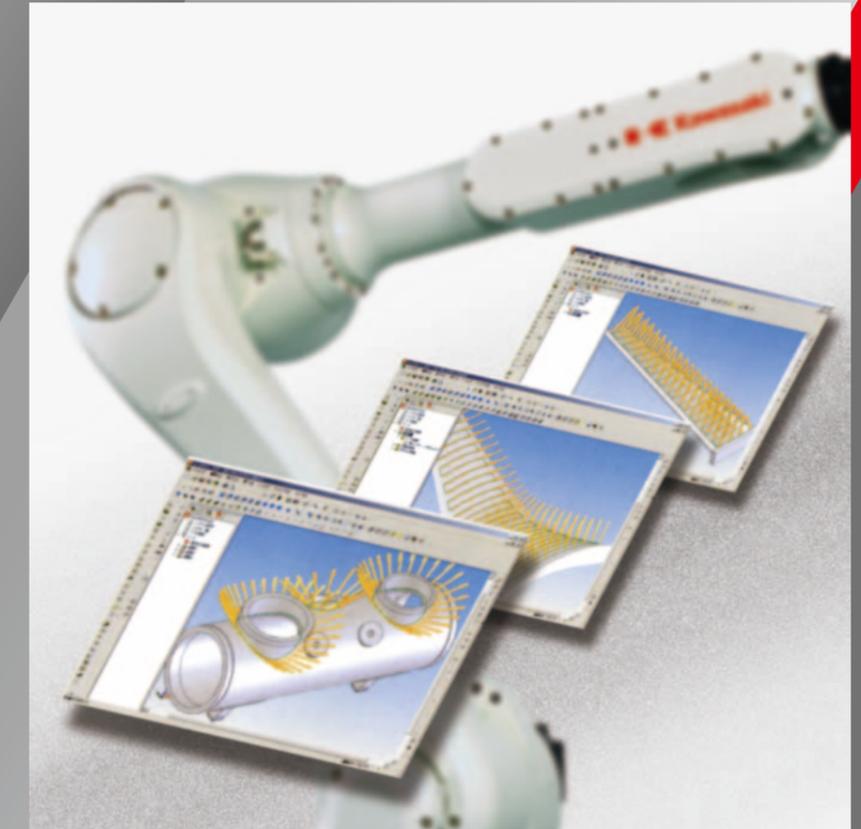


# Kawasaki Robot

Kawasaki Common Offline NC data Generator

# KCONG Automatic Robot Teaching Software



## Kawasaki Heavy Industries, Ltd.

### ROBOT DIVISION

#### 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

#### Akashi Works/Robot Division

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

### Global Network

#### Kawasaki Robotics (USA), Inc.

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

#### 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

29 Sperberweg, 41468 Neuss, Germany  
Phone: +49-2131-34260 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

<https://robotics.kawasaki.com/>

\* Materials and specifications are subject to change without notice.

# 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 Akashi Works.

# This software significantly reduces the time needed for robot teaching and lowers production costs.

There are a number of issues involved in implementing and leveraging robot systems. In addition to requiring a high level of knowledge and expertise, a large amount of time must be set aside for robot teaching. "KCONG", the automatic robot teaching software offered by Kawasaki, effectively eliminates these issues. Using 3D CAD data of work-pieces, KCONG automatically creates robot operation programs that radically improve the efficiency of robots and make them more economical.

## Features

### Easy operation

KCONG makes it easy for users with no knowledge of robots to quickly create robot operation data on the 3D CAD screen.

