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* Materials and specifications are subject to change without notice.

Simple and friendly
Kawasaki Robot

CAUTIONS TO BE TAKEN TO ENSURE SAFETY

- For those persons involved with the operation / service of your system, including Kawasaki Robot, they must strictly observe all safety regulations at all times. They should carefully read the Manuals and other related safety documents.
- Products described in this catalogue are general industrial robots. Therefore, if a customer wishes to use the Robot for special purposes, which might endanger operators or if the Robot has any problems, please contact us. We will be pleased to help you.
- Be careful as Photographs illustrated in this catalogue are frequently taken after removing safety fences and other safety devices stipulated in the safety regulations from the Robot operation system.

QUALITY SYSTEM CERTIFICATION ISO 9001 DNV RvA MGMT.SYS. C024

ENVIRONMENTAL SYSTEM CERTIFICATION ISO 14001 DNV RvA MGMT.SYS. C024

ISO certified in Akashi Works.

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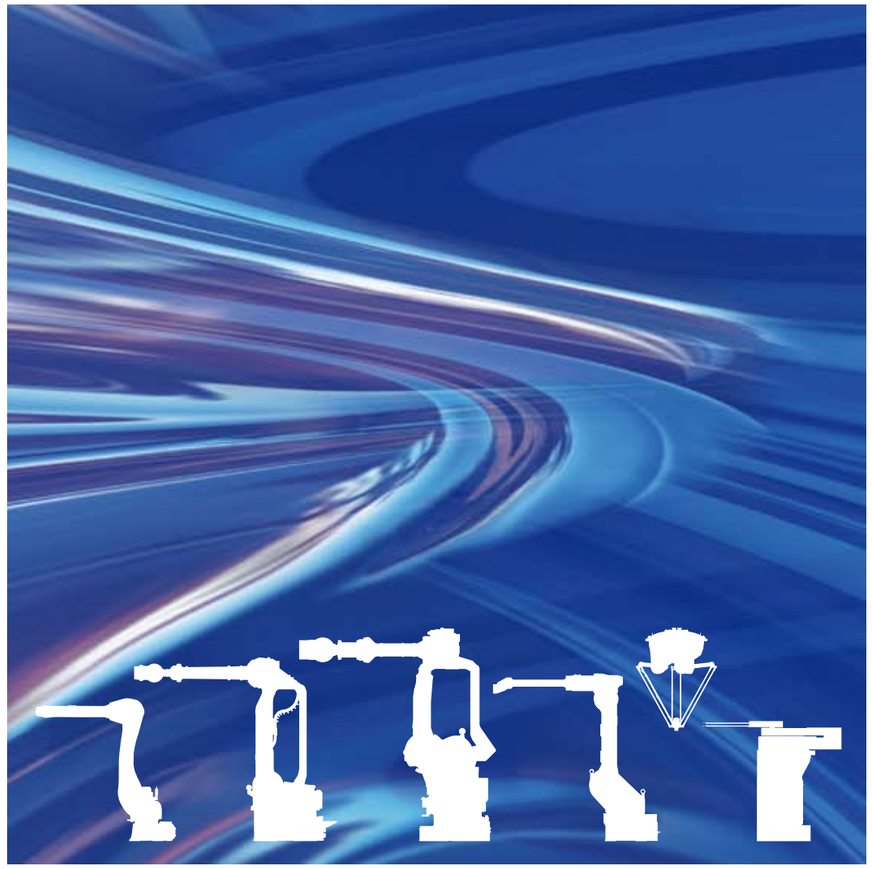
Kawasaki Robot

Kawasaki Robot LINE UP

LINE UP

Japan & Asia



Our Product Concept is

“Simple and friendly”

Utilizing our more than 40 years experience in industrial robotics, we consolidate our state-of-art technologies in a form that is simple and friendly. Our product line-up offers the optimum solutions to your problems and needs.

