JANOME

JR2000N Series

Desktop Robot

Desktop Robot JR2000N Series brought to you by JANOME, a name with extensive manufacturing experience behind it, since 1993.

In addition to the simple teaching system, JANOME has created a customizing function which allows the user to create their own original programs, and also offers a standard operation range of 510mm×510mm.
The JR2000N Series is at the top of its range.

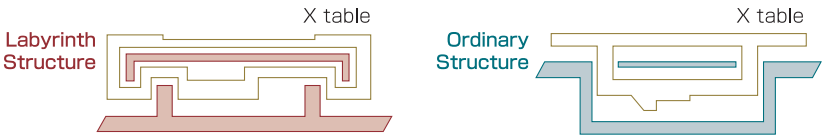
High precision

High Rigid Structure

A solid aluminum alloy die cast is employed on the base and an aluminum alloy extrusion with a high rigid section is employed on the column.

Labyrinth Mechanism

A special labyrinth mechanism underneath the work table keeps foreign objects (e.g. screws, liquid or dust) out.

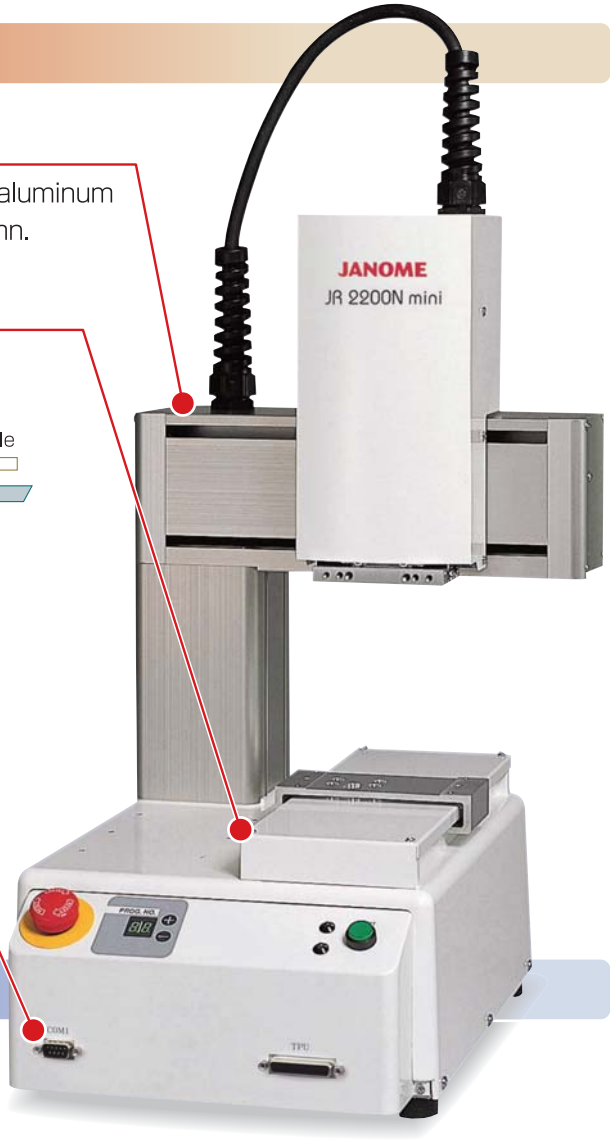


Smooth Movement

Smooth movement is attained with the micro-step control system.

Flexible Interface

- RS-232C port for PC connection
- RS-422 port for teaching pendant
- I/O (Output 16, Input 16)



User friendly

Clear Wide Screen

Wide and easily viewable teaching pendant screen.
Language : English/German/Japanese, etc
Measurement : mm/inch

Simple Teaching

Using the JR C-Points software, users can teach data easily. It also has commands to operate particular jobs. Users can also create their own original software.

Enhanced Memory Capacity

Up to 255 programs (2.5 times that of the existing model) and 30,000 points (increased 5-fold) can be stored as teaching data.

4-axis simultaneous control model

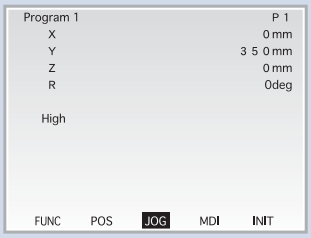
Simple Sequencer

The robot has a built-in simple sequencer which functions independently (it is not necessary to add more hardware in the case of simple PLC connection).

