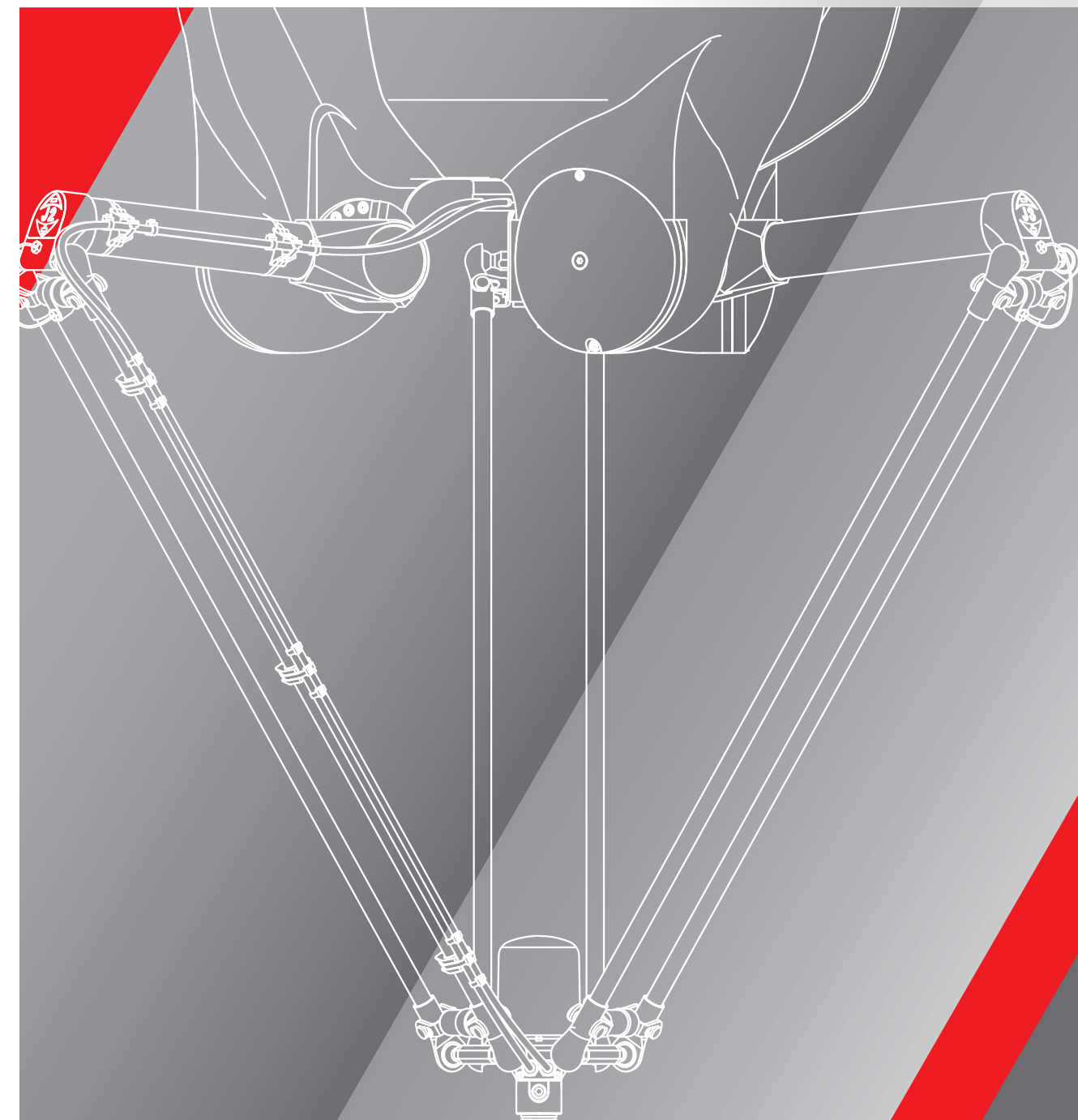


# Kawasaki Robot

## Y series High-speed picking robot



### Kawasaki Robotics (USA), Inc.

Corporate Headquarters for Americas  
28140 Lakeview Drive, Wixom, MI 48393, U.S.A.  
Phone: +1-248-446-4100 Fax: +1-248-446-4200

#### Global Network

#### Kawasaki Heavy Industries, Ltd.

Tokyo Head Office/Robot Division  
1-14-5, Kaigan, Minato-ku, Tokyo 105-8315, Japan  
Phone: +81-3-3435-6852 Fax: +81-3-3437-9880

#### Kawasaki Heavy Industries, Ltd.

Akashi Works/Robot Division  
1-1, Kawasaki-cho, Akashi, Hyogo 673-8666, Japan  
Phone: +81-78-921-2946 Fax: +81-78-923-6548

#### Kawasaki Robotics (UK), Ltd.

Unit 4 Easter Court, Europa Boulevard, Westbrook Warrington  
Cheshire, WA5 7ZB, United Kingdom  
Phone: +44-1925-71-3000 Fax: +44-1925-71-3001

#### Kawasaki Robotics GmbH

Im Taubental 32, 41468 Neuss, Germany  
Phone: +49-2131-3426-0 Fax: +49-2131-3426-22

#### Kawasaki Robotics Korea, Ltd.

43, Namdong-daero 215beon-gil, Namdong-gu  
Incheon, 21633, Korea  
Phone: +82-32-821-6941 Fax: +82-32-821-6947

#### Kawasaki Robotics (Tianjin) Co., Ltd.

Bldg 3, No.16, Xiang'an Road, TEDA, Tianjin 300457, China  
Phone: +86-22-5983-1888 Fax: +86-22-5983-1889

#### Kawasaki Motors Enterprise (Thailand) Co., Ltd.

Rayong Robot Center  
119/10 Moo 4 T. Pluak Daeng, A. Pluak Daeng, Rayong 21140, Thailand  
Phone: +66-38-955-040-58 Fax: +66-38-955-145

[KawasakiRobotics.com](http://KawasakiRobotics.com)

## 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.



ISO certified in Wixom, Michigan U.S.A.