■ Small-to-medium size general purpose robots

R-series

■ Large-size general purpose robots

Z-series

■ Extra large-size general purpose robots

M-series

■ Explosion-proof robots for painting

K-series

Simple and friendly

Kawasaki Robot

■ Spot welding robots

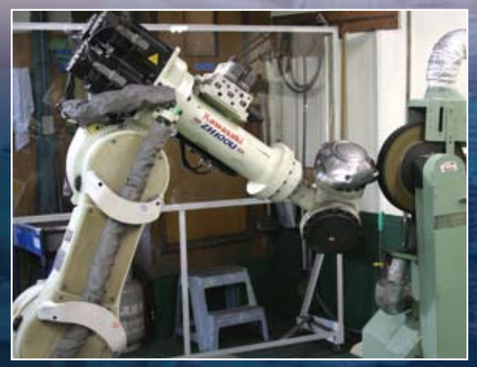
BX-series

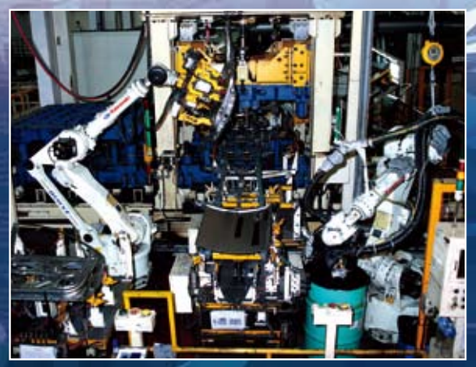
■ High-speed picking robots

Y-series

■ Clean robots

NT-series
NX-series





Kawasaki started the manufacture and sales of industrial robots in 1968. Since that time, we have continually produced a wide range of advanced industrial robots using state-of-the-art technology for both the domestic and overseas markets.

Our line-up includes manipulators developed to meet diverse industrial requirements. From the assembly of miniature components, weighing only a few grams, to robots capable of handling 700 kg. The line-up is supported by our continuous development of control technology to improve functionality and operation for optimum control of the manipulator.

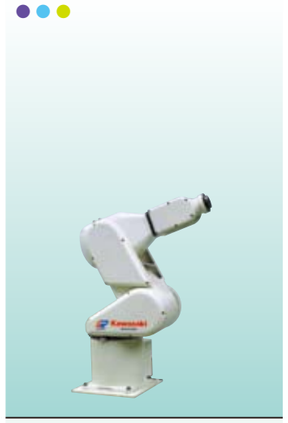
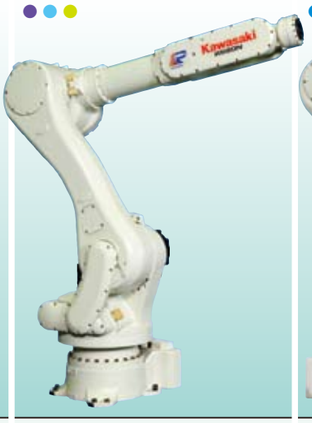
Human and environmentally friendly robot systems provide a high level of skill and intelligence – we hope that you will benefit form our technology and experience in your future automation systems.

■Small-to-medium size general purpose robots

R-series

Higher speed and longer reach in a compact design.
Complete line-up based on the consolidation of our vast technologies and experience.

