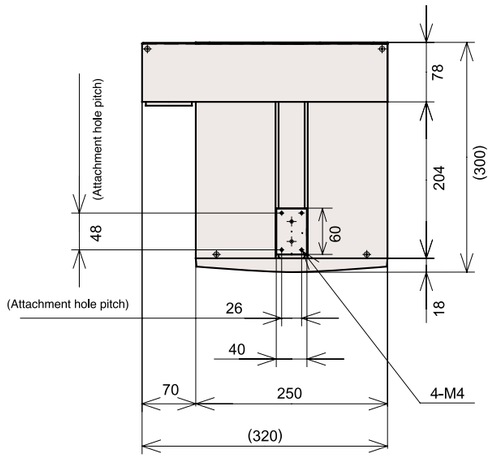
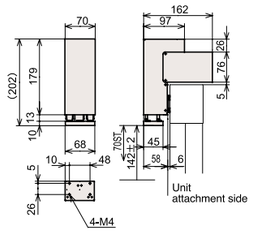
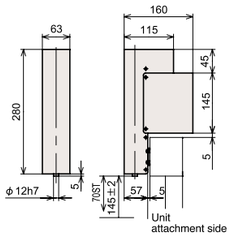
■Dimensions



■Z unit external dimensions

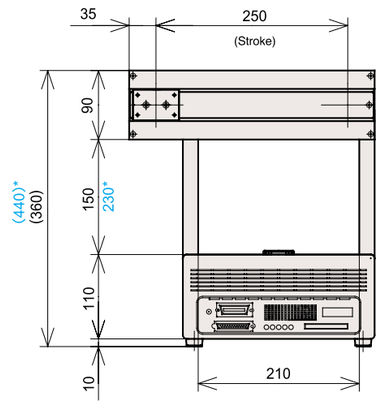


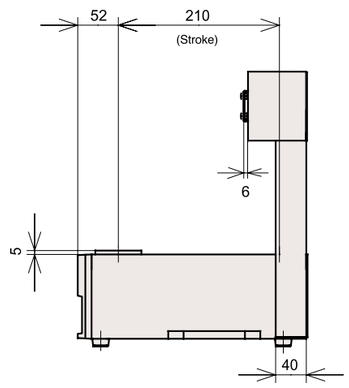
■ZR unit external dimensions



[Optional Unit Specifications]

	Z Unit	ZR Unit	
Stroke	70 mm	Z: 70 mm	R: 360°
Maximum speed *2	100 mm/sec.	Z: 70 mm/sec.	R: 550°/sec.
Position repetition accuracy	Less than ± 0.05 mm	Z: Less than ± 0.05 mm	R: Less than ± 0.1°
Maximum carrying weight	2 kg	1.8 kg	
Resolution	0.006 mm	Z: 0.003 mm	R: 0.038°
Weight	2 kg	3.2 kg	





* Indicates the size for the tall model.

(External size does not include projecting parts.)

Specifications

Base machine		
Motion range *1	X axis	250 mm
	Y axis	210 mm
Maximum speed *2	X axis	300 mm/sec.
	Y axis	300 mm/sec.
Position repetition accuracy *3	X axis	± 0.05 mm
	Y axis	± 0.05 mm
Maximum carrying weight	X axis	5 kg
	Y axis	5 kg
Resolution	X axis	0.014 mm
	Y axis	0.014 mm
Work environment	Temperature	0 - 40°C
	Humidity	35 – 90%
Weight Approx	13 kg (tall model approx. 14 kg)	