# Speed up your production lines.

The Y series high-speed pick & place robots are ideal for a wide range of applications, including food, pharmaceutical, and cosmetics production lines, as well as the assembly and placement of electrical, electronic, and machine parts. The Y series includes two models: the YF003N with a 3 kg payload capacity, and the YF002N with a 2 kg payload capacity. They are capable of high-speed motion over a wide range, which helps speed up production lines.

YF002N



YF003N



## Features

### High processing capability

The YF003N boasts speeds of 222 cycles per minute for a 1 kg payload operation, in a to-and-fro motion, with an upward stroke of 25 mm, a horizontal stroke of 305 mm, and then a downward stroke of 25 mm. The YF002N offers speeds of 200 cycles per minute for a 0.5 kg payload operation, in a to-and-fro motion, with an upward stroke of 25 mm, a horizontal stroke of 305 mm, and then a downward stroke of 25 mm. The high processing capability of the Y series models contributes to takt time reduction.

### Large motion range

To accommodate various types of workpieces and production lines, the Y series robot models cover a wide motion range: YF002N motion range of 600 mm in diameter and 200 mm in vertical direction, and YF003N motion range of 1,300 mm in diameter and 500 mm in vertical direction.

### High accuracy

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

### High-density layout

The YF002N, with its more compact structure and smaller footprint, enables a high-density layout of multiple robots. The lighter body can also be installed on a cantilever mount.

### Readily compatible with a vision system

The Y series can offer high-speed, high-precision, and safe transfer in combination with a visual sensing system. The YF002N's top mounting base is provided with a hollow space at the center for installing a camera.

### Wash-down protection (YF003N model)

The arm is designed for wash-downs with an acid or alkaline cleaner, making it ideal for applications that require a hygienic environment.

### Food grade lubrication (YF003 model)

As food processing machinery, the YF003N model's moving parts use food grade grease and oil to ensure hygiene.

### Easy maintenance

The simple center-drive as well as shaftless design prevents mechanical trouble and contributes to the robots' overall minimal maintenance requirements. The YF002N is designed so that the main parts can be replaced as a unit.



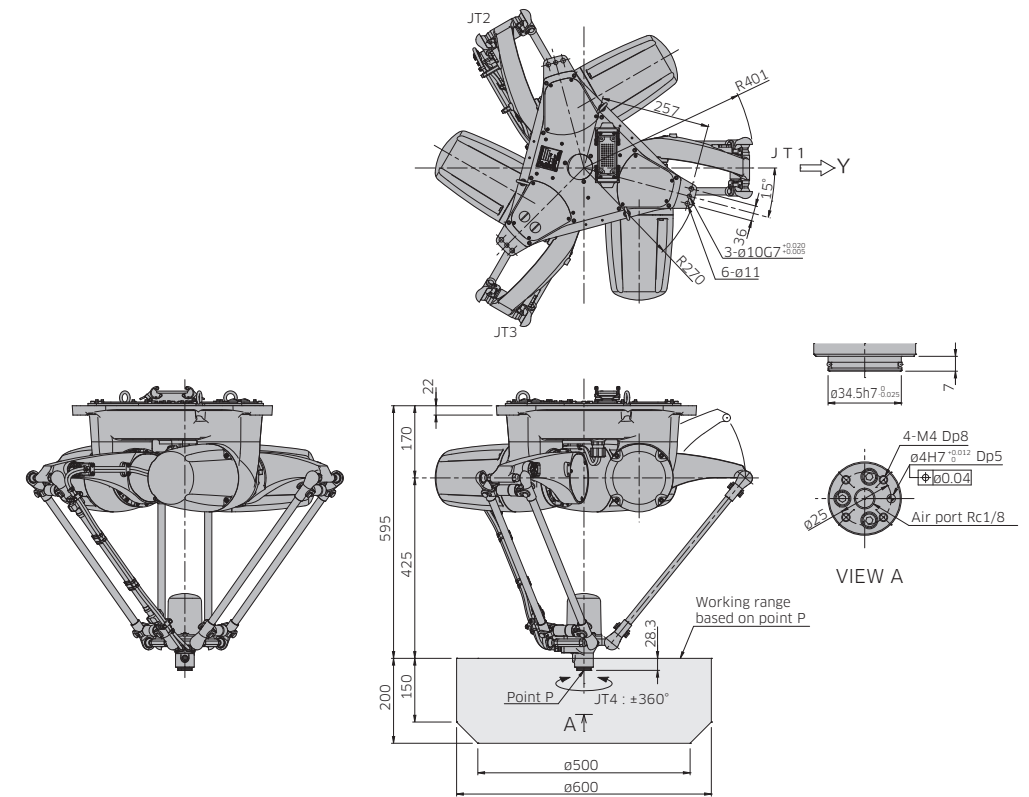
|                                  |                          | YF002N                              | YF003N                      |
|----------------------------------|--------------------------|-------------------------------------|-----------------------------|
| Type                             |                          | Parallel link                       |                             |
| Max. payload (kg)                |                          | 2                                   | 3                           |
| Degrees of freedom (axes)        |                          | 4                                   |                             |
| Motion range (mm)                |                          | ø 600 x H200                        | ø 1,300 x H500              |
| Cycle time (payload) *1          |                          | 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                                |                             |
| Mass (kg)                        |                          | 60                                  | 145                         |
| Body color                       |                          | Munsell 10GY9/1 equivalent          |                             |
| Installation                     |                          | Ceiling                             |                             |
| Environmental conditions         | Ambient Temperature (°C) | 10 - 40                             | 0 - 45                      |
|                                  | Relative Humidity (%)    | 35 - 85 (no dew, nor frost allowed) |                             |
| Power requirements (kVA) *3      |                          | 3.0                                 | 4.0                         |
| Degree of protection             | Standard                 | IP65                                |                             |
|                                  | Option                   | -                                   | IP67                        |
| Controller                       | America                  | E97                                 |                             |
|                                  | Europe                   | E91                                 |                             |
|                                  | Japan & Asia             | E94                                 |                             |

