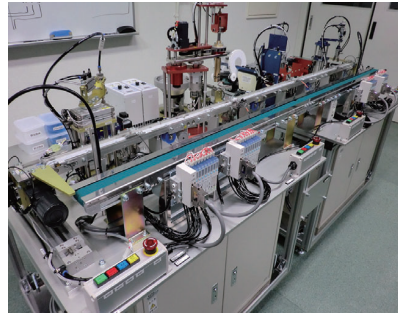


## FAM-3000

### Small size FA Line Training Machine

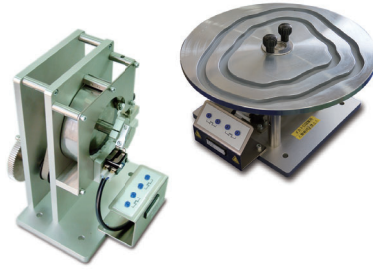
This system consists of four part supply units and a pallet transport conveyor, and permits hands-on production line training, such as parts supply methods, pickup methods, pallet transport, and rotation methods.



## MM-MCL Series

### Cam/Link Mechanism Training System

This is a training system for learning the basis of cam mechanisms and link mechanisms. Learning about the structure and characteristics of cam and link mechanisms makes it possible to design more efficient mechanisms. Also, users will learn the differences from software cams that have become more common in recent years.



## MM-H Series

### Hydraulic Circuits/Control Training System

This system allows users to learn the basics of hydraulics, circuit design and control, etc.

#### ▼ Training Details (Excerpts)

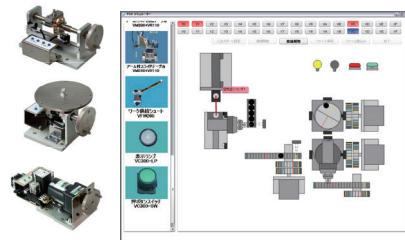
- Basics of hydraulics
- Hydraulic power and speed
- Major hydraulic devices
- The five elements of hydraulics
- Hydraulic pump pressure control valve
- Flow control valves
- Directional control valve
- Hydraulic cylinder
- Integrated valve
- Examples of hydraulic circuits, etc.



## MM-MSV2

### Mechatronic Simulator V2

This is a mechatronic device digital control simulator which operates on a Windows computer platform. Users can position the mechatronic device on the screen, and simulate digital controls such as using PLC, computer and microcontroller. Also, it is compatible with the MM-3000V series modules, so it is optimal for learning how to control it using the actual device.

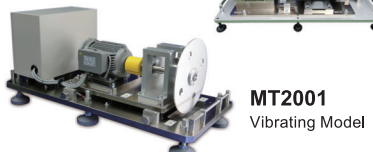


## MM3000-MT

### Maintenance Training System

With this system, users learn how to promptly and appropriately handle frequently-occurring malfunctions on the production line. Two models are available: the "MT1001 Parts Replacement Model," where users learn conveyor belt parts replacement and maintenance, and the "MT2001 Vibrating Model," where abnormal vibrations are generated in rotary parts and the user learns how to identify the cause and perform maintenance.

MT1001  
Parts Replacement Model

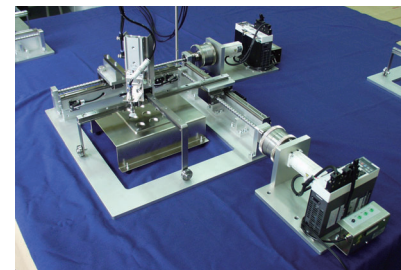


MT2001  
Vibrating Model

## MM-VR420 Series

### X-Y Robot Training Machine

This training machine provides hands-on learning in the creation, use, and control of X-Y robots. Along with moving X-Y mechanisms, there is a vertically-moving Z axis, making it possible for users to learn about positioning control, palletizing, and rendering using the pen (optional).