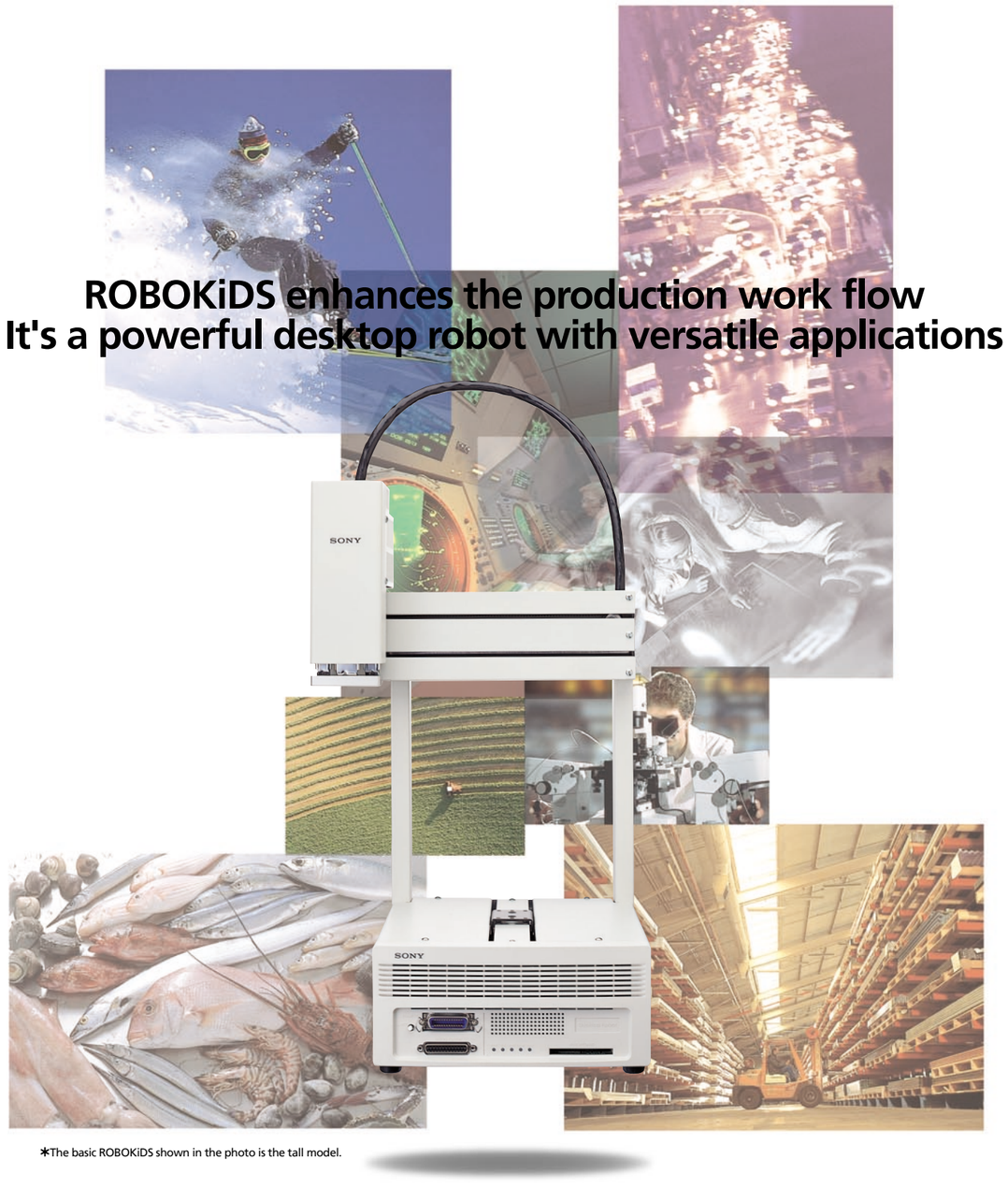
Control			
Drive system	Stepper motor (open-loop control)	Program system	Full-open: Description in LUNA Robot Language RK card: Standard software supplied
Motion system	PTP, CP		
Control axis number	2-axis simultaneous control (maximum 4-axis simultaneous control *3)	CPU	AM486 DX2 (Inside 50 MHz)
Control speed	3 – 300 mm/sec. (with CP control: 0.1 – 100 mm/sec.)	Multi-task (full open)	LUNA tasks: 9 (1 motion task, 8 associated tasks) System task: 1 PLC task: 1
Interpolation function	3D linear interpolation, 3D circular arc interpolation*3		
Teaching systems	● Direct teaching by a teaching pendant (option) ● Off-line teaching by PC (option)	Serial I/F	RS232C: 1 multiple-use system
Input/output points	22 points per I/O *4	Built-in PLC function	PLC function Program system: Pool algebraic system
Program capacity	Full-open: 176 Kbyte total RK card: Maximum 20 work programs per program *5		Motion conditions: Independent from basic ROBOKiDS motions
			I/O: User I/O employed
Point data memory capacity	Full-open: 3,072 points per program RK card: 2,500 points	Power supply	AC 100 ~ 120 V ± 10%, AC 200 ~240 V ± 10%