Application
- ●Assembling
- ●Handling
- ●Sealing
- ●Arc welding
- ●Palletizing

			RS03N	RS05N/05L	RS06L/10N	RS15X	RS10L/20N	RS30N/50N/RS80N	RD80N
			●●●	●●● (●) *1	●●● (●) *1	●●●	●●● (●) *1	●●●	●
									
Degree of freedom (axes)			6	6	6	6	6	6	5
Payload (kg)			3	5	6/10	15	10/20	30/50/80	80
Motion range (°)	Arm rotation	(JT1)	±160	±180	±180	±180	±180	±180	±180
	Arm out-in	(JT2)	+150 ~ –60	+135 ~ –80	+145 ~ –105	+140~ –105	+155 ~ –105	+140 ~ –105	+140 ~ –105
	Arm up-down	(JT3)	+120 ~ –150	+118 ~ –172	+150 ~ –163	+135 ~ –155	+150 ~ –163	+135 ~ –155	+140 ~ –205
	Wrist swivel	(JT4)	±360	±360	±270	±360	±270	±360	±360
	Wrist bend	(JT5)	±135	±145	±145	±145	±145	±145	±10
	Wrist twist	(JT6)	±360	±360	±360	±360	±360	±360	–
Max. speed (°/s)	Arm rotation	(JT1)	360	360/300	250	180	190	180	180
	Arm out-in	(JT2)	250	360/300	250	180	205	180	180
	Arm up-down	(JT3)	225	410/300	215	200	210	185/185/160	175
	Wrist swivel	(JT4)	540	460	365	410	400	260/260/185	360
	Wrist bend	(JT5)	225	460	380	360	360	260/260/165	–
	Wrist twist	(JT6)	540	740	700	610	610	360/360280	–
Repeatability*2 (mm)			±0.05	±0.02/±0.03	±0.05/±0.04	±0.15	±0.06/±0.05	±0.07	±0.07
Max. reach (mm)			620	705/903	1,650/1,450	3,150	1,925/1,725	2,100	2,100
Mass (kg)			20	34/37	150 kg	545	230	555	540
Installation			Floor, Ceiling (Wall)	Floor, Ceiling (Wall)	Floor, Ceiling (Wall)	Floor, Ceiling (Wall)	Floor, Ceiling (Wall)	Floor, Ceiling (Wall)	Floor
Matching controller			E73	E74	E20	E22	E20/E94	E22	E22

*1 : Model code has changed. The configuration is also slightly different from that shown in the photo.
*2 : conforms to ISO9283

■Features

1. High speed
The new light-weight arm of the R-series robot, which incorporates high-output, high-revolution, small motors and other design innovations, provides industry leading acceleration and high-speed operation. In addition, the acceleration rate automatically adjusts to fit the payload and robot posture, delivering both optimum performance within the shortest cycle times.

2. High torque
High-output servomotors, combined with enhanced arm rigidity, allow for superior wrist load capacity. This high torque rating offers system designers a broad selection of end-of-arm tooling, and allows for increased flexibility while performing work with complex workpieces.

3. Wide working range
In addition to extending the robot's maximum reach, the motion range of each axis has also been increased. The wider motion range has expanded the working area of the robot, delivering greater flexibility throughout the work envelope.

4. Environmental adaptability
Each joint axis has a double seal construction, and the electrical connectors are waterproof. These features enable the wrists to meet IP67 standards, and the remaining axes to meet IP65 standards. If required, an option that meets IP67 standards can be provided for the remaining axes.

5. Integrated features
Built-in solenoid valves and signal harnesses are available. These options enable peripheral equipment to be used for a wide range of applications. Furthermore, the arm is equipped with standard service-taps in different sections, allowing for the easy installation of additional cabling and tubing.

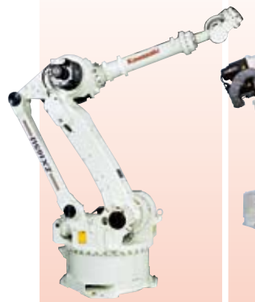
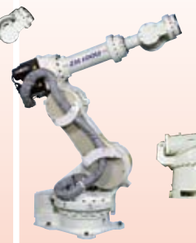
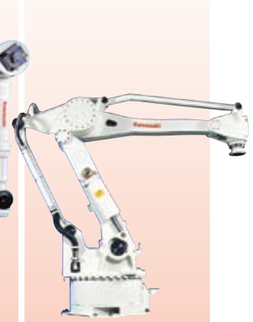
RD80N
The RD80N is a palletizing robot. It features a wide work range and high throughput for palletizing.

■Large-size general purpose robots

Z-series

Wide work envelope and large motion ranges of the wrists provide flexibility in applications.