For In-House Training

# MM-3000 Series

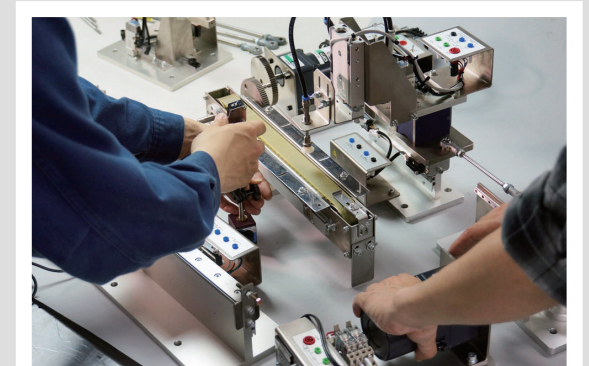
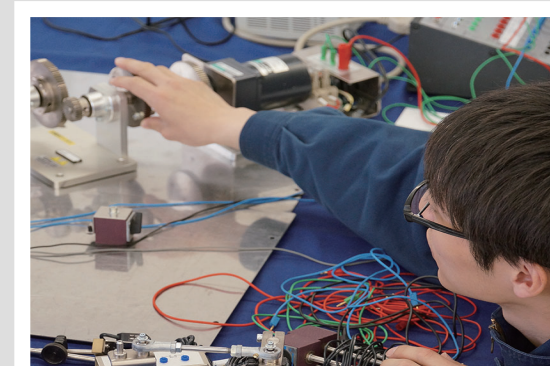
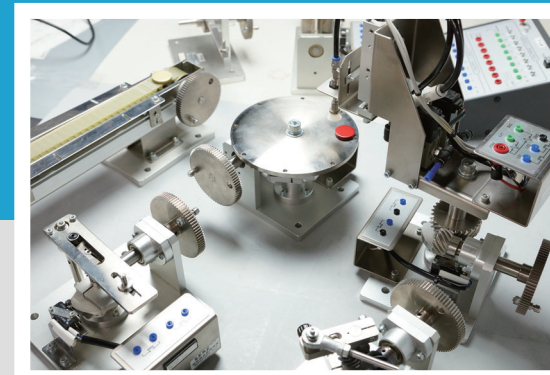


Combine  
as You  
Wish!

Direct Experience by Handling the Machinery  
**Notice, Think and Implement!**

# Mechatronics Training System

Basic Training where Users Acquire the Ability to Comprehend and Improve the Structure of Production Automation



Designing and Manufacturing Production Automation Equipment for the Past 50 Years

#### ■ Description of Services

Development, design and manufacture of automated devices  
Planning, development and design of automated systems  
Consulting regarding production automation  
Technical training and design/creation of mechatronic technology training devices  
Development of experimental devices for universities and laboratories

**SERC** 株式会社 新興技術研究所

SHINKO ENGINEERING RESEARCH CORP.

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More information

[www.shinko-japan.com](http://www.shinko-japan.com)

Agency

\* Specifications and designs may be changed without notice.