### Seamless environment for all phases

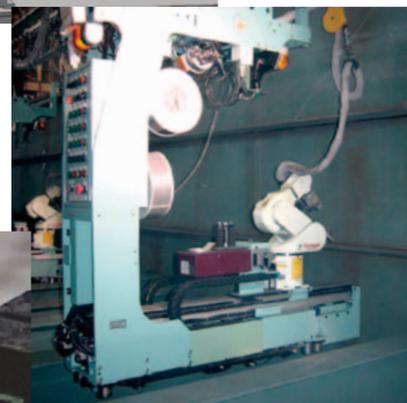
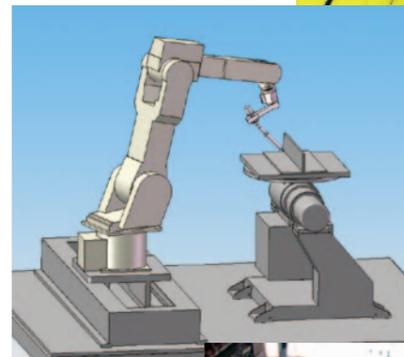
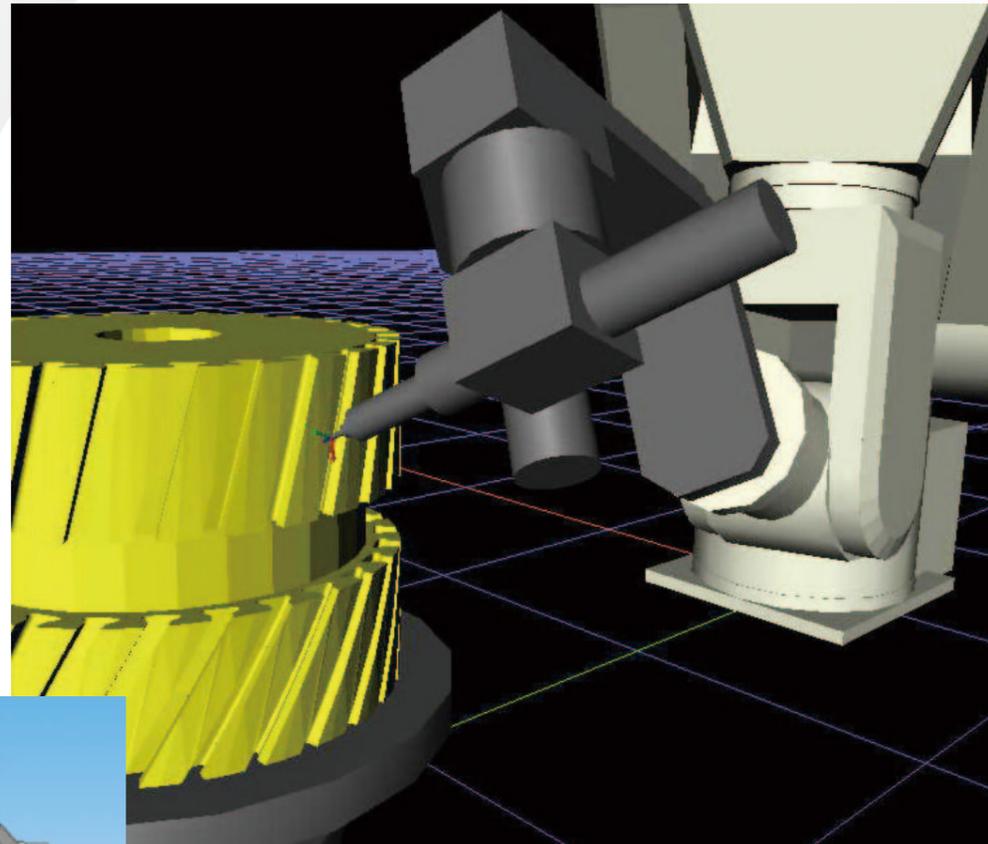
KCONG accepts 3D design data (CAD data) as is and automatically converts it into robot operation data (CAM data). This allows you to build a seamless environment for all phases, from design all the way through to production.

### Preliminary verification

KCONG uses a robot simulator to simulate the in-field operations, making it easy for you to check for collision and adjust devices.

### High extensibility

You can freely expand the software system by adding optimum application packages specifically tailored to the different onsite needs and processes.



## KCONG uses 3D CAD data to automatically create a robot operation program.

### Robot teaching: Essential to getting the most out of your robots

An important part of creating operation programs for industrial robots is the teaching process. This involves moving the robot and having the controller sequentially memorize the robot's position, operations, and co-ordinates. To complete the program, repeat verification is performed by playing back the program on the robot and making the necessary adjustments.

### Problems with offline teaching

Offline teaching normally involves using robot and work-piece images displayed on screen instead of the actual robot. However, entering the data for complicated robot movements is no simple task, which means a high level of skill is needed to operate the robot and create a program. In addition, it often takes several weeks to write a large-scale program. In the midst of the drive to produce diversified products in limited quantities, these problems pose major challenges to users.

## KCONG provides the solution!

KCONG solves the problems with offline teaching. Using 3D CAD data, KCONG automatically creates a robot operation program in a relatively short amount of time, with no need to perform the conventional teaching process. It also delivers simulation capabilities that allow for easy verification and adjustment.

KCONG enables engineers with no expertise in robotics to promote the use of robot systems, while also significantly reducing the teaching time and lowering production costs.