*1:Since the stroke specifications are for the individual X or Y axis, they do not indicate the work object size. *2:Partially limited to satisfy capacity. See specifications for details.
*3:When a Z unit (option) or ZR unit (option) is employed. *4:The allocated input and output are set for the I/O in advance. See specifications for details.
*5:"20-work program" means that 20 kinds of point data programs with varied point numbers and positions can be memorized. Please see the memory card [RK card] instruction manual for work program allotment.
Attention: ●Capable of performing motions at maximum speed when the length of the motion is more than about 140 mm on the X-axis, 110 mm on the Y-axis, 30 mm on the Z-axis and 110 mm on the ZR-axis (in the Z direction). ●When moving loads of more than about 4.5 kg on X-axis, 3 kg on Y-axis or 1.5 kg on the Z/ZR axis (in the Z direction), select speed settings of less than 80% before use. ●Please consult the limitations on the tool, work and jig installation moment load.

⚠Safetey note: Be absolutely sure to familialize yourself with the Operating Instructions to ensure that this product will be used safely.
*The specifiications and exterior described in this catalog are subject to change without notice due to improvement.

SONY

ROBOKiDS enhances the production work flow
It's a powerful desktop robot with versatile applications



✱The basic ROBOKiDS shown in the photo is the tall model.

ROBOKiDS

ROBOKiDS' winning combination of superior performance and compact size is redefining the meaning of production.

*The basic ROBOKiDS shown in the photo is the tall model.

ROBOKiDS is much more than a space-saving desktop robot. It's a powerful, high-performance machine with advanced robotic technologies packed into its super-compact frame that can drastically improve your production system. ROBOKiDS is built to satisfy a wide range of workplace requirements, from automation and labor saving, previously considered impossible due to space limitations, to the introduction of actual cell production systems that enhance responsiveness to market changes and eliminate the need for maintaining stock.

A variety of application tools and cards are available to enable this versatile robot to handle an even wider variety of work processes. ROBOKiDS' easy-to-use features have been upgraded further to make operation easier than ever. Since ROBOKiDS is designed to operate in everything from a basic system to a PC-controlled concentrated cell production system, users can structure their own system to match their needs.

ROBOKiDS is also perfectly comfortable off the production line, serving as a working robot in many other environments. For example, the medical and creative fields employ it to handle a variety of tasks, and it is at work as a high-performance robot in stores and in homes.

A full offering of standard-sized r obot functions in a compact body.
ROBOKiDS makes use of Sony's superior operatin g features to achieve advanced multifunctionality.

<Front view>

*The basic ROBOKiDS shown in the photo is the standard model.

ROBOKiDS Base Machine

<Top view>

<Side view>

Although compact enough to fit comfortably on the corner of a desktop, ROBOKiDS offers the same level functions as a Sony's high performance robot. Applying some of the original concepts for which it is renowned to the robotics field has enabled Sony to realize superior operating features, multipurpose functionality and many other new developments. Since ROBOKiDS offers outstanding cost performance, the equipment investment goes virtually unnoticed. This optimum combination of factors promises to encourage unlimited expansion of robot use—and to raise product manufacturing into previously unimagined spheres.

SUPER COMPACT

The standard ROBOKiDS measures just 25x30x36cm(WxDxH)and the tall model 25x30x44cm(Foot-print). Its super-compact A4 size enables it to fit into just about any available workspace. Not only is it ideal for single-worker cell production, but it supports automation in various situations outside the production environment as well.

EASY OPERATION

Use of a teaching pendant and an (RK) application card suited to the job content eliminates the need for troublesome programming. Simply setting the motion points and parameters enables the machine to operate easily. This means ROBOKiDS can be introduced smoothly into virtually any work environment.