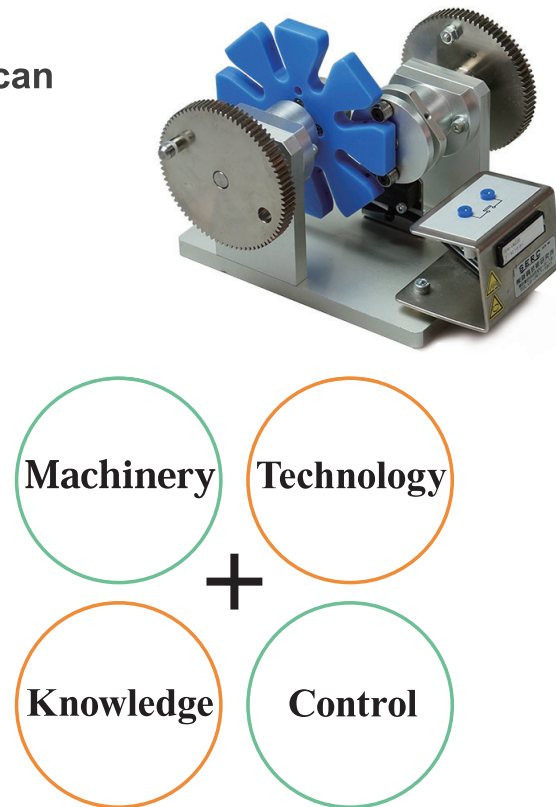
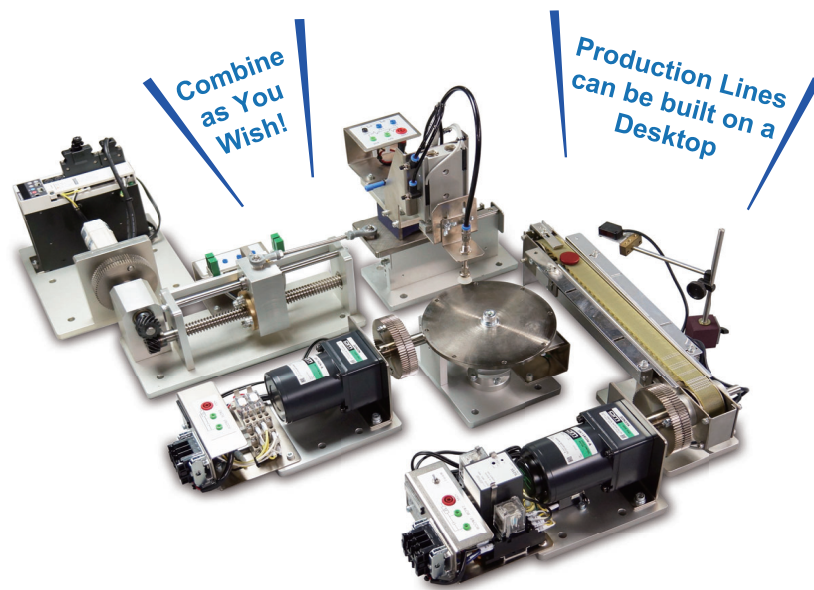
Designing and Manufacturing Production Automation Equipment for the Past 50 Years

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SHINKO ENGINEERING RESEARCH CORP.

## Notice! Think! Implement!

# Using Actual Machines Makes Learning Easy

Experience learning model system where users can actually feel their proficiency increase

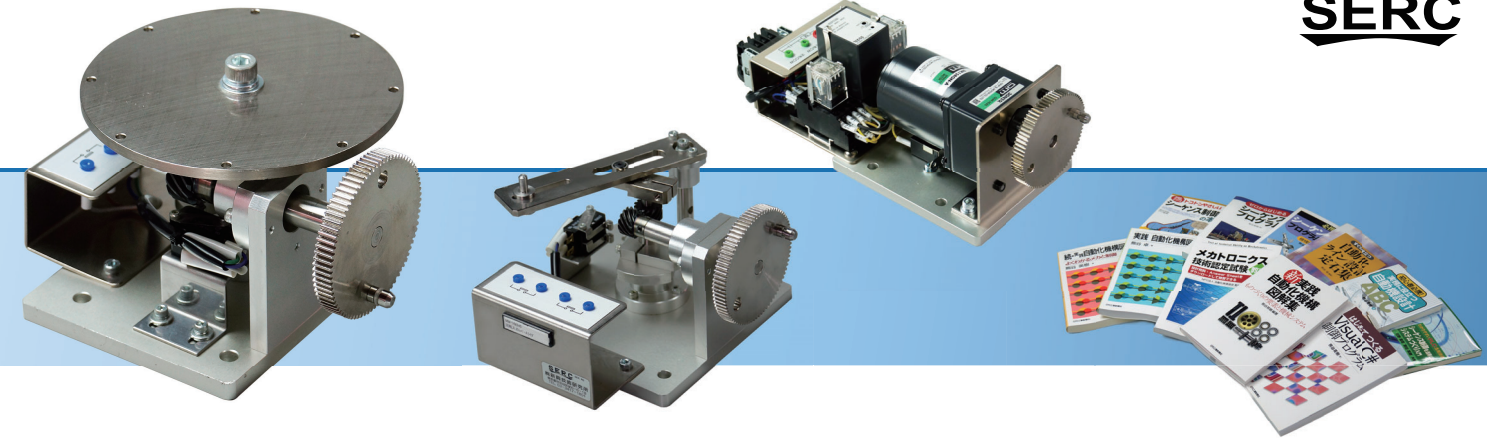


Components Used in Actual Production Line Machinery and Equipment are Miniaturized and Modularized  
**A System for Comprehensive, Experiment-Based Mechatronics Technology Learning**