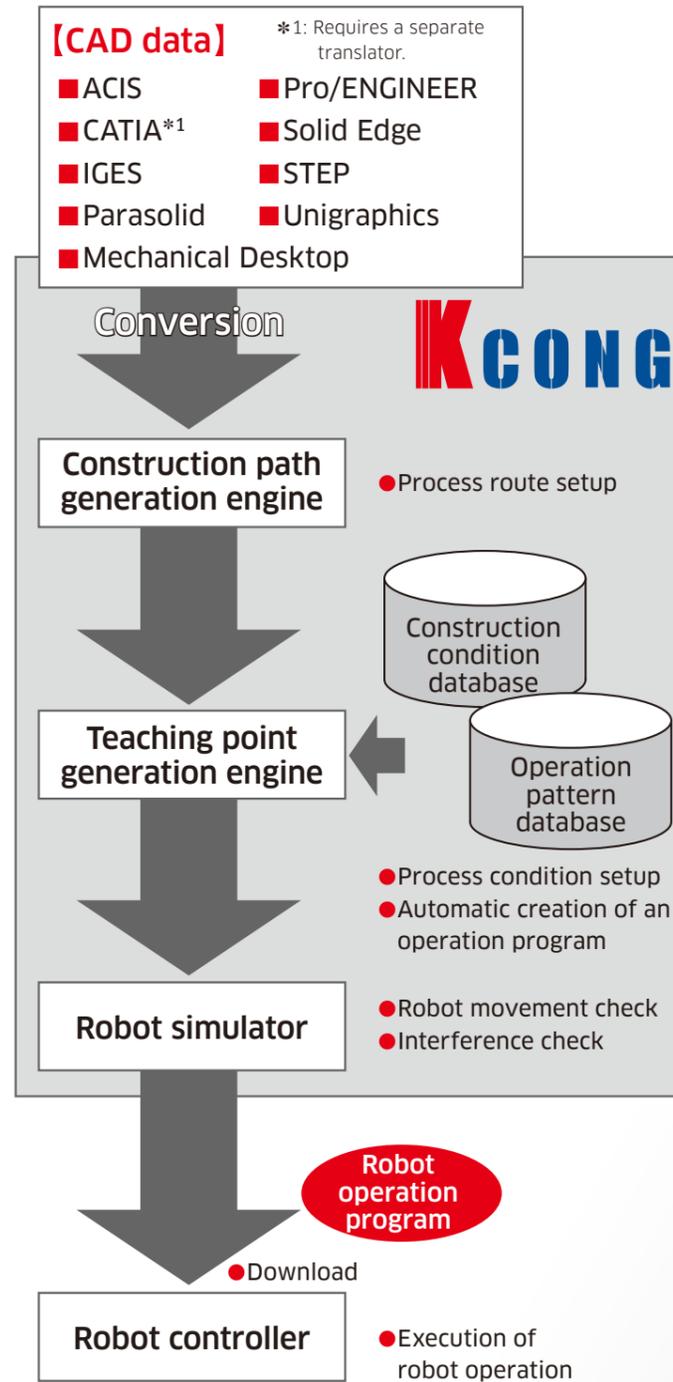
# KCONG

KCONG accepts existing CAD data on an "as is" basis !

## Automatic creation of an operation program

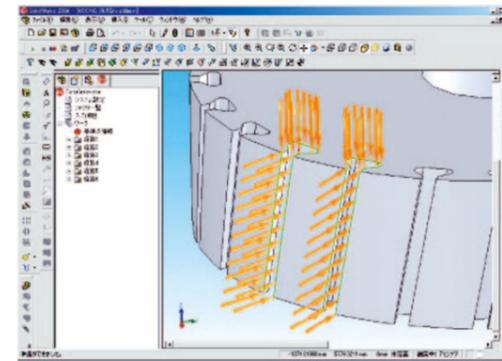
KCONG can accept any 3D CAD data available for general use and convert it into the data needed to automatically create a robot operation program. This makes it possible to implement CAD data and robot environments that seamlessly connect the design department with the production site.