MULTIFUNCTIONALITY

Adding a Z or ZR unit to the base machine turns it into a 3-axis or 4-axis synchronized control robot capable of handling complicated jobs with ease. ROBOKiDS' multitasking capabilities enable it to control and communicate with other machinery and tools in its environment and by means of user-created programs. It also offers open-ended development potential for new types and fields of work.

Integration

ROBOKiDS

Complicated procedures are no problem for ROBOKiDS. It's already demonstrating its multifaceted capabilities in various fields.

Equipped with the same CPU as Sony's advanced standard-sized robots,
ROBOKiDS achieves a resolution of 0.014 mm and repetition accuracy of less than ±0.05 mm.
With an optional Z or ZR unit added, it easily manages complex motions involving 3D linear and circular arc interpolation.

Application tools ranging from axis units to software add further power and versatility. Users ca

■ Base Machine

Standard Model
CAST-AU4/B2521E
This is the super-compact standard ROBOKiDS.

Tall Model
CAST-AU4/T2521E
A support stand measuring 80 mm longer than the standard model's enables this ROBOKiDS to handle taller jobs, tools and mounting jigs.

■ Unit (Optional)

Available options include axis units that turn ROBOKiDS into a 3-axis or 4-axis synchronized control robot and specialized conversion units that enable it to handle a variety of applications.

Z Unit
CAST-AU4/Z7L
Attaches easily to the main body with three screws.
Turns ROBOKiDS into a 3-axis synchronized control robot.

ZR Unit
CAST-AU4/ZR7L
Attaches easily to the main body with four screws.
Turns ROBOKiDS into a 4-axis synchronized control robot.

Screw-Fastening Set
CAST-FK1/DHNJ+CAST-E05/KDHE
This specialized set converts the base machine ROBOKiDS into a screw-fastening robot.
* The photo shows how the set looks when installed.
* The electronic driver, controller and screw-supply machine are sold separately.

<Set Contents>
- Air apparatus unit
- Cylinder with guide (50 mm stroke)
- Tool plate (for driver installation)
- I/O communication cable set
- Screw-supply machine mounting jig (for "Nejicco")
- Application card (screw-fastening card)

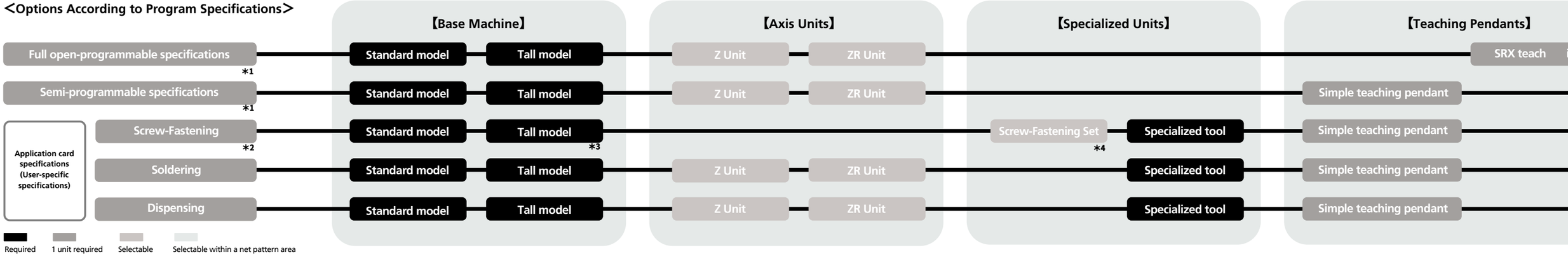
■ Teaching Pendants (Optional)

Two kinds of teaching pendants are available for ROBOKiDS.Choose the pendant that satisfies program specifications suited to your purpose.

Simple Teaching Pendant
CAST-PO6
CAST-PO5/PROJ *
This pendant with its easy setting for direct teaching of motion points and parameters offers trouble-free operation, even for beginners. It meets application card and semi-programmable specifications.
*The product is no longer in production and may not be stock.

SRX Teaching Pendant
SRX-PO05/S
This advanced teaching pendant meets full-programmable specifications. It permits wide-ranging teaching, including teaching of original user system programs and motion programs.

