Shibaura Machine

UCHIMURA ROBOTICS
Robots for Everyone™

INDUSTRIAL ROBOTS

PRODUCT LINEUP

SCARA Robots
THE / TH / THP / THL

Cartesian Coordinate Robots
COMPO ARM BA-III
COMPO ARM BA-C

Vertical Articulated Robots
TVM / TV / TVL

Catalog E0002-CEC-02

Wide-ranging and various industrial robots contribute to automation, labor saving and increased efficiency.

SCARA Robots

THE series TH series
THP series THL series

Cartesian Coordinate Robots

COMPO ARM ARM ROBOT BA-III SERIES
COMPO ARM ARM ROBOT BA-C SERIES

Vertical Articulated Robots

TVM series TV series
TVL series

The close integration and synergy of mechanical engineering and electronic control technologies gave birth to Shibaura Machine's industrial robots. All the experience in design and production technologies acquired over its long history as a machine builder is reflected in its high-class machines and the controllers that drive them.

A line-up of three categories of robots each ranging from compact to large has been established. They help to provide the optimized industrial automation solutions, resulting in increased productivity, and labor and cost reduction.

New Robot Line SCARA Robot THE Series THE600 / THE400

New standard in SCARA robot High performance to meet automation needs

- Accurate movement trajectory, high-speed operation and high load capacity are achieved at the same time
- High-performance, high rigidity SCARA robots with a thoroughly redesigned mechanism and control functions
- Suitable for the assembly and inspection process of electronics equipment and automobile components where precision is crucial

THE400 and THE600 to meet the automation needs of faster cycle time.
Suitable for the assembly and inspection process of electronics equipment and automobile components where precision is crucial.
The THE600 is a new addition to the THE series. Combines with the newly developed TS5000 controller with its cutting-edge control performance and network functionalities and the newly developed TP5000 teach pendant, it contributes to improving efficiency, quality and the early return on investment in automation facilities.

THE400 ceiling mount (optional)

SCARA Robot THE600

For details

Arm length 600 mm, standard cycle time is at 0.3 seconds level (at 2 kg load), allowable moment of inertia 0.25 (kgm^2); fast motions and heavy load are achieved at the same time.

Key specifications		THE600
Arm length		600 (325 + 275) mm
Maximum load mass		12 kg
Standard cycle time		0.31 sec
Allowable moment of inertia		0.25 kgm^2
Positioning repeatability	X-Y	±0.01 mm
	Z (axis 3)	±0.01 mm
	C (axis 4, rotation)	±0.005 deg
Controller		TS5000

SCARA Robot THE400

For details

Arm length 400 mm, standard cycle time is at 0.39 seconds (at 2 kg load), allowable moment of inertia 0.06 (kgm^2); accurate movement trajectory, fast motions and heavy load are achieved at the same time. THE400 is a high rigidity robot with thoroughly redesigned mechanism and control functions.

Key specifications		THE400
Arm length		400 (225+175) mm
Maximum load mass		5 kg
Standard cycle time		0.39 sec
Allowable moment of inertia		0.06 kgm^2
Positioning repeatability	X-Y	±0.01 mm
	Z (axis 3)	±0.01 mm
	C (axis 4, rotation)	±0.007 deg
Controller		TSL3000, TSL3000E

Robot controller TS5000

For details

Improvement in synchronized control and tracking precision by better servo performances. Improved communication performances, and IoT-ready fast data communication.

Faster control cycle (three times faster than the previous model) results in improved synchronized control and tracking precision. Enhanced CPU and Ethernet facilitate fast transmission of internal data.

Teach pendant TP5000

For details

Improved operability

With 7-inch, widescreen color touch-sensitive panel, intuitive operation is realized. In the larger display area, programs and position data can be checked in one glance. With split-screen display, two sets of data can be displayed side-by-side, for example the current position display and program monitor.