Application
- Spot Welding
- Assembling
- Handling
- Palletizing

			ZX130S/130L/165U/200S/300S	ZH100U	ZT130S/ZT165U/200S	ZT130Y/ZT165X/165Y	ZD130S/250S
							
Degree of freedom (axes)			6	6	6	6	4
Payload (kg)			130/130/165/200/300	100	130/165/200	130/165/165	130/250
Motion range (°)	Arm rotation	(JT1)	±180	±160	±180	±180	±180
	Arm out-in	(JT2)	+75 ~ –60	+120 ~ –60	+60 ~ –75	+50 ~ –120	+90 ~ –50
	Arm up-down	(JT3)	+250 ~ –120	+75 ~ –90	+165 ~ –95	+150 ~ –65	+15 ~ –120
	Wrist swivel	(JT4)	±360	±360	±360	±360	±360
	Wrist bend	(JT5)	±130/±130/±130/±120/±120	±130	±130/±130/±120	±130	–
	Wrist twist	(JT6)	±360	±360	±360	±360	–
Max. speed (°/s)	Arm rotation	(JT1)	130/110/110/105/100	140	130/105/100	120/120/105	135/95
	Arm out-in	(JT2)	130/110/110/110/85	100	130/105/100	110/110/105	110/90
	Arm up-down	(JT3)	130/110/115/105/85	100	130/105/90	115/115/100	130/95
	Wrist swivel	(JT4)	180/140/140/120/90	150	180/135/120	160/140/140	400/190
	Wrist bend	(JT5)	180/135/155/120/90	150	180/135/115	180/155/155	–
	Wrist twist	(JT6)	280/230/260/200/150	250	280/210/180	280/260/260	–
Repeatability*1 (mm)			±0.3	±0.3	±0.3	±0.3	±0.5
Max. reach (mm)			2,651/2,951/2,651/2,651/2,501	1,634	3,230/3,230/3,230	3,130/2,830/3,130	3,255
Mass (kg)			1,350/1,400/1,350/1,400/1,400	750	1,550/1,550/1,600	1,665/1,650/1,665	1,350
Installation			Floor	Floor	Shelf	Shelf	Floor
Matching controller			E22	E22	E22	E22	E23

*1 : conforms to ISO9283

■Features

1. Improved cycle time

The cycle time has been greatly improved by reduction of the mass and adoption of the E-controller.

2. Wide work envelope and low power consumption

The Z-series has wide work envelope due to long reach and small dead space. The patented Kawasaki's Hybrid Link mechanism allows turning backward with low power consumption. Joint 1 travel is 360 degrees with mechanical hard stops.

3. Space saving and easy installation footprint

Small footprint and integrated air piping and wiring for the valve are standard for all models. This simplifies robot installation in confined areas.

4. Environmental protection IP65/67

IP65 for robot arm and IP67 for wrist portion. The Z-series is able to operate in the severe environment.

5. Upgradability

The ZX165U can be upgraded to a faster robot or higher payload robot by adding simple hardware and software at the user site. The alteration at the production site is easier and economical. This means that an exact model selection at the design stage is not required.

■Extra large-size general purpose robots

M-series

Maximum payload capacity: 700 kg.
The M-series offer compact footprint and large wrist torque.

Application
- Assembling
- Handling
- Palletizing

			MX350L/420L/500N/700N	MT400N	MD400N/500N
					
Degree of freedom (axes)			6	6	5
Payload (kg)			350/400/500/700	400	400/500
Motion range (°)	Arm rotation	(JT1)	±180	±180	±180
	Arm out-in	(JT2)	+90 ~ –45	+15 ~ –135	+90 ~ –45
	Arm up-down	(JT3)	+20 ~ –115/–125/–130/–130	+106 ~ –30	+14 ~ –125
	Wrist swivel	(JT4)	±360	±360	±360
	Wrist bend	(JT5)	±110	±120	±10
	Wrist twist	(JT6)	±360	±360	–
Max. speed (°/s)	Arm rotation	(JT1)	80/80/80/65	80	80/70
	Arm out-in	(JT2)	70/70/70/50	70	70/65
	Arm up-down	(JT3)	70/70/70/45	70	70/45
	Wrist swivel	(JT4)	80/80/80/50	70	180/160
	Wrist bend	(JT5)	80/80/80/50	70	–
	Wrist twist	(JT6)	120/120/120/95	130	–
Repeatability*1 (mm)			±0.5	±0.5	±0.5
Max. reach (mm)			3,018/2,778/2,540/2,540	3,503	2,710.4
Mass (kg)			2,800/2,800/2,750/2,860	2,600	2,650/2,680
Installation			Floor	Shelf	Floor
Matching controller			E24	E22	E24

*1 : conforms to ISO9283

■Features

1. Compact profile

High payload robots conventionally require a large counterbalance that increases interference and reduces the work envelope. Kawasaki's innovative design of a patented advanced link mechanism has reduced interference and increased work envelope by elimination the function of this redundant counterbalance.