\*1: Motion pattern (25 mm up, 305 mm horizontal, 25 mm down in a to-and-fro motion)

\*2: Conforms to ISO9283

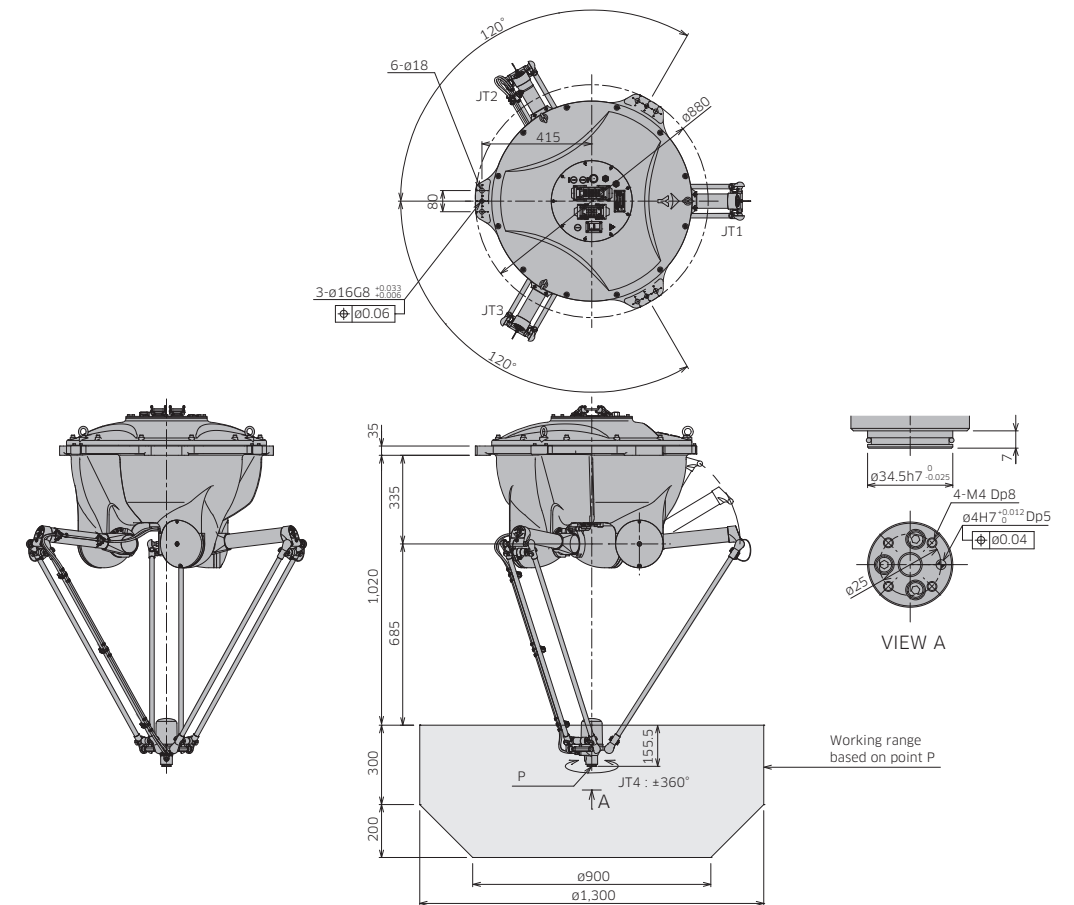
\*3: Depends on the payload and motion patterns

YF002N



(mm)

YF003N



(mm)





Comprehensive robotic solutions for picking, packing, and palletizing, allowing for the efficient automation and streamlining of various processes.

**Automation of simple tasks**

High-speed picking, placing, and packing of sweets, retort foods, frozen foods, and other foods on packing lines.

High-speed placement and color identification of cosmetics and medical product containers on filling lines.