Designed for ease of handling and operation

Fast boot-up, ready in 30 seconds from power on. Multiple languages switchable in the settings, (Japanese, English, Chinese and Korean planned). AUTO/MANUAL master mode switching with the key switch on the teach pendant.

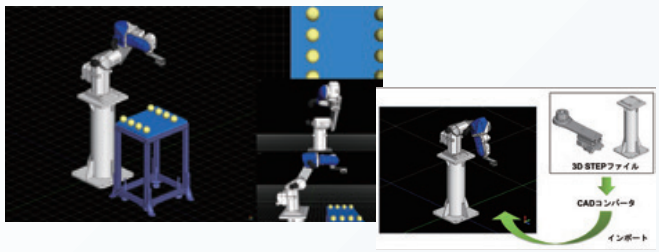
New Generation Robot Programming Assist Tool TSAssist

Powerful assistance to all phases of automation facilities, from planning, installation to enhancement

TSAssist
Robot Programming Assist Tool

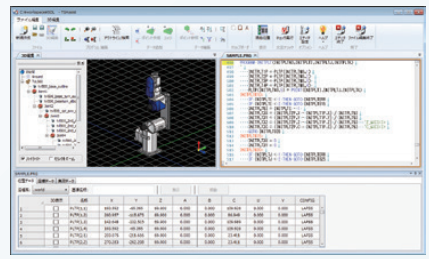
Applicable robots: SCARA Robots, Vertical Articulated Robots

High Performance 3D Simulation



- SimulationAccurate simulation with interference check, locus display, timer (cycle time measurement)
- Placing simple workpieces and model shapes
- Loading 3D CAD data, saving 3D simulation to a video file
- Multi-angle view

Highly Functional Program Editor



- Language input support (keyword suggestions)
- Outline display, Split display
- Point data (taught position information) editor with, sort, search, filter functions
- In 3D Editor Mode, the robot can be guided by dragging the mouse or clicking on the surfaces of the object models.

Key Features

Easy Operation

Easy-to-understand, intuitive screen design, ribbon interface, window-dock function for customize-able operator panels. Beginners will find it easy to understand and can quickly learn robot programing skills. For experienced robot users, TSAssist helps making robot programs efficiently by customization.

Solution Function

A simulation environment for a production line including multiple robots can be archived into a folder.

Multiple Language Support

Switch-able between English, Chinese (Traditional and Simplified) and Japanese. TSAssist allows smooth collaboration with overseas installations.

Please visit our website for details.

Robot Vision Recognition Package TSVision3D

Easy Introduction of Bin-picking Automation System

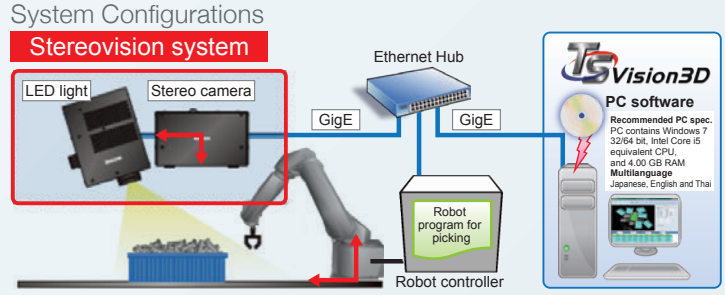
TSVision3D

Applicable robots: Vertical Articulated Robots

POINT 1 Package consists of stereo camera, PC software and LED lighting

- Real-time and highly accurate 3D measurement by stereo camera
- Random pattern projection by high luminosity LED
- High speed (30 fps) and high accuracy image processing
- With larger depth, more workpieces can be included per one box