### Features

- Completely portable, since the mechanical components are miniaturized and modularized.
- Components can be easily combined – over 300 different systems can be built.
- A FA line system can be built on a desktop without using any tools.
- Total learning – from mechatronics basis (machinery, control) to application – is possible.
- Learning suited to the user's level is possible through a training program linked to a wide variety of textbooks and training materials.



### Craftsmanship is Developing People

In Order to Succeed in Market Competition with On-Site Capability

## Develop Thinking Staff Proficient in Machinery and Devices

### Solve Problems Regarding Excess, Waste and Irregularity

Develop technicians capable of noticing and solving problems

### Demonstrate Wisdom and Make Kaizen (Improvements)

Develop technicians capable of proposing optimal equipment

### Adaptable Multi-Engineers

Develop versatile engineers who can be reassigned to match production levels

### Anything Repairable is Repaired On-Site

Train technicians capable of handling everyday occurring malfunctions



Are you prioritizing production efficiency at the expense of staff development?

In order to win out against global and domestic market competition, you cannot just place all of your trust in your machinery. You need to increase your "on-site abilities" – and increasing the skill level of your technicians is absolutely necessary.

OJT (on-the-job training) using actual equipment requires equipment shutdowns. However, our training machines are miniaturized and modularized versions of the components used in actual machines and equipment. These components can be assembled into a variety of machines and systems according to your needs, so training – from machine and equipment basics to application – is possible without shutting down devices in operation.

## Corporate competitiveness springs from an ability on-site to identify and resolve problems.



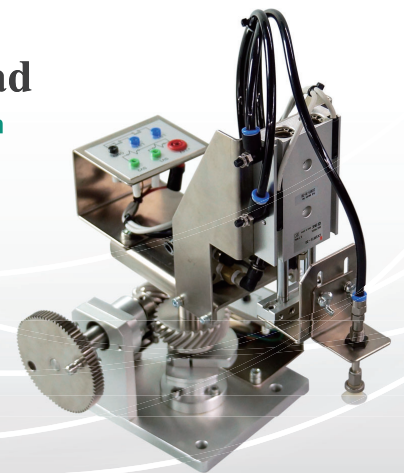
**In Japan: Over 150 Locations**  
**Overseas: 8 Countries**

### Selected in Teaching Environments in Japan and Abroad

The MM-3000V series has become the mechatronics learning standard, having been widely implemented in settings such as Japanese universities, senior high schools, technical colleges, and vocational schools, as well as private corporations with production plants, and in recent years, educational institutions overseas.

- **Vocational Schools:** Polytechnic colleges throughout Japan, polytechnic centers, prefectural vocational schools, etc. – over 60 schools
- **Universities:** Kanagawa University, Tokai University, Tokyo Institute of Technology, etc.
- **Technical Colleges:** Oita National College of Technology, Okinawa National College of Technology, Nagano National College of Technology, Maizuru National College of Technology, Tsuyama National College of Technology, Tokyo Metropolitan College of Industrial Technology, Kagoshima National College of Technology, etc.
- **Technical High Schools:** Approximately 70 schools throughout Japan, focusing on machinery, electrical, and electrical machinery departments.
- **Private Corporations:** Asahi Glass, Co., Ltd., Mitsubishi Heavy Industries, Ltd., Toyota Motor Corporation, Seiko Epson Corporation, Toppan Printing Co., Ltd., and over a dozen more.
- **Overseas:** Turkey, Kazakhstan, Tunisia, Senegal, Mexico, Sri Lanka, Taiwan, and Malaysia

\* List of organizations which have implemented our productions is as of July 2013.