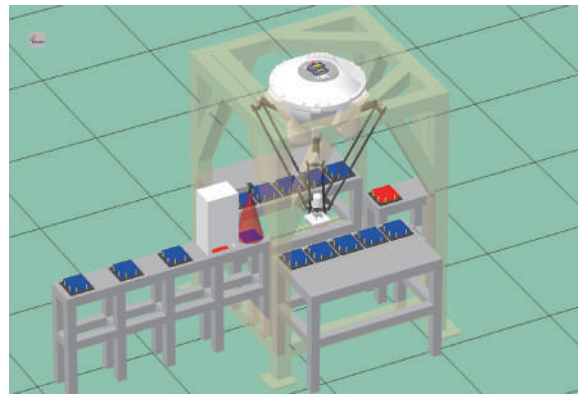
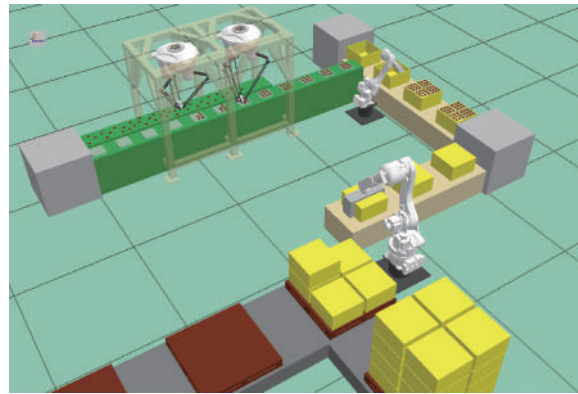
Placing of packaged instant food and retort-food trays on sterilized lines.

**Sorting and placing of products based on camera inspection results**

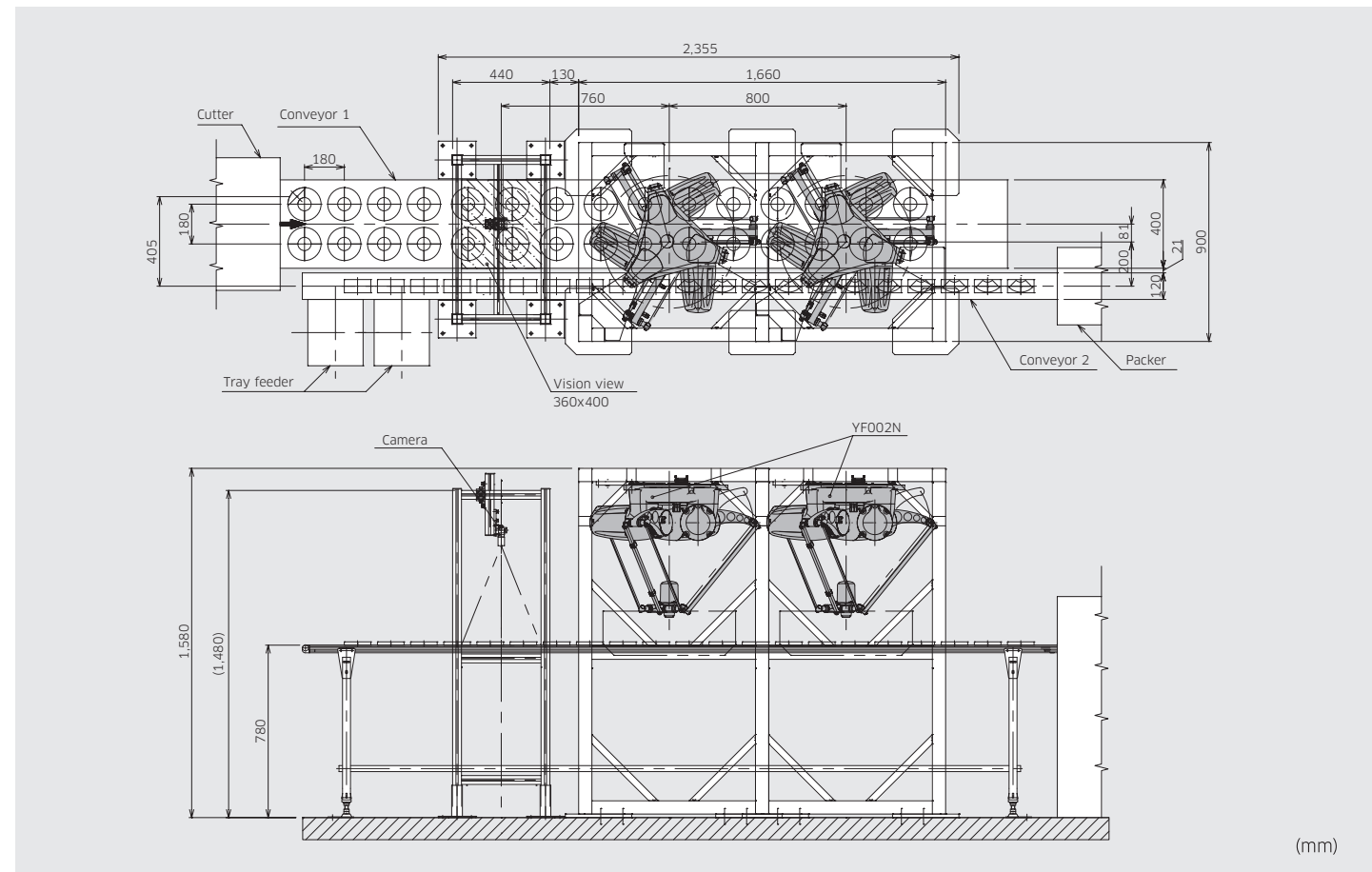
After vision inspection of products transferred by the conveyor, such as wafers for solar cells, sort and place the products using pickStar.