System Configurations



POINT 2 Software functions

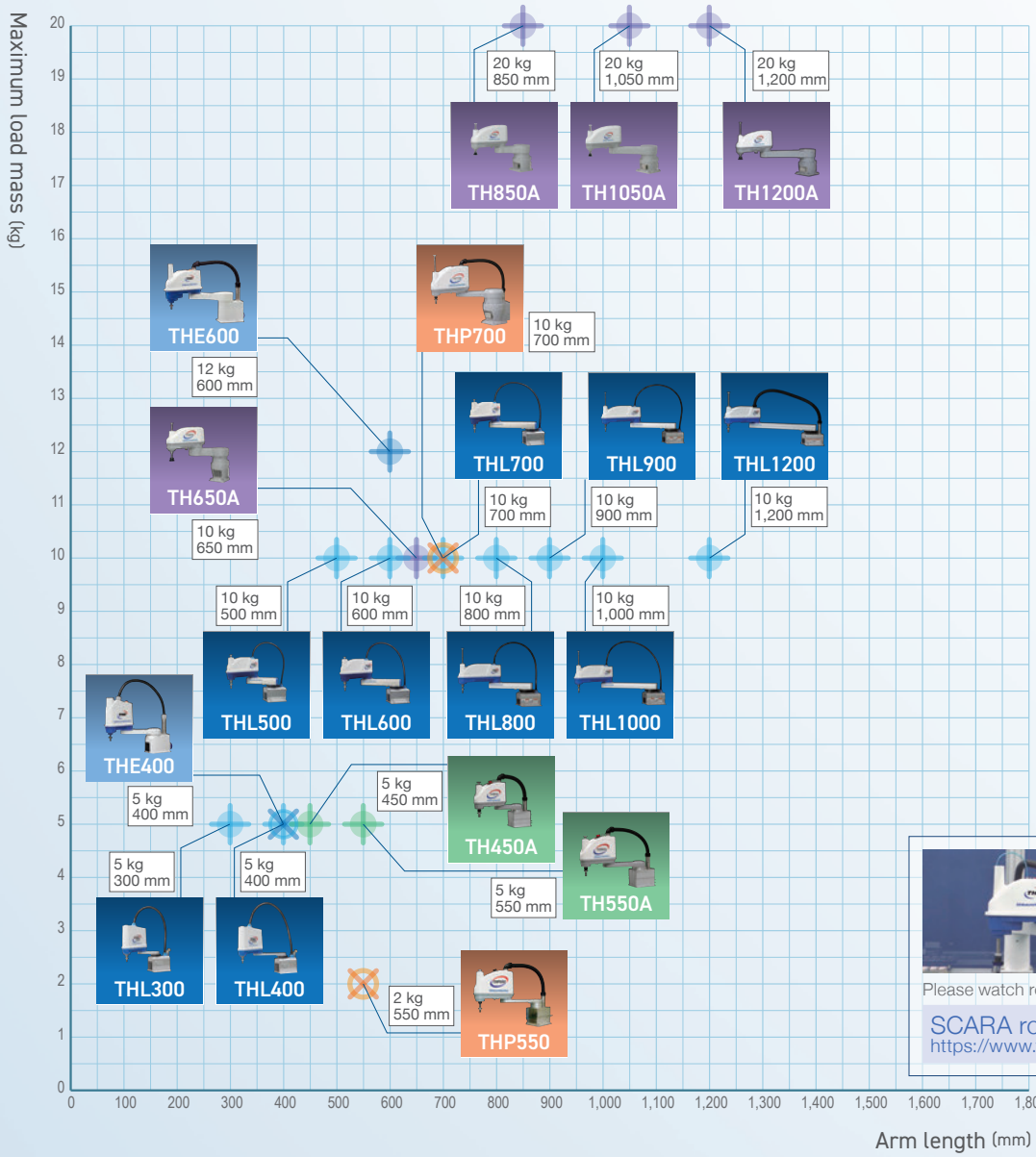
- Easy model registration
- Easy calibration (registration of robot and camera coordinates)
- Box position registration and interference avoidance function
- Checking for arm working envelope

Please visit our website for details.