<Options According to Program Specifications>



n tailor original systems to their specific purposes.

ROBOKiDS System

ROBOKiDS' unique potential is attracting attention from various industries, beginning with the product manufacturing industry. Capable of handling three types of program specifications, it offers users the opportunity to construct a robot system to suit their own purposes by adding options such as an axis unit, specialized application tool, teaching pendant, RK card, software or accessories to the base machine. Users can also network several ROBOKiDS or change the set-up to use ROBOKiDS for another purpose.

■ Application Cards (Optional RK Cards)

Simply slip the card into the RK card slot on the basic ROBOKiDS and go to work. Select a card according to the program specifications and your intended use.

Semi-Programmable Card
CAST-EO5/KPE
This card allows the operator to control I/O (input/output) freely and to use peripheral apparatuses such as a vision and PLC unit to create an original motion program.

Point Data Saving Card
CAST-EO5/KPOE
This specialized card is used to store point data for which teaching has been applied. Uses include saving and loading of work point positions and write-in status. It is also capable of backing up such information as point data and parameters without a PC.

Dispensing Card
CAST-EO5/KTE
Eliminates the need for a specialized program when ROBOKiDS is used as a dispensing machine.

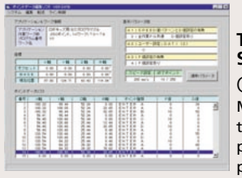
Soldering Card
CAST-EO5/KHJE
Eliminates the need for a specialized program when ROBOKiDS is used as a soldering machine.

Screw- Fastening Card
CAST-EO5/KDHE
Eliminates the need for a specialized program when ROBOKiDS is used as a screw-fastening machine.

■ Software (Optional)

System Disk/ LUNA (Ver. 5.0) Robot Language
SRX-FO15/E350 (for PC/AT)
Creates programs with full-open programmable and semi-programmable specifications.

Debugging Software
SRX-FO16/S350E
Conducts debugging in real time while ROBOKiDS is operating with a created program.



Teaching Data-Editing Software
CAST-FO7
Makes it easy to edit direct teaching point data and parameters input with a teaching pendant by PC.

<Main functions>
- Coordinate registration, revision and editing of copies, etc., by program number
- Setting and changing of individual parameters
- Confirmation of teaching position by PC.

■ Accessories (Optional)

Debugging Station (Sharing Cable)
CAST-P21/E
A cable for connecting a PC and SRX teaching pendant to ROBOKiDS simultaneously. Full open programmable operation manual is included.

Program Transfer Cable
CAST-H03/RK (for PC/AT)
A cable for connecting a PC and ROBOKiDS to transfer program.

Choose among three program specifications.

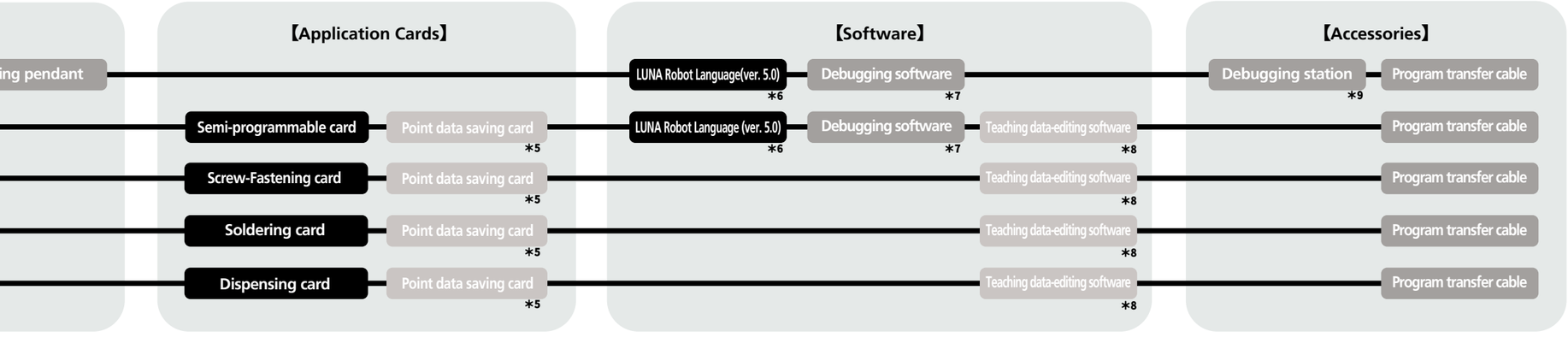
Want to use ROBOKiDS with the freedom of full-programmability? To introduce an original motion program? Or simply to operate it easily without the bother of programming?
ROBOKiDS responds to all these needs with a choice of three program specifications.