Products that fail inspection are placed onto a reject table.

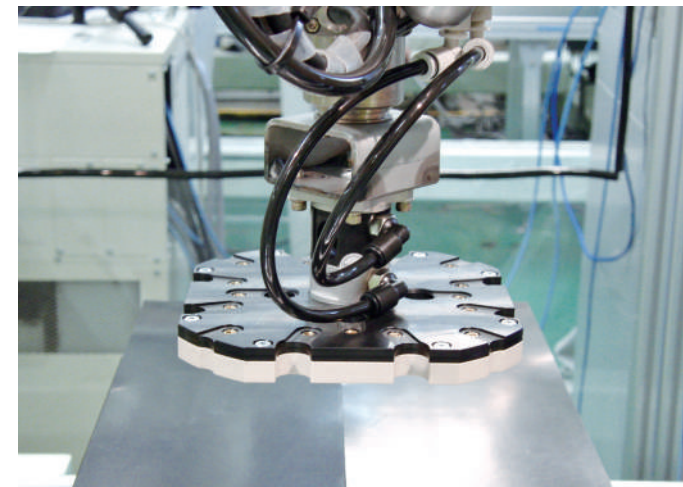
Y series robots combined with a vision system can accommodate a variety of product types, with no need to extensively modify the robot hardware.



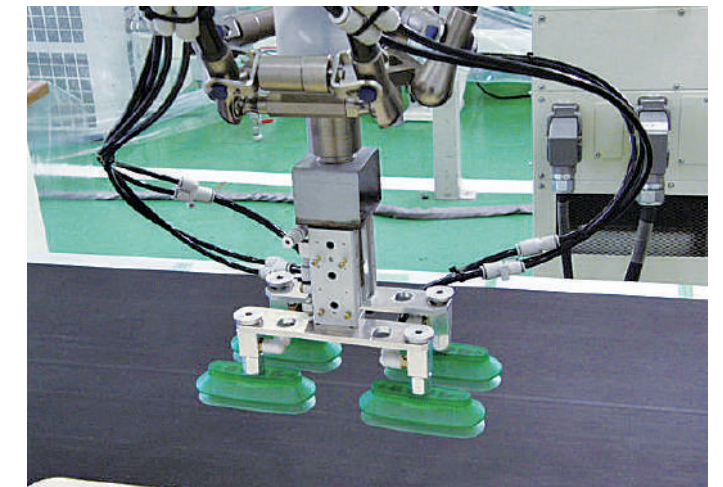
**Layout example**



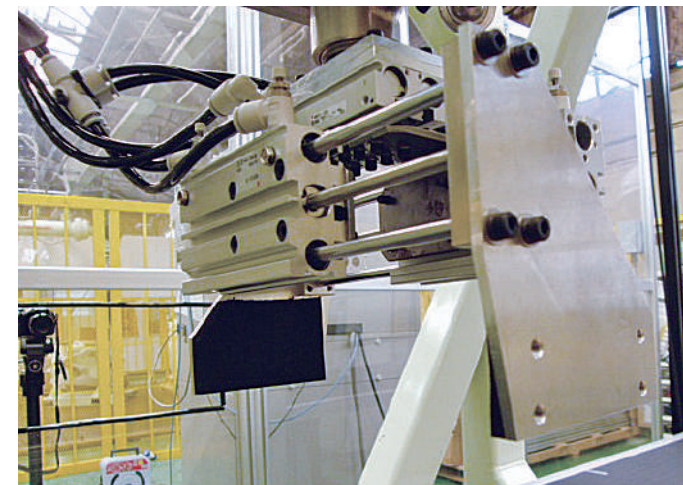
A wide range of robot end effectors are available to suit your needs.