Please watch robot videos
https://www.youtube.com/watch?reload=9&v=DK9rtdZRat0

SCARA Robots

Fast motion and high load capacity contribute to improved automation productivity



Optional robot specifications

- Tool flange for end effectors mounting
- Z-axis long stroke (-Z)
- Ceiling-mount type (-T)
- Z-axis cap (-C)
- Protective bellows for Z-axis (-B)
- Support of safety category 3
- Additional axes (traverse axis, wrist axis, etc.)
- Dust-proof and splash-proof design (-IP)
- Cleanroom design (-CR, -CRB)

Etc.

*For details such as availability of an option specification for each robot model, please review brochures and specification sheets. Or contact us.

Please watch robot videos

SCARA robots in action
https://www.youtube.com/watch?v=f7o5qgcEl7I

High-speed and High-precision SCARA Robots
Arm length: 650 to 1,200 mm

Lightweight SCARA Robots
Arm length: 800 to 1,200 mm

Model	TH650A	TH850A	TH1050A	TH1200A	THL800	THL900	THL1000	THL1200
Arm length (1st arm + 2nd arm)	650 mm (300+350)	850 mm (350+500)	1,050 mm (550+500)	1,200 mm (700+500)	800 mm (350+450)	900 mm (450+450)	1,000 mm (550+450)	1,200 mm (750+450)
Max. load mass	10 kg	20 kg	20 kg	20 kg	10 kg	10 kg	10 kg	10 kg

High-speed and High-precision SCARA Robots
Arm length: 450, 550 mm

High-speed and High-cycle SCARA Robots
Arm length: 550, 700 mm

Lightweight SCARA Robots
Arm length: 300 to 700 mm

Model	TH450A	TH550A	THP550	THP700	THL300	THL400	THL500	THL600	THL700
Arm length (1st arm + 2nd arm)	450 mm (200+250)	550 mm (300+250)	550 mm (300+250)	700 mm (350+350)	300 mm (125+175)	400 mm (225+175)	500 mm (200+300)	600 mm (300+300)	700 mm (400+300)
Max. load mass	5 kg	5 kg	2 kg	10 kg	5 kg	5 kg	10 kg	10 kg	10 kg

Controller

Model	TS3000	TS3100	TSL3000	TSL3000E
Robot models	TH450A, TH550A, THP500	TH650A, TH850A, TH1050A, TH1200A, THP700	THL300, THL400, THL500, THL600, THL700, THL800	THL900, THL1000, THL1200