1. Full open Programmable Specifications
LUNA (ver. 5.0) Robot Language can be used with ROBOKiDS to create system and motion programs at will. ROBOKiDS' full-programmability enables users to operate it as a high-performance robot– and to benefit fully from all its advanced functions, such as PLC, multi-tasking and communication functions.

2. Semi-Programmable Specifications
Users can create original motion programs easily on a semi-programmable card with LUNA (ver. 5.0) Robot Language. Semi-programmable cards include a system program and simple teaching pendant control program that permit transfer of the motion programs created with LUNA to the basic robot to instruct it to perform the desired motions.
* Semi-programmable cards can be used to back up user programs.

3. Application Card Specifications
Using an application card with a standard application program—such as a dispensing, soldering or screw-fastening program—stored in memory eliminates the trouble of programming yourself. Only the point data and parameters need to be set with the simple teaching pendant for the desired motions to be conducted.

*See the chart below for the options required for the various program specifications.



* 1: Program created by user.
* 2: Electric driver, controller and screw-supply machine required. If the screw-fastening set is not employed, construction of a comparable apparatus is required.
* 3: Not compatible with the (CAST-FK1/DHNJ, CAST-E05/KDHE) screw-fastening set.
* 4: The set includes a tool plate for driver installation, a screw-supply machine mounting jig and a screw-fastening card.
* 5: A teaching pendant can be used to store point data in the card.
* 6: PC and editor software required.
* 7: PC, LUNA (Ver. 5.0) Robot Language and program transfer cable required.
* 8: PC, simple teaching pendant and program transfer cable required.
* 9: Simultaneous connection of SRX teaching pendant and program transfer cable possible.

The ROBOKiDS lineup includes special application robots that go to work right away.

**The basic ROBOKiDS has won acclaim as a high value-added robot in many fields.
The lineup responds to user demand by including a ready-to-use board depaneling robot and a screw-fastening set.**

PC Board Depaneling Robot

CAST-MR2/3ZE

The ROBOKiDS-based CAST-MR2/3ZE PC board depaneling robot is a compact powerhouse that supports users in creating work cell systems.

●Depaneling/processing of small boards (up to 195 x 155 mm)●The electric router cutting system places less stress on the board (reducing pressure to approx. 1/6).
●A small built-in dust-collection system contributes to clean cutting by sucking up chips and scraps during the cutting process.

CAST-MR2/3ZE Tool Specifications

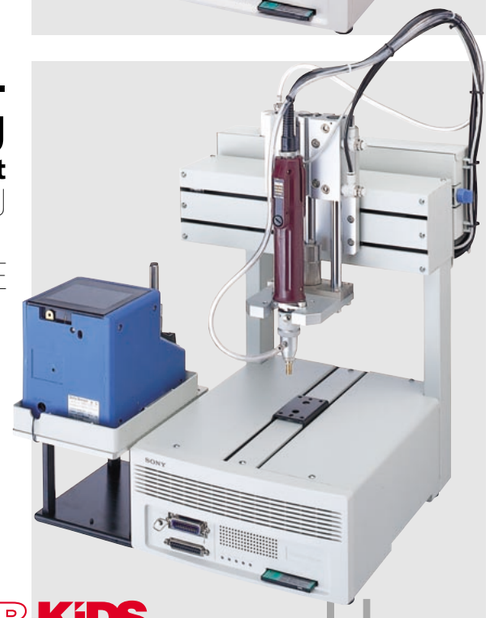
Spindle motor	Drive system	DC brushless motor
	Output	100W
	Rated rotation	40,000rpm（fixed）
	Chuck	Collet chuck system（ø3.175）＊1
Edging tool router		ø0.8
Dust-collection system	Vacuum	Ejector system
	Exhaust air	Speed-control air-flow adjustment
		Exhaust time：0～9.9sec ＊2
Cutting speed	1～100mm/s	
Compatible board size	195×155mm Max. t≦1.6mm	
Compatible board materials	Glass epoxy, paper phenol, etc.	
Cutting accuracy	Approx 0.3mm	

*1: One-touch lever for easy, tool-free edging tool router bit exchange.
*2: Alterable, depending on set parameters.