Basic Machine Training	Technical Training	Production Line
<b>Learn the Machine Basics</b>	<b>Think and Learn</b>	<b>Understand On-Site Equipment</b>

# Machine Components Modularized Making Hands-On Mechanism and Control Learning Possible

Freely combine over 200 varieties of mechanism modules and learn about machine basics.

**M Mechanism**

- VM230 Crank
- VM220 Geneva Gear (Double pin type)
- VM150 Spur Gear
- VM140 Feed Screw
- VM210 Plate Cam
- VM330 Rotary Table
- VM320 Belt Conveyor
- VM310 Slide Table
- VM110 Rack & Pinion
- VM250 Energizing Toggle
- VM240 Lever Slider

**W Work**

**T Tool**

**T Tool**

- VJ130 Drill Unit
- VR180 Rotary Motion Robot Arm (with Z axis)
- VR110 Pneumatic (Air) Driven Robot Arm

**A Actuator**

**A Actuator**

- VA345 Servo Motor
- VA320 Induction Motor
- VA310 Speed Control Induction Motor
- VA210 Pneumatic Cylinder
- VA410 Rotary Pneumatic (Air) Actuator
- VA335 Stepping Motor

**C Controller**

**C Controller**

- VC300 VC 16 positions Terminal I/O Box
- VC220 VC 32 Positions
- VC3048H8 H8 Micro Computer Controller

**S Sensor**

**S Sensor**

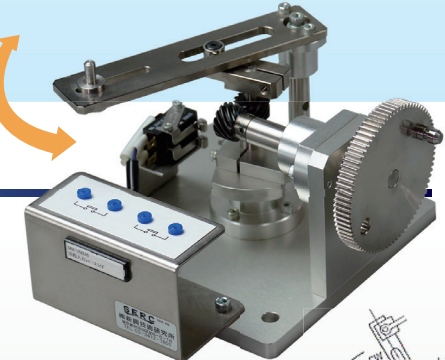
- VS330 Ultra Sonic Sensor
- VS310 Photo Electric Sensor
- Thermo Sensor
- Magnetic Sensor
- Rotary Potentio-meter

## Hands-On Mastery of the Basics

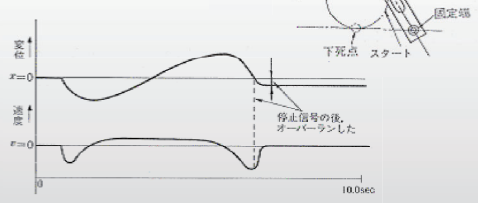
Learn through direct contact with a mechanism identical to an actual production system.



- Understand the operational characteristics of the mechanism
- Understand the structure of the machine
- Understand the operation of the actuator
- Control the machine through various methods: computer, PLC (sequencer), microcontroller, etc.

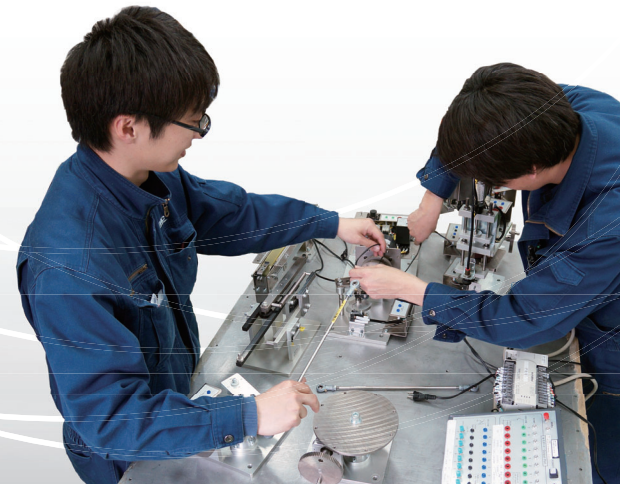
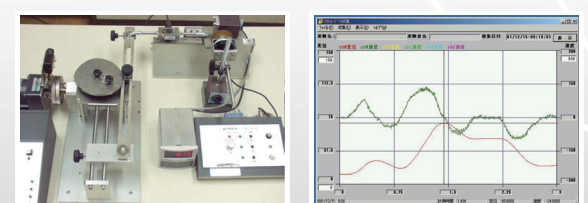