2. High wrist torque

The MX500N and 700N have superb wrist torque. This torque increases the offset distance from the twist flange surface to the center of gravity of a workpiece. Its application offers excellent results when working with off-centered workpieces.

3. Safe design (option)

With collision detection and vibration suppression control software, the robot can manipulate large payloads smoothly and safely.

4. Many variations

Four MX models (6-axis type, 350-700 kg) are floor mounting types. The MT400N (6-axis, 400kg) is a shelf mounting type. These models are for assembling and handling applications. The two MD models (5-axis, 400 - 500 kg) are floor mounting type for palletizing applications.

■Explosion-proof robots for painting

K-series

The optimum model with right wrist configuration can be selected according to the workpiece.
Various painting package cells enable very easy installation.

		KF121	KF192/193/194	KF262/263/264	KG264	KJ264(Floor/Shelf/Wall)/314
						
Degree of freedom (axes)		6	6	6	6	6/6/6/7
Payload (kg)		5	Wrist : 12 Arm : 20	Wrist : 12 Arm : 20	Wrist : 20 Arm : 30	Wrist : 15 Arm : 25
Motion range (°)	Arm rotation (JT1)	±160	±150	±150	±120	±120/±120/+130~-120/±120
	Arm out-in (JT2)	±90	+110 ~ –60	+110 ~ –60	+120 ~ –60	+130 ~ –80
	Arm up-down (JT3)	±150	+90 ~ –80	+90 ~ –80	+90 ~ –65	+90 ~ –65
	Wrist swivel (JT4)	±270	±360/±720/±720	±360/±720/±720	±720	±720
	Wrist bend (JT5)	±145	±360/±720/±720	±360/±720/±720	±720	±720
	Wrist twist (JT6)	±360	±360/±410/±410	±360/±410/±410	±410	±410
	Arm swing (JT7)	—	—	—	—	—/—/—/±90
Wrist type		RBR	BBR/3Rϕ40/3Rϕ70	BBR/3Rϕ40/3Rϕ70	3Rϕ70	3Rϕ70
Repeatability*1 (mm)		±0.2	±0.5	±0.5	±0.5	±0.5
Max. reach (mm)		1,240	1,973/1,973/1,978	2,665/2,665/2,668	2,665	2,640/2,640/2,640/3,100
Explosion protection		Combination of pressurized type and intrinsically safety type (Expib IIBT4/Exib IIBT4)	Combination of pressurized type and intrinsically safety type (Expib IIBT4/Exib IIBT4)	Combination of pressurized type and intrinsically safety type (Expib IIBT4/Exib IIBT4)	Combination of pressurized type and intrinsically safety type (Expib IIBT4/Exib IIBT4)	Combination of pressurized type and intrinsically safety type (f2G4/Exib IIBT4)
Mass (kg)		140	690/720/750	720/740/770	795	540/530/530/720
Matching controller		E27	E25	E25	E25	E25

*1 : conforms to ISO9283

■Features

1. Broad range of robots
Kawasaki offers four basic types of painting robot, from the KF121 for small workpieces to the KG264 for the inner and outer bodies of automobiles. We provide a range of robots that covers the requirements of all applications and installations.