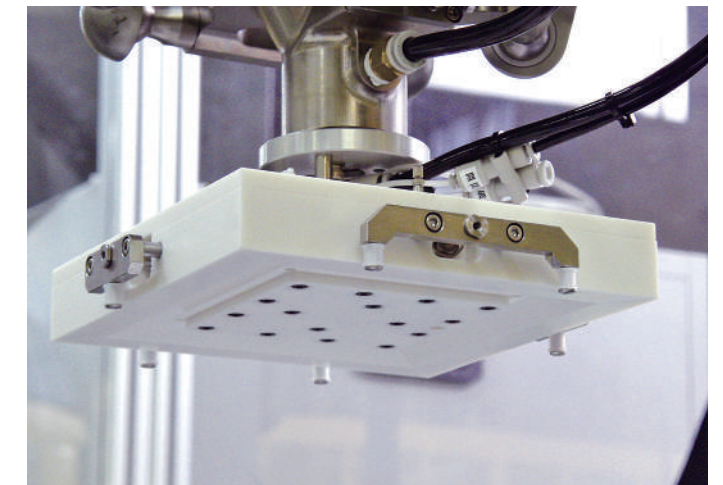
Wafer gripper



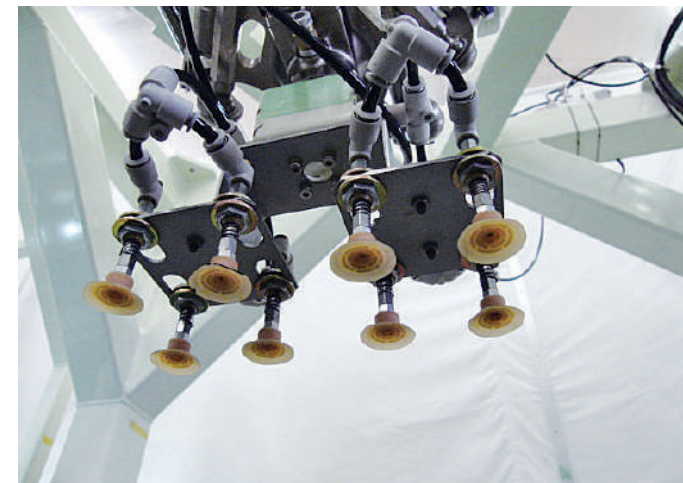
Double gripper for handling sweets



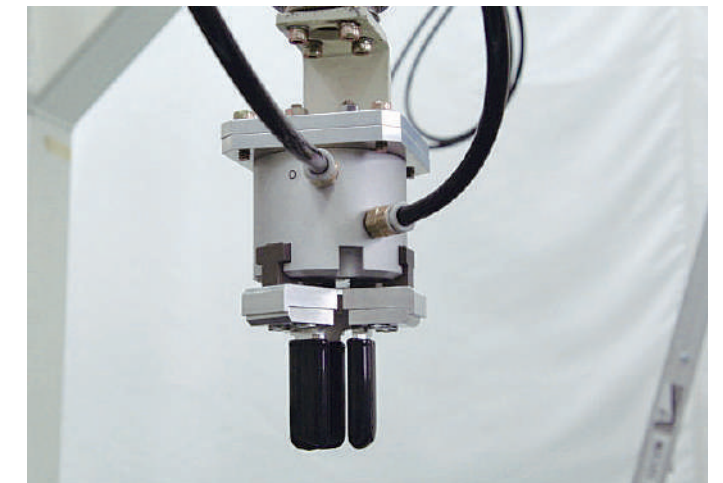
Chuck jaw gripper for handling boxes



Bernoulli gripper for handling wafers



Double gripper for handling packages

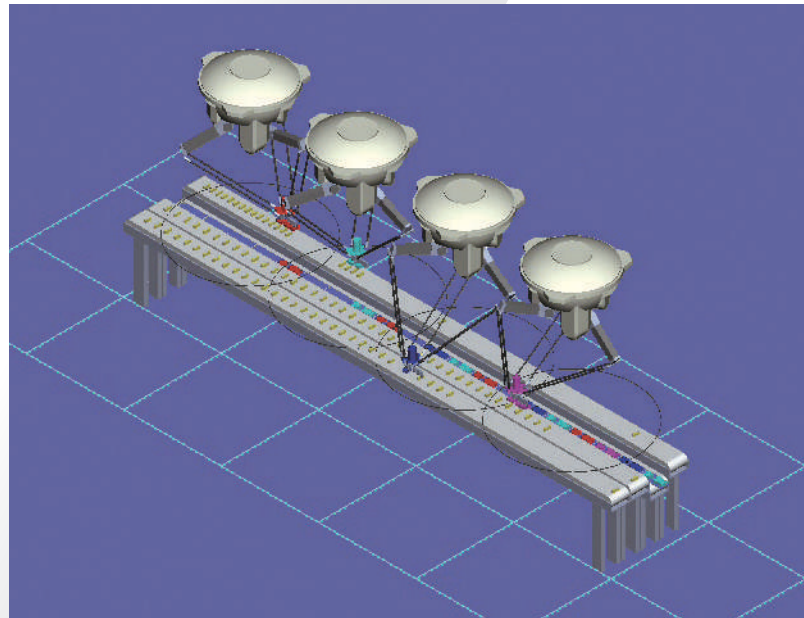


Three-finger gripper for handling tubular workpieces



K-PET lets you use your computer to program robots and perform simulations.

**K-PET (Kawasaki-Picking robot Engineering Tool)**



**Features**

This simulation software allows users to create models of multiple robot systems through the simple input of parameters. Models help verify the workload-sharing patterns between robots, and other important system factors.