Operational Characteristics of the Lever-slider Mechanism



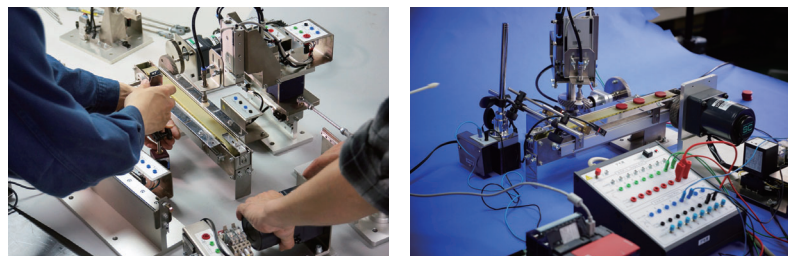
### Operational Characteristic Analysis System MM-VD100/SYS

The Operational Characteristic Analysis System is a system for learning how to analyze the speed characteristics of units including control systems and mechanisms, work unit positioning, and increasing precision. The analog signal from the A/D Rotary Potentio-meter unit is digitized, making it possible to view and print out its motion characteristics, position characteristics, and placement characteristics, as well as save and load the collected data.



# Refer to Our Vast Array of Training Samples to Build Creative System Layouts

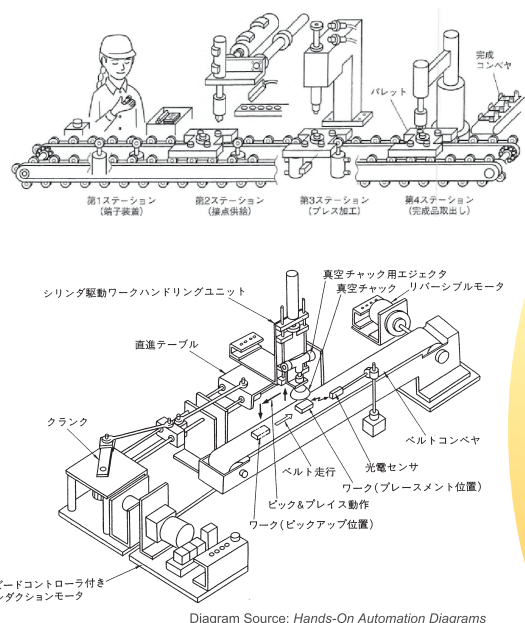
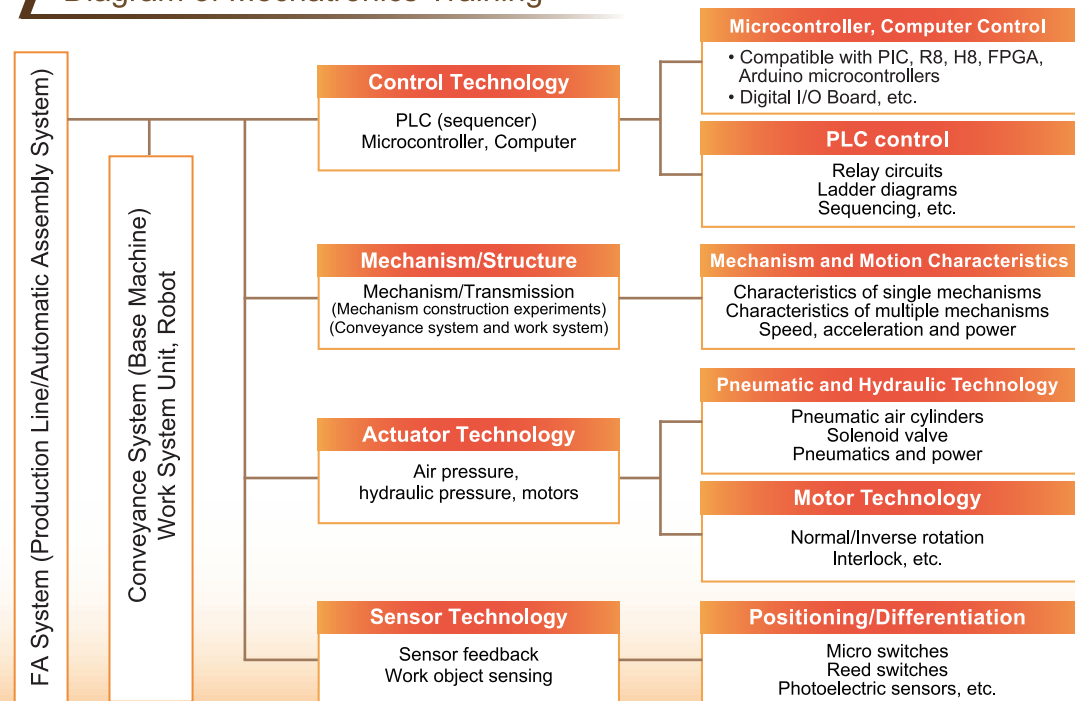
Production lines and applied systems can be built on a desktop by combining modules.