## KCONG system configuration

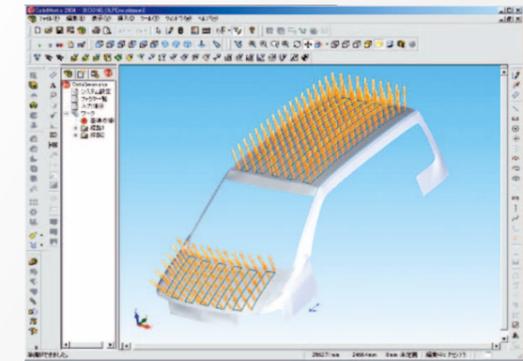


## Automation of various processes

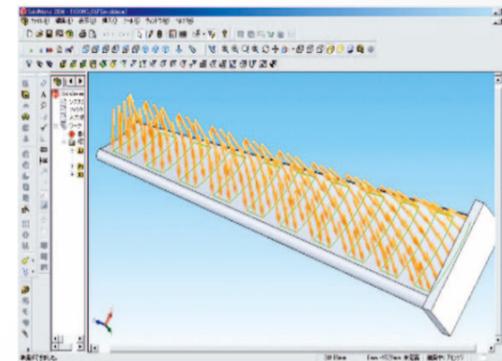
KCONG comes with application software that supports a variety of functions, such as welding, painting, and deburring. These functions, which make full use of the technologies and expertise Kawasaki has cultivated on the production floor, enable users to create operation programs quickly and easily. All that needs to be done is simply select the working positions and processes on the 3D CAD screen displaying the work-pieces.



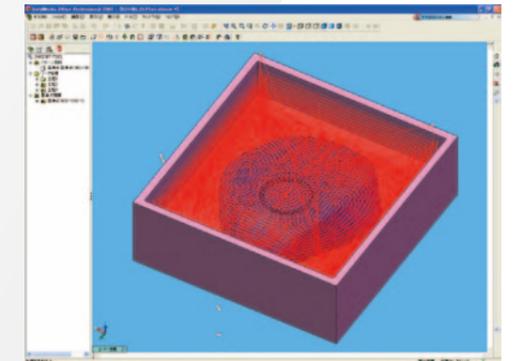
■ Chamfering/Deburring



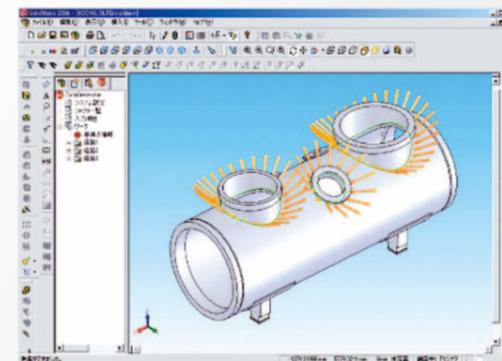
■ Painting



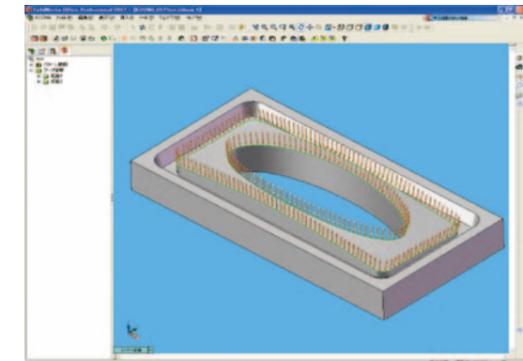
■ Milling



■ Cutting



■ Welding



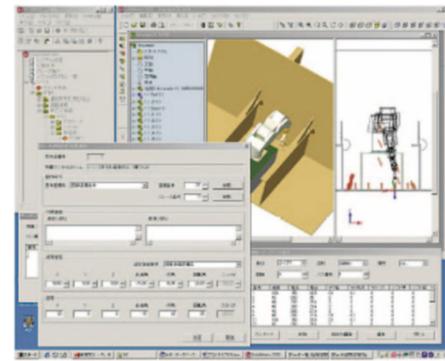
■ Trimming

# KCONG

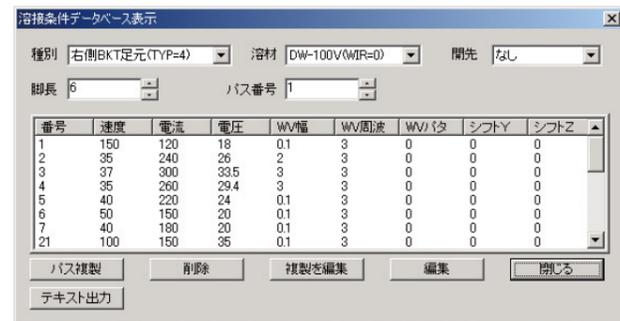
Easy operation significantly boosts productivity!