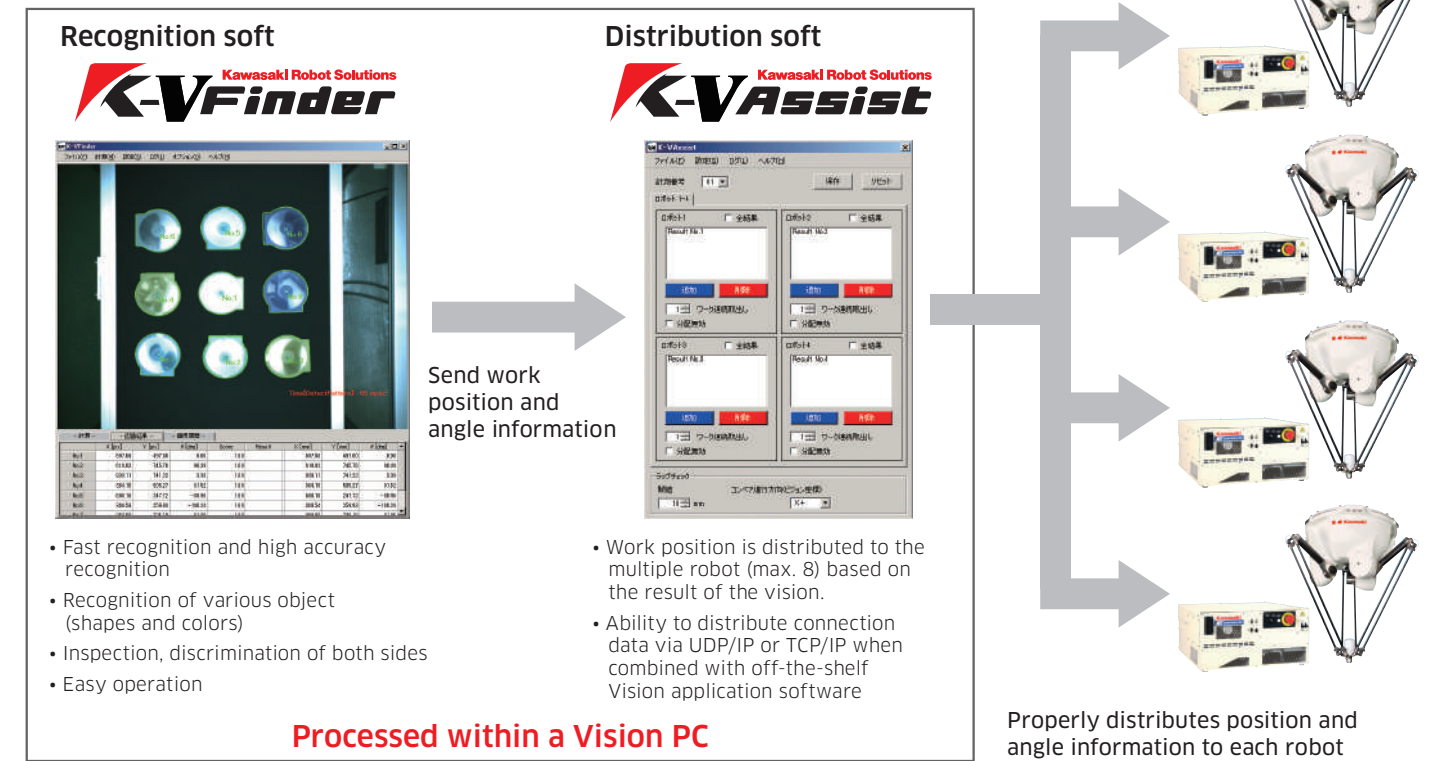
K-PET can reproduce practically the same operation trajectories as an actual robot. It can even simulate variations between supplied workpieces, enabling highly accurate cycle-time verification.

Robot programs verified in simulations are compatible with real robots, with little need for modification. (Making additional adjustments to the teaching points are required during installation.)

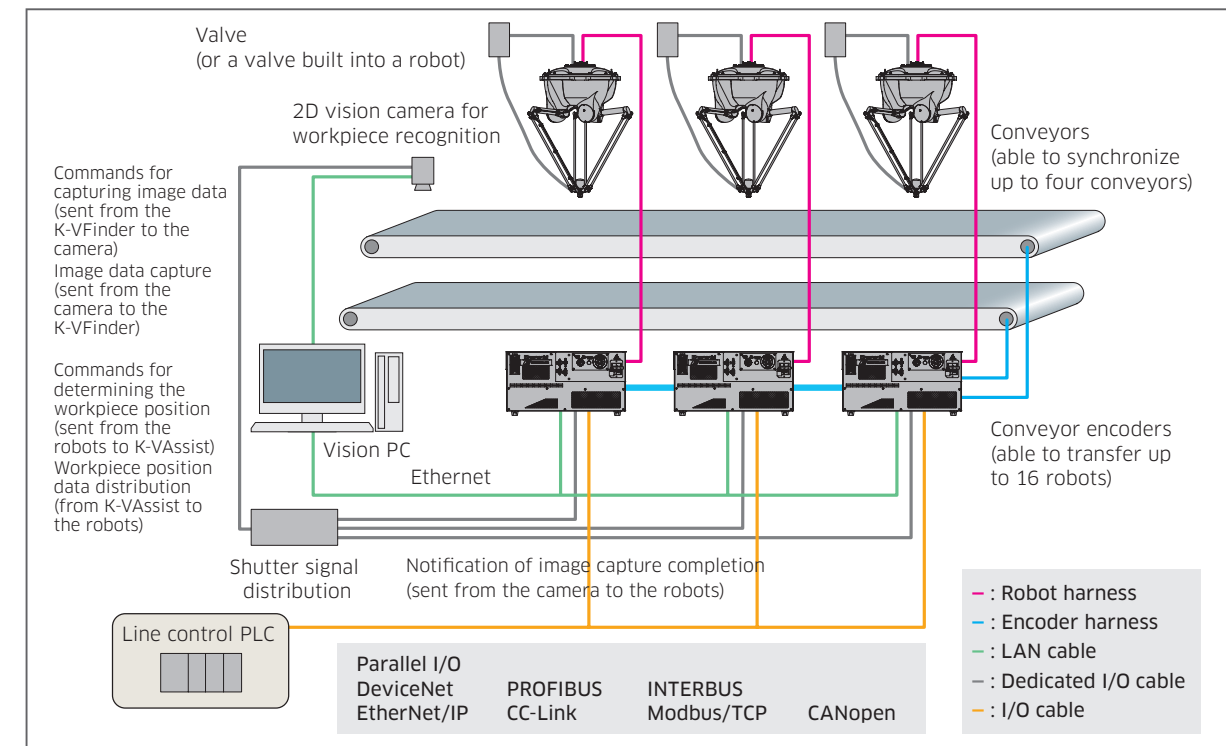
\* Operating environment: Windows XP/Vista/7

Kawasaki's high performance vision systems can be quickly and easily applied to a wide range of applications.