Screw-Fastening Set

CAST-FK1/DHNJ
＋
CAST-E05/KDHE

＜Set Contents＞
●Air apparatus unit
●Cylinder with guide (50 mm stroke)
●Tool plate (for driver installation)
● I/O communication cable set
●Screw-supply machine mounting jig (for "Nejicco")
●Application card (screw-fastening card)



The special screw-fastening set contains the tools you need to assemble a screw-fastening machine. Installing the set and attaching an electric driver and screw-supply machine turns the basic ROBOKiDS into a compact screw-fastening robot.

●Screw collector type●Equipped with torque-increase and screw-supply error detection functions.
●Compatible with two types of electronic drivers manufactured by HIOS.

＜Other recommended equipment (separately available)＞
Electronic driver: CLFQ-3000, 4000 (manufactured by HIOS.)
Screw-supply machine: Nejicco (manufactured by Sony Bonson.)
* Please consult with your authorized distributer for recommended equipment.
* The photo shows an installed screw-fastening set.

ROBOKiDS

Applications

The ROBOKiDS family of robot systems. Examples of flexible system construction based on a unique concept.

**A variety of exclusive specialized robots can be constructed employing original set-ups with ROBOKiDS as the basic machine.
The specialized robots shown here exhibit some of ROBOKiDS' wide-ranging features as examples of its open-ended potential.**

★Soldering Robot

**Basic ROBOKiDS
＋
Soldering card (option)
＋
Soldering unit available on the market**

●4-axis synchronized control permits flexible soldering operation.
●The special soldering IC card requires no difficult motion programming.

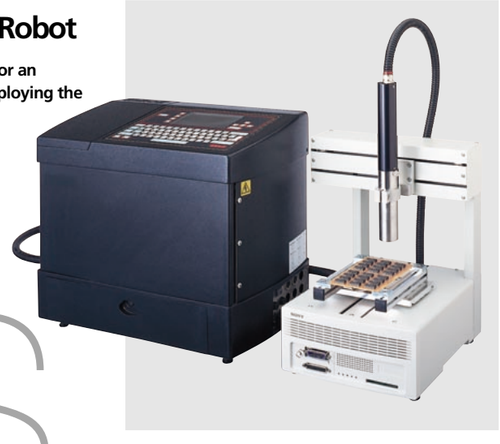
★Dispensing Robot

**Basic ROBOKiDS
＋
Dispenser card (option)
＋
Dispenser unit available on the market**

●This flexible, multifunction dispenser robot handles point, line, refilling and other applications.
●The dispenser IC card requires no difficult motion programming.

