kg / 1 station	5 kg / 1 station	30 kg / 1 station	
Stocker mass (workpieces not included)	220 kg	700 kg		400 kg	500 kg

Remarks	Workpiece length limited to machine work envelope (stocker max: 440 mm).		Assure stable workpiece stacking. Avoid workpiece jamming.
	Blank shapes must be able to roll smoothly in the guides.		Use High Accuracy Lift Plate Positioning for workpieces thinner than 20 mm.
	Workpiece contact may cause dents and scratches.		
	Loadable number of pieces depends on the maximum workpiece size.		Workpiece contact may cause dents and scratches.

Dimensional / Installation Drawings

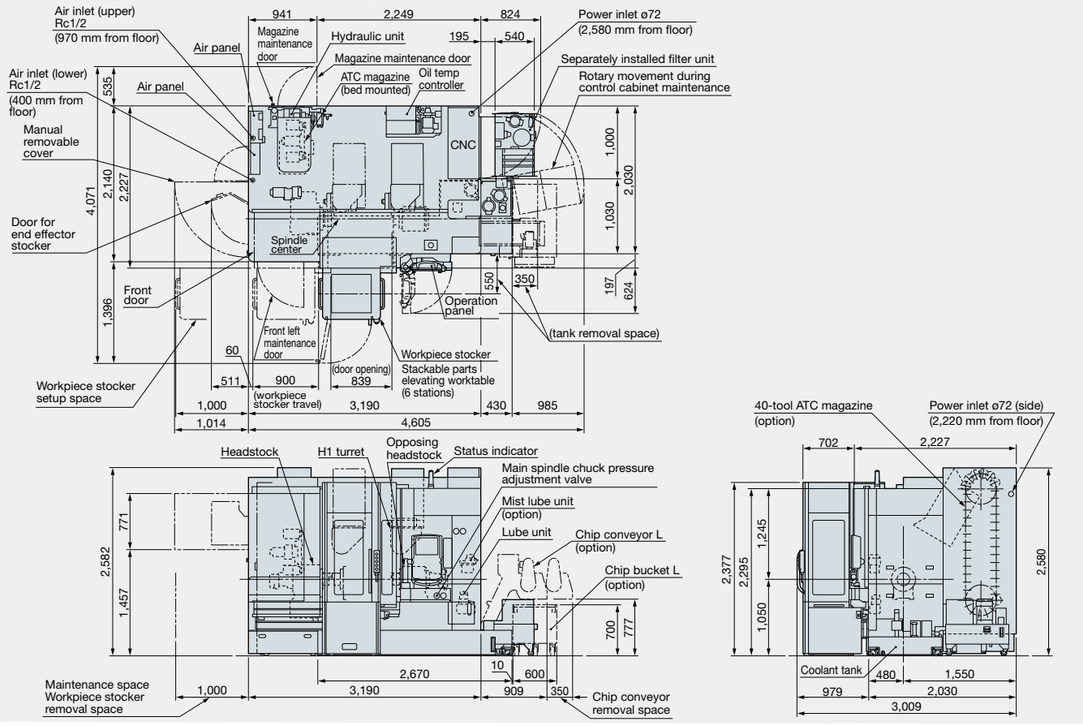
Unit: mm

LB3000 EX Ⅲ ARMROID Tailstock specs



Unit: mm

MULTUS B250Ⅱ ARMROID Opposing spindle specs



Precautions

■ Safety Standards

・The arm is a versatile manipulator capable of programmed operation of 3 axes or more, which complies with the following safety standards as an industrial robot and an industrial robot system.

・ISO 10218-1:2011 (JIS B 8433-1:2015)
Robots and Robotic Devices-Safety Requirements for Industrial Robots–Part 1: Robots
・ISO 10218-2:2011 (JIS B 8433-2:2015)
Robots and Robotic Devices-Safety Requirements for Industrial Robots–Part 2: Robot Systems and Integration

■ Qualifications

・Qualifications may be required to operate, teach and inspect industrial robots.
The laws and regulations of the country of acquisition regarding education and certification requirements outside Japan, shall be confirmed.

■ ROID Navi

・The ARMROID robot uses ROID Navi and 3D model data to automatically generate arm paths and operate.
3D model data for chucks, tools, grippers, end effector, and workpiece shapes must be set correctly.
If not set correctly, collisions may occur.

ARMROID

When using Okuma products, always read the safety precautions mentioned in the instruction manual and attached to the product.

●The specifications, illustrations, and descriptions in this brochure vary in different markets and are subject to change without notice.
Pub.No.ARMROID-E-(8a)-Non (May 2025)

Note: Japan's Industrial Safety and Health Act requires that workers who "teach" industrial robots and perform inspections be required to receive special education for their work-related safety and/or health. Safety educational training should be conducted in countries other than Japan in accordance with similar laws and regulations.

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