Create your own original programs with the customizing function.

Work Position Input

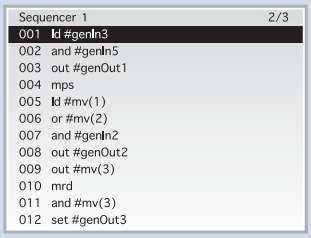
Before inputting a work position, select JOG or MDI mode simply by pressing the button on the teaching pendant. Clearly-displayed coordinate values allow you to correct positions easily.



Work Position Setting Screen

Sequencer Function

A sequencer function which can be run independently from the robot function.

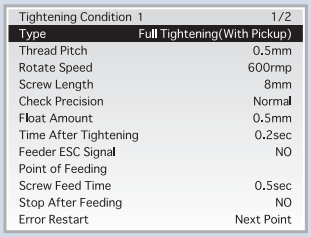


Sequencer Command Setting Screen

Application Software Examples

●Screw Tightening Software

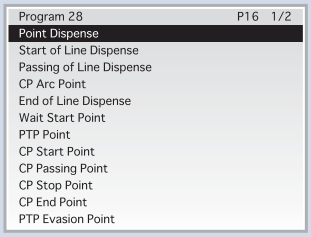
Register screw tightening conditions, such as Thread Pitch, Screw Length, and Rotate Speed, then enter the "screw tightening" position and the screw tightening condition number for the point. A screw tightening program is now complete. You can set different tightening condition numbers to each point so as to create different screw tightening conditions in a program.



Tightening Condition Setting Screen

●Dispensing Software

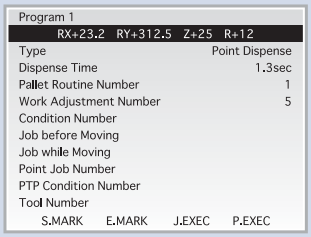
Complete a dispensing program simply by inputting work positions, such as "Point Dispense", "Start of Line Dispense", "Line Passing", and "End of Line Dispense." You can set "Dispense Time" to each "Point Dispense" point. You can change Dispense Conditions, such as "Device Mode", "Signal Operation" type (for dispenser), "Wait Time" (from Dispense ON to start shifting), "Up Amount" and "Up Speed" (at end dispensing), simply by setting and registering.



Point Type Setting Screen

●Palletizing or Work Position Adjustment by Camera

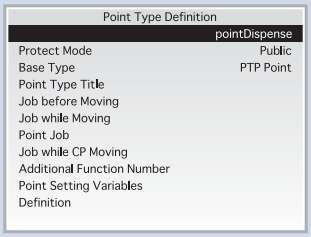
By setting a "Pallet Number", you can repeat the same operation at different points. By setting a "Work Adjustment Number", you can easily adjust a position error between the standard position captured by the camera.



Point Setting Screen

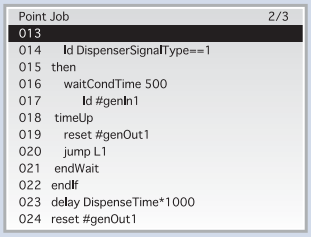
How to Create Application Software

You can create original application software for a variety of needs. For example, define a point type "Point Dispense" when creating the "Dispensing Application" software.



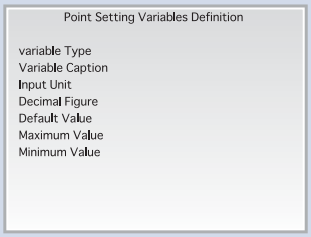
Point Type Definition Setting Screen

Register the contents of the "point dispense" operation in the point type definition. (e.g. Start the dispenser (set #genOut1), wait for a dispense time (delay Dispense Time* 100), and then stop the dispenser (reset #genOut1).)



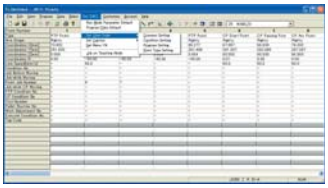
Point Job Setting Screen

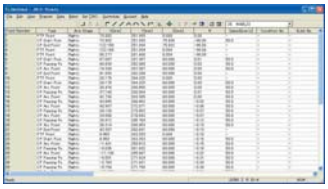
Register "Common Setting Variables Definition" in the point type definition so as to set the "Dispense Time" to each point. The process is completed simply by entering necessary items, such as "Variable Type", "Variable Caption", and "Input Unit." Set "Enumeration Type" or "Numeric Type" as the "Variable Type." If you select the "Enumeration Type", you can select a value from the "Selection Item" list and set it. Furthermore, you can set "Variable Caption", as well as variable names (identifiers), as a title display.