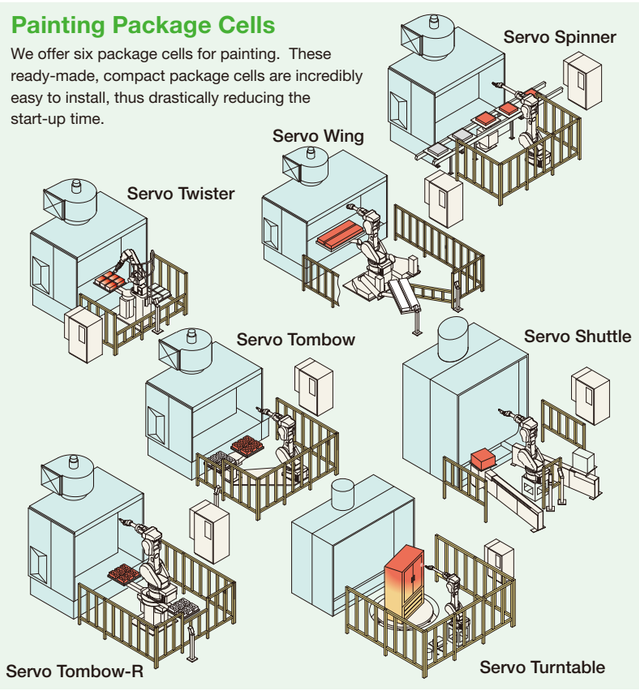
2. Built-in hoses
Robot arms are fitted with built-in hoses as standard (except for the KF121, KF192 and KF262). The hollow wrist with fully integrated hoses minimizes the likelihood of mist and spray sticking to the tubing and reduces the chance of dust adhering to the workpiece. The inner diameter of the hollow wrist is either 40 or 70 mm.

3. Enhanced peripheral units
A control panel is provided to enhance the ease of system development and to interface with the robot traveling unit, workpiece transfer unit, rotation unit and other devices.

4. Significant experience
Gathering 30 years of painting robot experience has enabled Kawasaki to put together a robot that will match your every need. The K-series has used this information and is now equipped with more advanced functions than ever, resulting in a robot of great capability.

5. Customer support
Our professional staff will be available for support from the initial planning stage right up to the system start up. This service will be of great benefit to those new to painting applications.

Painting Package Cells
We offer six package cells for painting. These ready-made, compact package cells are incredibly easy to install, thus drastically reducing the start-up time.



■Spot welding robots

BX-series

Our advanced robotics technologies streamline the spot welding process.

		BX100N	BX200L
Degree of freedom (axes)		6	6
Payload (kg)		100	200
Motion range (°)	Arm rotation (JT1)	±160	±160
	Arm out-in (JT2)	+120 ~ –65	+76 ~ –60
	Arm up-down (JT3)	+90 ~ –77	+90 ~ –75
	Wrist swivel (JT4)	±210	±210
	Wrist bend (JT5)	±125	±125
	Wrist twist (JT6)	±210	±210
Max. speed (°/s)	Arm rotation (JT1)	135	105
	Arm out-in (JT2)	110	90
	Arm up-down (JT3)	140	100
	Wrist swivel (JT4)	200	120
	Wrist bend (JT5)	200	120
	Wrist twist (JT6)	300	200
Repeatability*1 (mm)		±0.2	±0.2
Max. reach (mm)		2,200	2,597
Mass (kg)		740	930
Installation		Floor	Floor
Matching controller		E22	E22

*1 : conforms to ISO9283

■Features

1. High-speed spot welding
The BX series robots come with lightweight arms and high-output, high-revolution motors, and utilize the latest in anti-vibration control technology. These features help to reduce the time needed for short-pitch movements, which constitute the main part of spot welding. The improved sequence of axial operations performed by the servo welding guns also leads to a significant reduction in cycle time.

2. Integrated dress package
Exposed cable harnesses on conventionally dressed robots present a number of drawbacks, such as interference caused by adjacent robots or peripheral devices during in-field teaching or while executing playback after offline programming. The BX series eliminates this problem by housing the cable harness within the robot arm. The arm and wrist of the BX series robot are hollow, allowing the cable harness for spot welding to be internally routed between the base and wrist. This greatly boosts the efficiency of both offline programming and in-field teaching.

BX100N

3. Higher density installation
Compared to conventional robots, the BX series robots have a much smaller footprint and an even thinner body. Coupled with the cable harnesses housed within the robot arm, these features make it possible to install a large number of BX series robots within a confined space.