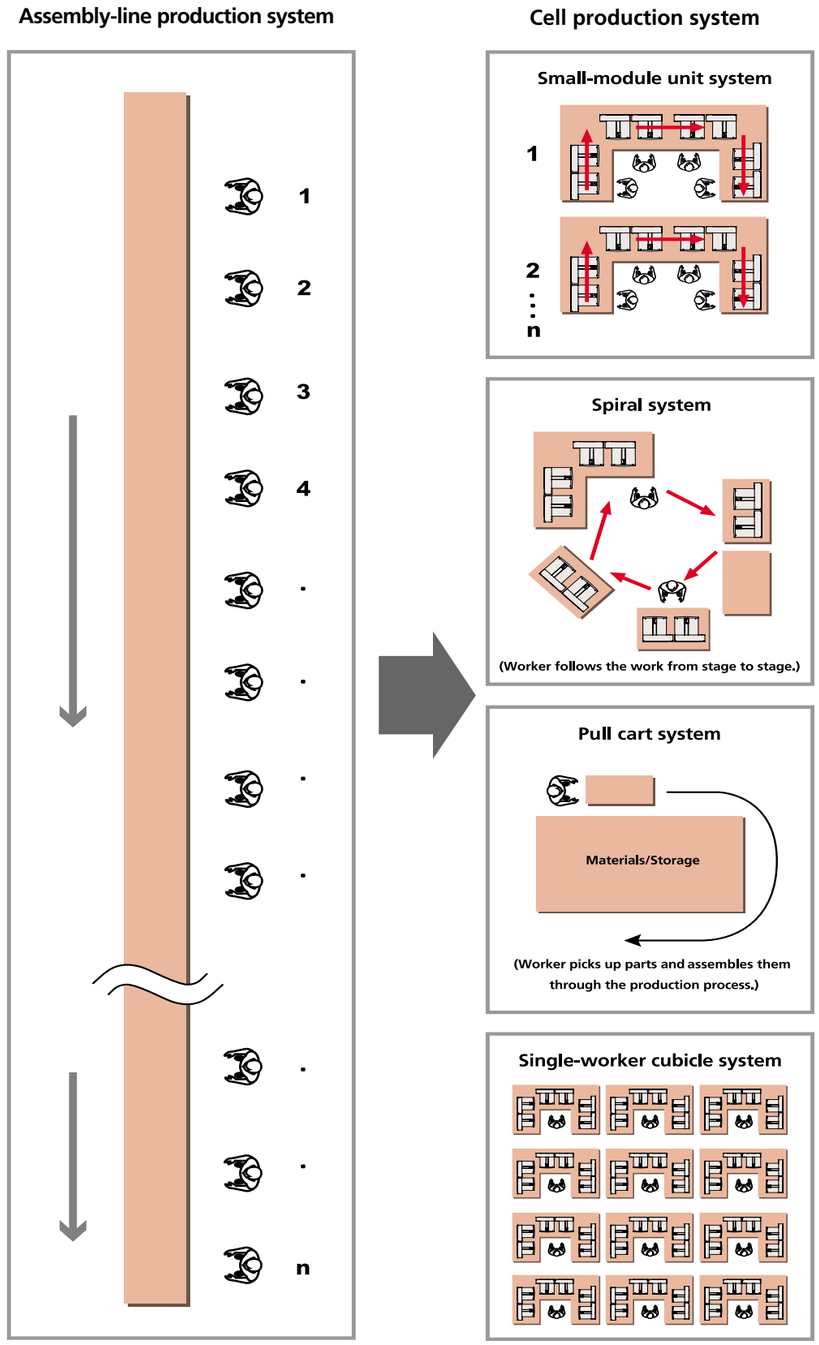
★Marking Robot

Original tool set-up for an assembly marker employing the basic ROBOKiDS



●This specialty robot conducts marking on work lined up in a matrix formation.
●Its highly precise motion control permits accurate marking, even on a narrow print area.

ROBOKiDS is helping users achieve two primary objectives: previously unattainable automation and labor-savings, and the introduction of efficiency -enhancing cell production systems.



<生産ラインの改善例>

製品特性や生産量に応じた最適セル生産方式を導入することにより、ライン停止・切替ロスが削減し、また自律管理を徹底化。生産リードタイムの短縮、品質の安定など、生産性の向上が可能となります。

ROBOKiDS Cell production

The cell production system is an efficient system permitting flexible responses to market changes. The system was conceived to overcome the limitations of the conventional production-line system of the mass production era, which is slow to react to changes in demand. Sony has moved quickly to introduce the cell production system to achieve quick release onto the market of a diverse selection of products, such as portable phones. Since a single worker handles multiple tasks in a limited work area in the cell production system, the key to smooth operation is an ability to accomplish more with less labor. ROBOKiDS' compact size and capability for handling a wide range of applications contribute to enhanced cell production efficiency. ROBOKiDS also adapts easily to PC-based process control systems as well as to process control networks forming the basis of concentrated cell production systems. ROBOKiDS may be small, but its compact size clearly belies formidable power.

Five or so ROBOKiDS can be installed in a single worker's production cell.