Point Setting Variables Definition Setting Screen

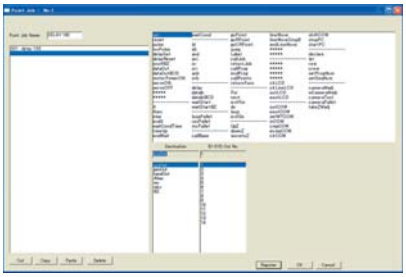
PC Software "JR C-Points" (Optional)





The JR C-Points is an enhanced version of the PC software for desktop robots, JR Points. Tried and tested simple programming methods for various applications remain. Furthermore, additional and enhanced compile function (robot language) and customizing functions are available.
The main screen is the plural point data setting screen. You can create a program simply by entering necessary items, such as the point type, work position, line speed, pallet number, and work adjustment numbers.

You can select the horizontal display or vertical display for point alignments.
Coordinate data edited by spreadsheets such as Microsoft Excel can be downloaded easily by using the Copy & Paste function. You can also convert drawings into coordinate values and download them onto a PC using CAD data (DXF file).



You can enter and edit point job easily by selecting a desired command from the job command list.
Using the compile function, you can also read the point job data from text files. As well as local variables, global variables, and keep variables, you can use setting variables to set values as teaching parameters. As one of the robotic features, various special commands, such as "waitCondTime" command to wait for an input signal (timeouts are available until receiving the input signal), are available.

A broad interface makes it easy to use many applications.

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Robot Applications

Dispensing

- Simultaneous control of X, Y, Z and R axes
- Adhesion, potting, sealing; use with various materials
- Instantaneous adhesive, silicon, epoxy resin, flux for soldering

Screw Fastening

KX Servo Driver (High precision torque control)

- Used for applications requiring precise tightening Input exact conditions for torque, speed, degree, rotational direction and time.

Electric Driver

- Used for standard applications requiring mechanical torque adjustment. It performs loose-tightening tolerance checking and failure alert.

Soldering

- Simultaneous control of X, Y, Z and R axes
- Point, line or arc soldering
- Quick change soldering tip
- Ideal for circuit boards, lead wires, QFP, piezoelectric parts

CCD Camera & Height Sensor

- The CCD camera and height sensor integrate to supply high-speed precise inspection and accurate detection for pick & place, dispensing, and soldering applications.
- Provides easy teaching and automatic transfer function for off-positioned work pieces on the fixture.

Board Cutting

- PC board cutting without stress and cracks is achieved.
- A twin-head router is also available.

Other Optional Extras

Operation Box···With the start switch, emergency stop switch
I/O Cable

Enhanced lineup with an operation range between 200mm×200mm and 510mm×510mm.

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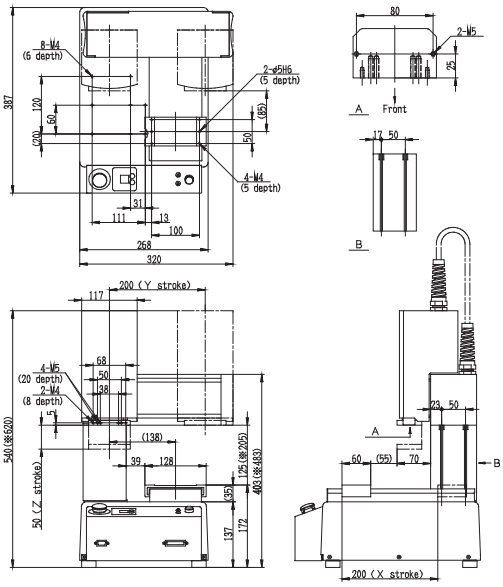
JR2200N mini Series