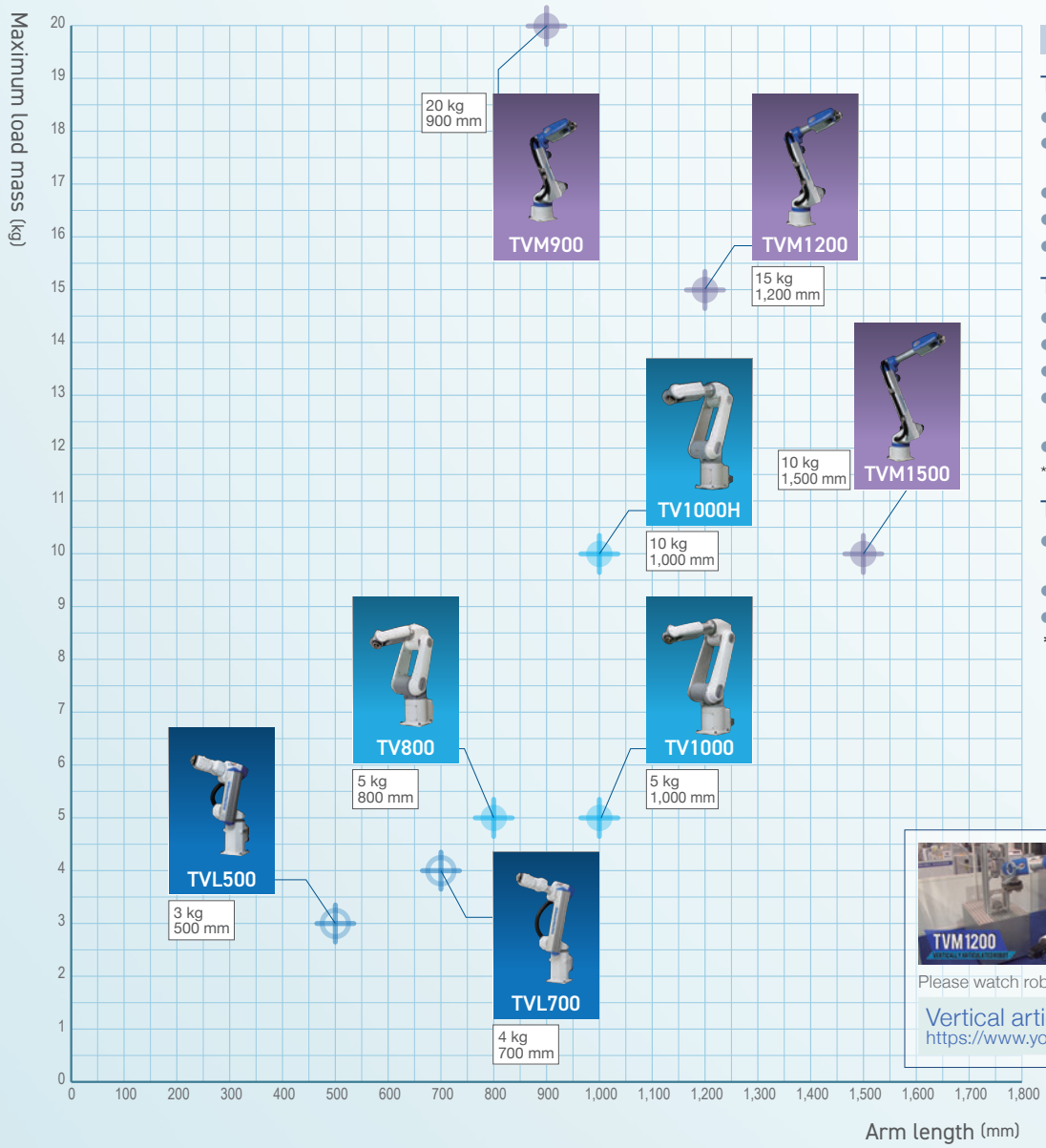
Main controller options

- Additional axes
- I/O signal polarity (N-type, P-type)
- Additional I/O signals
- Conveyor synchronization
- I/O cables
- Position date latch function
- Smooth (constant speed control) function
- Field network connectivity (PROFIBUS, DeviceNet, CC-Link, Ethernet/IP, EtherCAT, PROFINET)
- Separated operation panel
- CE marked and KCs marked

Please visit our website for details. https://www.shibaura-machine.co.jp/en/product/robot/lineup/th/index.html

Vertical Articulated Robots

More degrees of freedom suitable for assembly and transfer maneuvers



Optional robot specifications

TVM series

- Hollow 3rd arm
- I/O panel with built-in three-way solenoid valves
- I/O panel Ethernet port
- Cleanroom design (ISO class 3)
- Ceiling mount

TV series

- Dust and drip proof (IP65)
- Cleanroom design (ISO class 3)
- Ceiling mount
- I/O panel with built-in three-way solenoid valves
- Dust and water proof (IP67) *

* Only for wrist of TV1000H

TVL series

- I/O panel with built-in three-way solenoid valves
- Dust and drip proof (IP65)
- Cleanroom design (ISO class 3)

*For details such as availability of an option specification for each robot model, please review brochures and specification sheets. Or contact us.