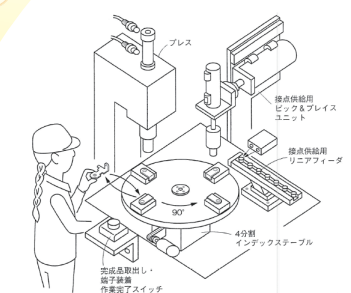
- No tools are required for the training system's assembly or electrical wiring, and training can begin in about ten minutes.
- Since the system is modular, it can be stored on a shelf after use, and does not take up space.
- Can also be used for electrical wiring training using Y terminals.
- With just a push of a button, the unit can be switched between the PLC (sequencer), microcontroller, and computer control.

A production system can be created, allowing advanced training

## Diagram of Mechatronics Training

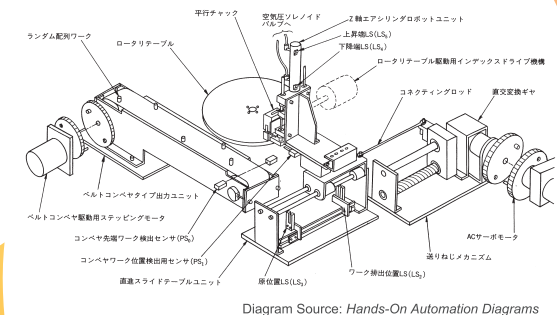


On-Site = Production Line



**KAIZEN**  
(Improvement)

Components = Training Materials



Technical Training  
MM-3000V

**Ability**  
Knowledge + Wisdom



Even if you do not have in-house trainers, do not worry – we provide in-house training with our robust system.

**POINT 1 A Wide Variety of Training Materials**

We have a wide array of training materials, from the basics of mechatronics, to advanced mechanism diagrams and control training, the texts. Training using MM-3000V proceeds along the curriculum in these materials. These texts are available in English, the language of the other countries.

**POINT 2 Trainer Dispatch Service**

In-house training is possible since we will send a highly experienced trainer suited to your requirements. Also, we will give lectures on how to provide training using the MM-3000V, so in the future you can progress via self-study.

**POINT 3 Video Materials Allow You to Learn Anytime**

We have prepared video training materials in a curriculum format so that training is possible even if there is not a trainer available to teach. Since one training session is between thirty minutes to one hour, the time after working can be used effectively.

**POINT 4 Test of Technical Ability on Mechatronics**

The Test of Technical Ability on Mechatronics is a test offered by the Japan Association for Automation Advancement, and is the global standard for mechatronics. The MM-3000 series is the standard training material for this test, and proficiency levels can be checked by taking the test.

## There are more than 300 types of combinations

◇ Examples of Combinations

- Automatic Supply of Parts
- Pick and Place
- Automatic Assembly System Models
- Automatic Processing System Models
- Free-Flow Production Line
- Index Production Line, Etc.