■High-speed picking robot

Y-series

A high-speed picking robot for food, pharmaceutical, cosmetics and solar panel production lines.

	YS02N	YF03N
		
Degree of freedom (axes)	4	4
Payload (kg)	2	3
Motion range (mm)	Ø600 x H200	Ø1,300 x H500
Cycle time (s) *1 (Payload)	0.3 s (0.5 kg) 0.36 s (2 kg)	0.27 s (1 kg) 0.45 s (3 kg)
Positional repeatability (mm)*2	± 0.04	± 0.1
Angular repeatability (°)	± 0.1	± 0.1
Mass (kg)	60	145
Installation	ceiling	ceiling
Matching controller	E94	E94

*1 : Motion pattern (25mm up, 305mm horizontal, 25mm down in a to-and-fro motion)
*2 : conforms to ISO9283
*3 : For the YF series

■Features

1. High-processing capability
The high-processing ability contributes to takt time reduction.

2. Large motion range
The expanded line of products cover various types of workpieces and production lines.

3. High accuracy
High repeatability ensures accurate pick & place operation and high productivity.

4. High-density layout
The YS02N, with its more compact structure and smaller footprint, enables the high-density layout of multiple robots. The lighter body can also be installed on a cantilever mount.

5. Readily compatible with the Vision system
The series can offer high-speed, high-precision, and safe transfer in combination with a visual sensing system. The YS02N's top mounting base is provided with a hollow space at the center for installing a camera.

6. Wash-downs with acid or alkaline cleanser*3
The arm is designed for wash-downs with acid or alkaline cleanser, thus assuring hygiene in production plants.

7. Use of food-safe grease and oil for food-processing machinery*3
Grease and oil for food-processing machinery is used for moving parts to assure hygiene in case of unforeseeable accidents.

8. Easy maintenance
The simple, center-drive shaftless design results in easy maintenance. The YS02N is designed so that the main parts can be exchanged in units, greatly facilitating the task of exchanging parts.

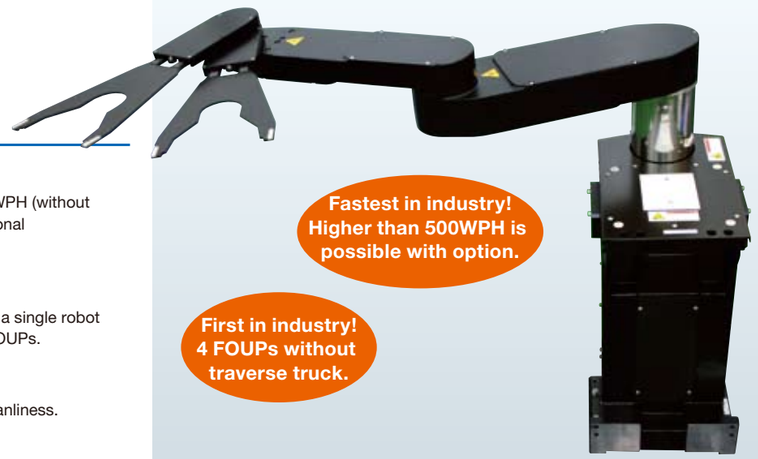
■Clean specification robots

Horizontal Articulated type

NT series

NT420/NT520 : 2 wrists
NT410/NT510 : 1 wrist

We offer a wide range of clean robots
that can be used in semi-conductor manufacturing lines.



Fastest in industry!
Higher than 500WPH is
possible with option.

First in industry!
4 FOUPs without
traverse truck.

NT420/NT520

■Features

1. High throughput

The NT-series provides a high throughput of 400 WPH (without aligner) or 280 WPH (with aligner). By adding optional specifications, it can exceed 500 WPH.