Low-cost cell production

External Dimensions for the JR2203N★

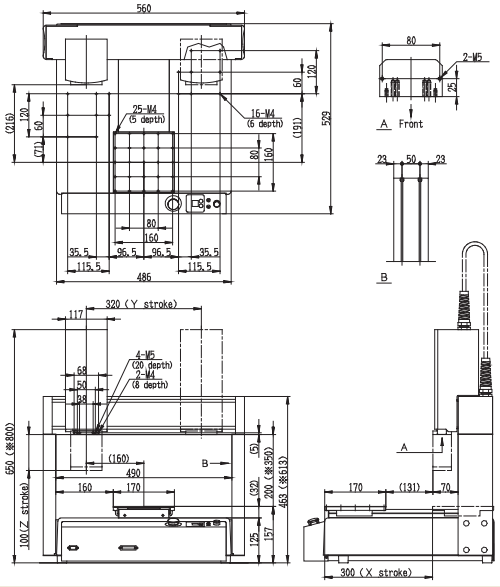


★Please contact us for the external dimensions of the JR2204N.

JR2300N Series

With an operation range of 300×320mm, 2 screw feeders can now be installed.

External Dimensions for the JR2303N★



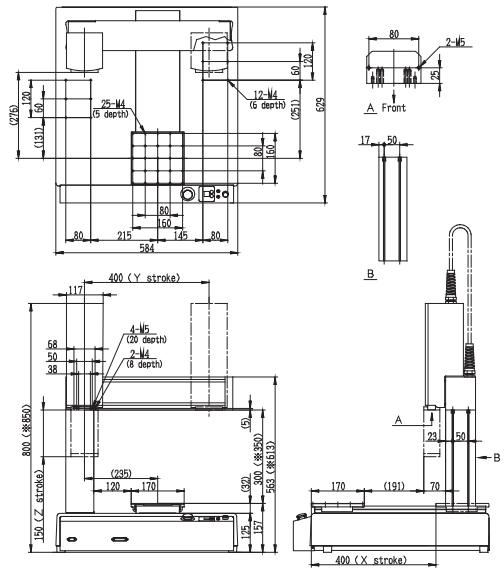
★Please contact us for the external dimensions of the JR2304N.

JR2400N Series / JR2500N Series★

The wide operation range 400×400 mm allows large workpieces to be easily moved.

This photograph is of the JR2400N series.

External Dimensions for the JR2403N★



★Please contact us for the external dimensions of the JR2404N and the JR2500N series.

●The dimensions shown here are for reference purposes only. For more details, please contact us.

○Dimensions for the post part of the side body and B part are pitch size for attaching devices. ○The elevated height (※) is optional.