Please watch robot videos

Vertical articulated robots in action
https://www.youtube.com/watch?v=TkO5Zy6ZGYE

TVM series / TV series

	TVM series			TV series		
Model	TVM900	TVM1200	TVM1500	TV800	TV1000	TV1000H
Arm length	900 mm	1,200 mm	1,500 mm	800 mm	1,000 mm	1,000 mm
Max. load mass	20 kg	15 kg	10 kg	5 kg	5 kg	10 kg

TVL series

	TVL series	
Model	TVL500	TVL700
Arm length	500 mm	700 mm
Max. load mass	3 kg (Downward: 5 kg)	4 kg (Downward: 5 kg)

Controller

Controller				
Model	TSL3100	TSL3100E	TS3100	TSL3200E
Robot models	TVL500 TVL700		TV800 TV1000 TV1000H	TVM900 TVM1200 TVM1500

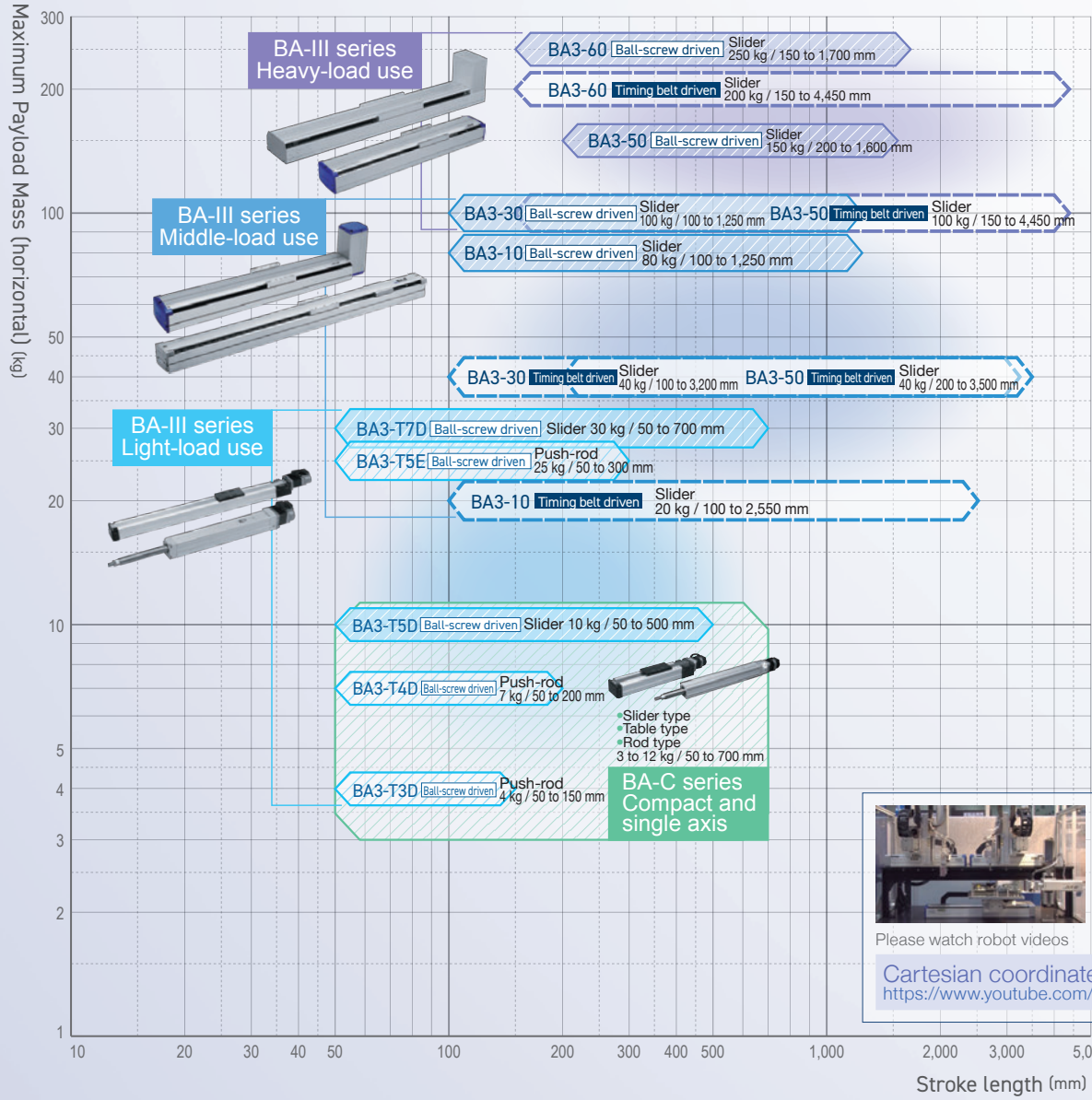
Main controller options

- Additional I/O signals
- I/O cables
- Field network connectivity
  - PROFIBUS
  - DeviceNet
  - CC-Link
  - Ethernet/IP
  - EtherCAT
  - PROFINET
- Additional axes

Please visit our website for details. https://www.shibaura-machine.co.jp/en/product/robot/lineup/tv/index.html

Cartesian Coordinate Robots

Reliable and agile Cartesian robots with flexible and varied configurations to meet factory floor needs



Optional robot specifications

- Cleanroom design
- Dust proof
- Motor-running, long stroke type

Etc.

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Please watch robot videos

Cartesian coordinate robots in action
https://www.youtube.com/watch?v=hH7_iSvk43A

Typical Examples of Cartesian Axes Specifications

Number of axes	2 axes	2 axes
Coordinate type	X-Y combination	X-Z combination

Number of axes	3 axes	4 axes
Coordinate type	X-Y-Z combination	X-Y-Z-R combination

Number of axes	2 axes	2 axes
Coordinate type	Z-Y combination	Y-Z combination

Controller				
				
Model	CA25-M10	CA25-M40 CA25-M80	CA25-S10	CA25-S40 CA25-S80
Type	Master unit	Master unit	Slave unit	Slave unit

Main controller options

- Additional I/O signals
- Field network connectivity
  - CC-Link
  - DeviceNet
  - Ethernet/IP

Please visit our website for details. https://www.shibaura-machine.co.jp/en/product/robot/lineup/axis/index.html

Robot selection guidelines

In order to select a robot model please consider the following factors:

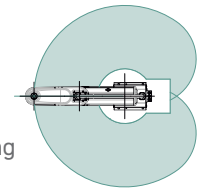
1 Mass and centre of gravity offset values of the workpiece and end of arm effector combined

2 Environmental requirements of installation site

Environment types: general, cleanroom, dust and splash proof, etc.

3 Area coverage requirement and installation configurations

Please review the external dimension drawing (CAD file) of each model for the working envelope (area coverage).
For example: Standard floor-mounted configuration, optional ceiling-mount configuration, etc.
For example: For a SCARA robot, whether vertical (Z) long-stroke option is required.



An example SCARA robot working envelope

4 The robot motion patterns and the time requirement (cycle time) review

5 Cable length requirements, the distance between the robot and the controller

Please refer to the specification table of each model for standard cable lengths.
For example: Optional cable lengths are available.
For example: Optional movable cable is available.

6 Controller option requirements

Please refer to the specification table of each model for available controller options.
For example: additional I/O signals are required.
For example: optional field network connectivity is required.

7 Teach pendant (optional)

Please select according to the robot type.

For SCARA and vertical articulated robots

TP1000 (Standard)

TP3000 (High-end model)

For Cartesian robot

TPH-4C

8 PC software

Please select according to the robot type.

TSAssist	TCPRGOS	SF-98
Programming assistance software for SCARA and vertical articulated robots	Programming assistance software for TCmini (built-in PLC), SCARA and vertical articulated robots	Programming assistance software for Cartesian robots

*This document presents an overview of our robot product lineup. For full details, such as specification data, external dimension CAD files, please refer to the brochure for each model and our website. And, please contact our sales representatives with any questions you may have.

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SM20031-1000-SZ
Printed in Japan