2. Advanced common platform

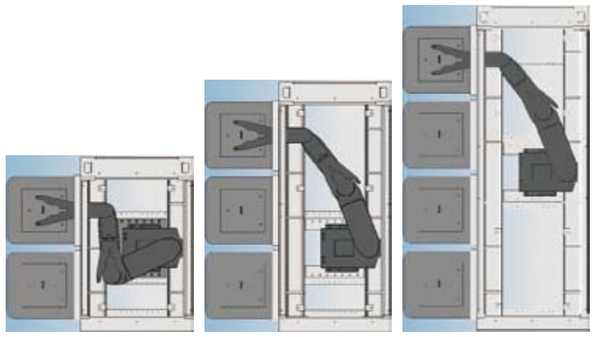
A traverse truck is not necessary. This is because a single robot arm can cope with all the EFEMs having up to 4 FOUPs.

3. High cleanliness

The NT-series meets ISO class-1standards for cleanliness.

4. Unique control functions

Fully automated programming and self diagnostic functions can be supplied as options.



A common platform with a single arm for 2-, 3- and 4-FOUP EFEMs without a traverse truck.

NT410/NT510

Horizontal Articulated type

NX series

Consists of 4 models including 2-link/1-wrist NX510, 2-link/2-wrist NX520, 3-link/1-wrist NX540 and 3-link/2-wrist NX550. All of them achieve ISO Class-1 cleanliness and realize 2-FOUP and 3-FOUP action without track.

NX520 NX550

■Controller

E-series

Kawasaki's collaboration of past achievements
and experience has led to the state-of-art controller available.

CONTROLLER

		E94	E73/74	E20/22/23/24	E25/27
					
Features		The E94 controller is extremely compact, and specially designed for Y-series, RS10L and RS20N. This compact size enables it to be installed vertically or horizontally in practically any location, such as under a conveyor or on an arm mount rack. In addition, the enhanced CPU capacity allows for more accurate trajectory control, faster program execution, and smoother operation.	The E73/74 controllers are extremely compact, and specially designed for small robot arms (RS03N, 05N, 05L, 06L and 10N). Though compact in design, these controllers offer high performance and expandability. In addition, the enhanced CPU capacity allows for more accurate trajectory control, faster program execution, and smoother operation.	The E20/22/23/24 are standard controllers. The footprint and overall volume of the E2x controller have been reduced, making it easy to achieve high-density layouts. In addition, the enhanced CPU capacity allows for more accurate trajectory control, faster program execution, and smoother operation.	With a new explosion-proof teach pendant featuring a color LCD, programming and editing work can efficiently be carried out from inside the explosion-proof paint booth. The latest CPU enables high-speed execution of the application software, fast-response, and more accurate control over trajectory.
Type of driving		Full digital servo system	Full digital servo system	Full digital servo system	Full digital servo system
Teaching method		Easy operation teaching or AS language programming	Easy operation teaching or AS language programming	Easy operation teaching or AS language programming	Easy operation teaching or AS language programming
Teach pendant		Color LCD teach pendant for the E series controllers	Color LCD teach pendant for the E series controllers	Color LCD teach pendant for the E series controllers	Explosion-proof teach pendant
Memory capacity (MB)		8	8	8	8
I/O signal	External operation	Motor power off, Hold etc.	Motor power off, Hold etc.	Motor power off, Hold etc.	Motor power off, Hold etc.
	Input (Channels)	32 (max. 96)	32 (max. 96)	32 (max. 128)	32 (max. 128)
	Output (Channels)	32 (max. 96)	32 (max. 96)	32 (max. 128)	32 (max. 128)
Construction		Open structure/Direct Cooling System (Option: Enclosed structure)	Self-standing fully-enclosed type with indirect cooling system	Self-standing fully-enclosed type with indirect cooling system	Self-standing fully-enclosed type with indirect cooling system
Mass (kg)		40	30	95/95/110/95	120

■Teach pendant

■Color LCD teach pendant for the E series controllers

The operation system has now fully matured into a more user-friendly design. An operator can switch on the motors and activate the cycle start all from the teach pendant, allowing for a more convenient system control. Two information screens can be displayed simultaneously, providing access to different types of information (for example, positional information and signal information).

■Explosion-proof teach pendant

The explosion-proof feature on the color LCD with a large-sized touch panel allows for teaching, editing, and monitoring information such as current position and I/O signals in the explosion-proof area, and it is possible to customize the interface panel according to user preference. The backlight allows for clear view of the screen in dark locations.