Specifications

Item \ Model *1		3-Axis Type (synchronous control)				4-Axis Type (synchronous control)			
		JR2203N	JR2303N	JR2403N	JR2503N	JR2204N	JR2304N	JR2404N	JR2504N
Operation Range	X- and Y- Axes	200×200mm	300×320mm	400×400mm	510×510mm	200×200mm	300×320mm	400×400mm	510×510mm
	Z-Axis	50mm	100mm	150mm	150mm	50mm	100mm	150mm	150mm
	R-Axis	-	-	-	-	±360°	±360°	±360°	±360°
Portable Weight	Workpiece	7kg	11kg	11kg	11kg	7kg	11kg	11kg	11kg
	Tool	3.5kg	6kg	6kg	6kg	3.5kg	6kg	6kg	6kg
Maximum Speed (PTP) *2 ( ): setting range	X- and Y- Axes	700mm/sec (7 - 700mm/sec)	800mm/sec (8 - 800mm/sec)	800mm/sec (8 - 800mm/sec)	800mm/sec (8 - 800mm/sec)	700mm/sec (7 - 700mm/sec)	800mm/sec (8 - 800mm/sec)	800mm/sec (8 - 800mm/sec)	800mm/sec (8 - 800mm/sec)
	Z-Axis	250mm/sec (2.5 - 250mm/sec)	320mm/sec (3.2 - 320mm/sec)	320mm/sec (3.2 - 320mm/sec)	320mm/sec (3.2 - 320mm/sec)	250mm/sec (2.5 - 250mm/sec)	320mm/sec (3.2 - 320mm/sec)	320mm/sec (3.2 - 320mm/sec)	320mm/sec (3.2 - 320mm/sec)
	R-Axis	-	-	-	-	600°/sec (6 - 600°/sec)	800°/sec (8 - 800°/sec)	800°/sec (8 - 800°/sec)	800°/sec (8 - 800°/sec)
Maximum Speed (CP) *2 ( ): setting range	XYZ combined speed	500mm/sec (0.1 - 500mm/sec)	800mm/sec (0.1 - 800mm/sec)	800mm/sec (0.1 - 800mm/sec)	800mm/sec (0.1 - 800mm/sec)	500mm/sec (0.1 - 500mm/sec)	800mm/sec (0.1 - 800mm/sec)	800mm/sec (0.1 - 800mm/sec)	800mm/sec (0.1 - 800mm/sec)
Acceptable Moment of Inertia		-	-	-	-	65kg·cm²	90kg·cm²	90kg·cm²	90kg·cm²
Resolution	X- and Y- Axes	0.005mm	0.005mm	0.005mm	0.005mm	0.005mm	0.005mm	0.005mm	0.005mm
	Z-Axis	0.0025mm	0.0025mm	0.0025mm	0.0025mm	0.0025mm	0.0025mm	0.0025mm	0.0025mm
	R-Axis	-	-	-	-	0.009°	0.009°	0.009°	0.009°
Repeatability *3	X- and Y- Axes	±0.006mm	±0.007mm	±0.007mm	±0.008mm	±0.01mm	±0.01mm	±0.01mm	±0.01mm
	Z-Axis	±0.006mm	±0.007mm	±0.007mm	±0.008mm	±0.01mm	±0.01mm	±0.01mm	±0.01mm
	R-Axis	-	-	-	-	±0.008°	±0.008°	±0.008°	±0.008°
Dimensions (W×D×H) (Not including protrusion parts)		320×387×540mm	560×529×650mm	584×629×800mm	676×731×800mm	320×387×655mm	560×529×840mm	584×629×890mm	676×731×890mm
Body Weight		18kg	35kg	42kg	46kg	18kg	35kg	42kg	46kg
Drive Method		5-phase stepping motor							
Control Method		PTP (Point to Point) control, CP (Continuous Path) control							
Interpolating Function		3-dimensional line and arc interpolation							
Teaching Method		Remote teaching (JOG) / Manual data input (MDI)							
Teaching System		JANOME original software JR C-Points: A simple and broad-use teaching system ● Simple: Easy teaching just by registering positions and parameters. Optional system programs are available for basic operations and various applications. ● Broad-use: User-oriented programming such as I/O control etc. by point job teaching.							
Teaching Pattern		● Direct teaching using a teaching pendant (optional) ● Off-line teaching using JR C-Points (PC software) via a PC (optional)							
Screen Display	Unit of Measure	mm, inch							
	Display Language	Japanese, English, French, Spanish, Italian, German, Korean, Chinese (Simplified characters only)							
Program Capacity		255 programs							
Data Capacity *4		Maximum 30,000 points							
External Interface		RS422 1ch (for a teaching pendant) RS232C 1ch (for a PC: COM1) RS232C 2ch (for external devices: COM2, COM3) (optional)							
External Input/Output		I/O-SYS IN: 16/OUT: 16 I/O-1 IN: 8/OUT: 8 (4-relay contact) (optional)							
Simple PLC Function		100 programs (1,000 steps/1 program)							
Power Source		AC90 - 132V / AC180 - 250V (single-phase)							
Power Consumption		200W							
Working Ambient Temperature		0 - 40℃							
Relative Humidity		20 - 90% (Non condensing)							

〈Note〉
*1 A 2-axis type is also available. (Please contact us for specifications.) (cf.) Maximum portable weight (tool/workpiece): JR2202N (6.5kg/7kg), JR2302N/JR2402N/JR2502N (10kg/11kg)
*2 Maximum speed may vary depending on conditions. Maximum speed cannot be achieved under the maximum portable weight setting.
*3 Repeatability was measured at a constant temperature, so absolute precision is not guaranteed.
*4 The point data capacity will be reduced if the additional function data setting/point job data/sequencer data increases, due to the shared data storage area.

〈Standard Accessories〉
· Power cable
· Operation manual (CD-ROM)

〈Optional devices〉
· Teaching pendant
· Switch box (CE specifications only)
· I/O SYS cable and I/O-1 cable
· Special software (JR C-Points) complies with Windows® XP / Windows® 7.

● Models with CE specifications are also available.
● Specifications may be modified without prior notice to improve product quality.

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