**Kawasaki vision soft**



**System configuration example**



# E series

Kawasaki has incorporated more than 50 years of experience as a robot industry leader into the development of the most technically advanced controller available. The E Controller combines high performance, unprecedented reliability, a host of integrated features and simple operation, all in a compact design.



## Features

### Compact

The overall volume of the E Controller has been reduced compared with the previous model. The small footprint of this compact controller allows for installation in "high-density" applications.

### User-friendly operation

The easy-to-use teach pendant now incorporates motor power and cycle start at your fingertips. Multiple information screens can be displayed simultaneously. The intuitive teaching interface is simple to use.

### Programming ease & flexibility

A rich set of programming functions come standard with the E Controller to support a wide range of applications. Functions can be combined and easily configured within a system to suit a particular application. Also, the powerful Kawasaki AS Programming Language provides sophisticated robot motion and sequence controls.

### Advanced technologies

The enhanced CPU capacity allows for more accurate trajectory control, faster program execution, and quicker loading and saving of files. In addition, memory has been expanded to meet the need for higher program storage capacity. The controller comes equipped with a USB port for external storage devices.

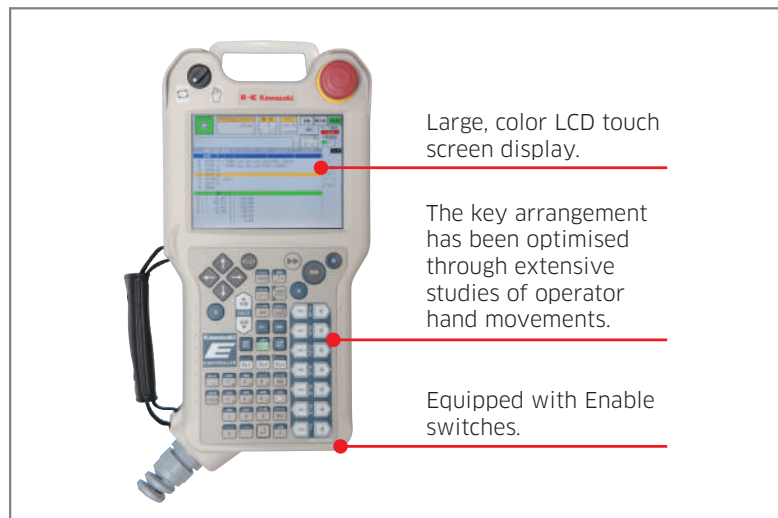
### Easy maintenance

Modular components with limited cables translate into easy diagnostics and maintenance. A host of maintenance functions are available, including self-diagnostics on hardware and application errors to minimize troubleshooting and reduce MTTR (Mean Time To Repair). Remote diagnostics via the web server function enables service support from anywhere in the world.

### Expandable

The E9X controller supports a total of 6 controlled axes. Numerous communication fieldbuses are available for controlling peripheral devices. The Kawasaki K-Logic sequencer software can be combined with user customized interface panels on the teach pendant.

### Teach pendant



## Specifications

|                          |                          | Standard  | Option                |                             |
|--------------------------|--------------------------|---|-----------------------|-----------------------------|
| America                  |                          | E97   | Option                |                             |
| Europe                   |                          | E91   |                       |                             |
| Japan & Asia             |                          | E94   |                       |                             |
| Dimensions (mm)          |                          | W550 × D580 × H268  |                       |                             |
| Structure                | E97                      | Open structure with direct cooling system   | Enclosed structure    |                             |
|                          | E91                      | Enclosed structure with indirect cooling system   |                       |                             |
|                          | E94                      | Open structure with direct cooling system   | Enclosed structure    |                             |
| Memory capacity (MB)     |                          | 8   |                       |                             |
| General purpose signals  | External operation       |   | Motor power off, Hold |                             |
|                          | Input (Channels)         |   | 32                    | Max. 96                     |
|                          | Output (Channels)        |   | 32                    | Max. 96                     |
| Operation panel          |                          | E-Stop switch, Teach/repeat switch, Control power light (Cycle start, motor-on, hold/run, and error reset are activated from the teach pendant) |                       |                             |
| Mass (kg)                |                          | 40  |                       |                             |
| Power requirements       |                          | AC200-230V ±10%, 50/60Hz, 1ø<br>Class-D earth connection (Earth connection dedicated to robots), Leakage current: Maximum 100mA                 |                       |                             |
| Environmental conditions | Ambient temperature (°C) | E97   | 0 - 45                | 0 - 40 (enclosed structure) |
|                          |                          | E91   | 0 - 40                |                             |
|                          |                          | E94   | 0 - 45                | 0 - 40 (enclosed structure) |
| Relative humidity (%)    |                          | 35 - 85 (no dew, nor frost allowed)   |                       |                             |
| Body color               |                          | Munsell 10GY9/1 equivalent  |                       |                             |
| Teach pendant            |                          | TFT color LCD display with touch-panel, E-Stop switch, Teach lock switch, Enable switch   |                       |                             |
| Interface                |                          | USB, Ethernet (100BASE-TX), RS-232C   |                       |                             |

## External view & dimensions