## Easy operation for first-time users

KCONG features an intuitive graphical user interface (GUI). Using this GUI, first-time users can quickly begin working with KCONG shortly after it is installed, with no need for any special training.



## KCONG operation screens



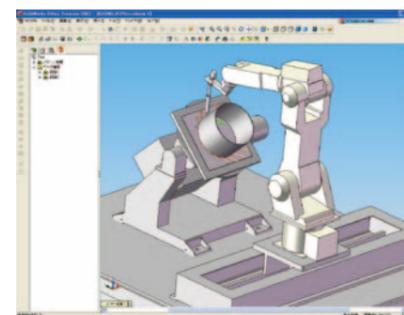
### ■Work-piece Shape Design

For KCONG users already have a 3D CAD system, data from the system can be accepted as-is. (In some cases, prior verification may be required for data conversion.) KCONG users that do not have a 3D CAD system can use KCONG's CAD function (standard feature of SolidWorks®) to design the shape of each work-piece.



### ■Automatic creation of operation programs (teaching points)

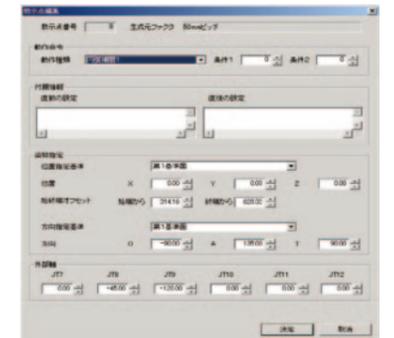
From the CAD screen, the user selects which part of the work-piece they want to process and then enters the process data. The user can also select robot operation patterns from the database. After entering the process data, all the user needs to do is simply press the button to automatically create the operation data. There is also the automatic orientation setup function, which is available as an option. Using this option, the user can automatically set up the optimum orientation of a complex robot that has an external axis.



### ■Robot simulation

After an operation program is automatically created, it is checked using the robot simulator. Users can verify the robot operations by watching animated sequences that reproduce virtual representations of the robots and work-pieces. The simulator also checks for collision, helps to prevent faults, and allows users to fine adjust the portions to be processed.

J	X	Y	Z
J1	-0.00	( 160.00/ 160.00)	-160
J2	0.03	( 105.03/ 139.97)	-105
J3	-101.94	( 53.06/ 221.94)	-155
J4	-0.00	( 270.00/ 270.00)	-270
J5	-48.04	( 96.96/ 193.04)	-145
J6	0.00	( 360.00/ 360.00)	-360
J7	0.00	( 1000.00/ 1000.00)	-1000
J8	-45.00	( 75.00/ 165.00)	-120
J9	0.00	( 360.00/ 360.00)	-360



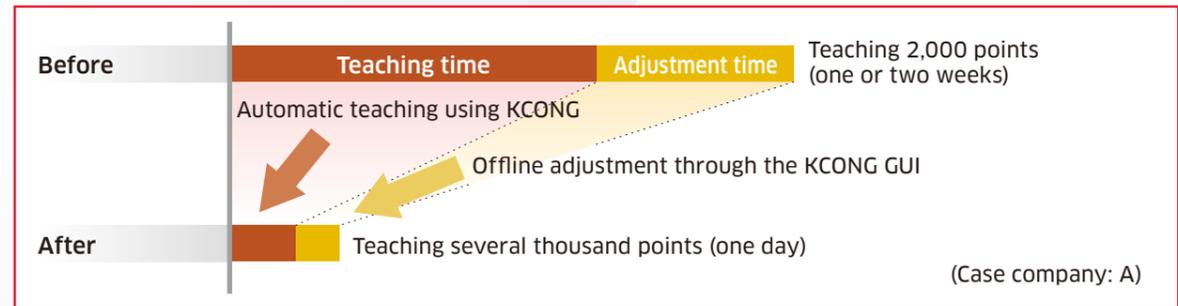
### ■Editing teaching points

After the operations are verified and the necessary adjustments are made, the final edit is performed. After this edit, the completed operation program is downloaded to the robot controller.

## Reduced teaching time and lower production costs

KCONG reduces the time needed for conventional offline teaching and adjustment by up to a factor of ten! The time savings and enhanced efficiency achieved by KCONG help to significantly lower costs. In addition, KCONG is less expensive to implement than the average general-purpose offline programming system.

### ■Significant reduction in teaching time



### ■Significant reduction in production costs

