

**Training Programmes**

The training programme was intended to share and impart the knowledge on Pneumatics, Electro Pneumatics and PLC



Hands on training on industrial pneumatic products & applications, and circuit designing



**Testimonials**



The programme was useful to understand the basic concepts and exercise the basics in applications

- Dr. MOHD. SHERIFF,  
Professor - Mech, MEPCO Schlenk Engg. College, Sivakasi, TamilNadu, India

A very good training programme in which, we learn how to handle and operate the Equipments. It's a key opening to our laboratory with "Janatics Products" for Student's Development.

- Mr. M. MAGESH  
Asst. Professor - Jansons Institute of Technology, TamilNadu, India



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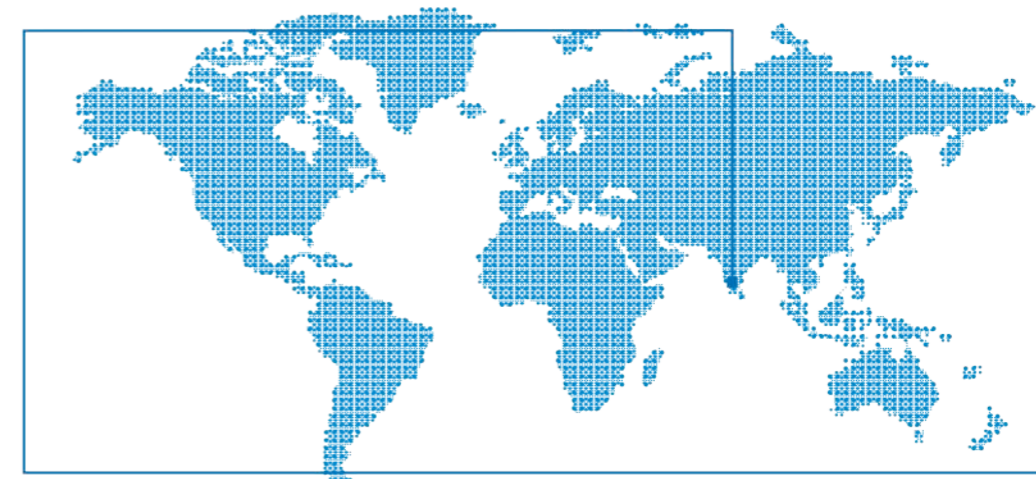
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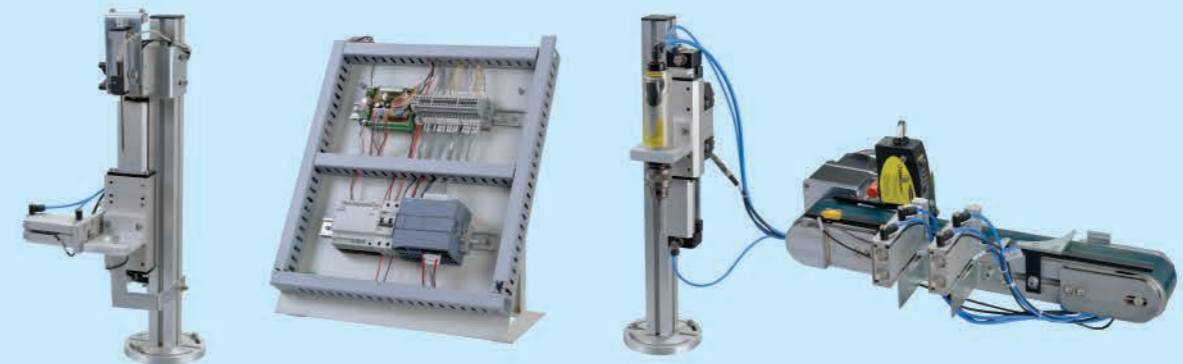
These Mechatronics systems are fully functional models of actual applications, mimicking hybrid, real life, industrial automation scenarios. Various Automation and Handling Task modules such as feeding, conveying, pick & place, transporting, forming and storage modules are available. Wide range of Modular Manufacturing Systems like Processing station, Conveyor station, Automated Storage and Retrieval System and other production stations that are suitable for modular assembly are available. A wide variety of project assignments and learning objectives help students to build hybrid systems by integrating important automation technologies, such as

- Pneumatics
- Electrical
- PLC
- Mechanical
- Sensors



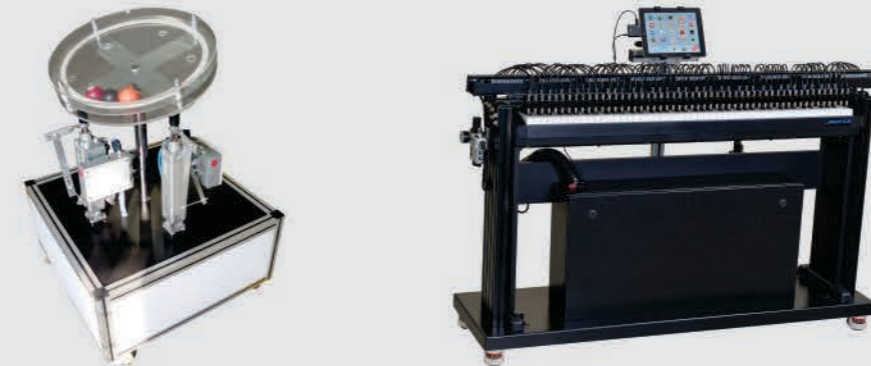
Modular Manufacturing Systems

“DO IT YOURSELF” (DIY) kits are modules of mechatronic systems used to build and assemble fully functional mechatronic systems without the aid of experts or professionals. DIY kits enable students to build and test new automation systems of their own with various technologies such as pneumatics, electrical, PLC, mechanical and sensor to produce actual applications that replicate real life industrial scenario, thereby unleashing the creativity and entrepreneurial skills of a budding engineer aka budding entrepreneur.



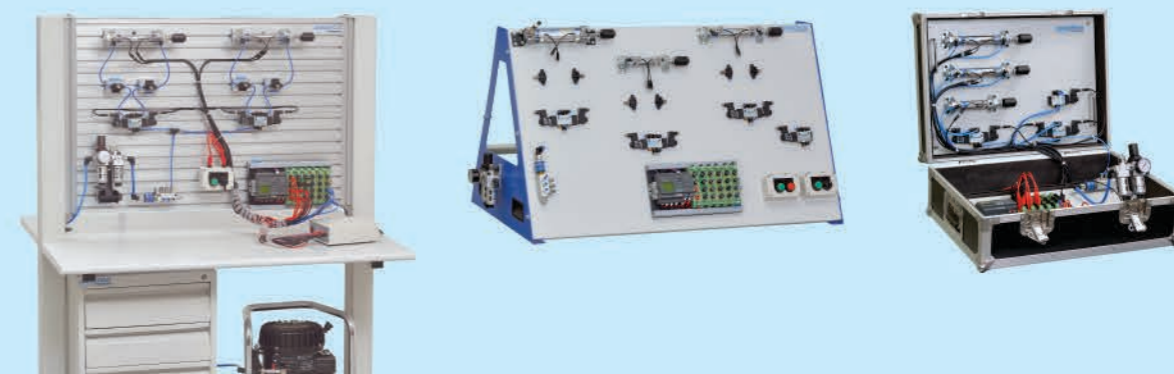
DIY Kits

These independent pre-assembled systems are designed specifically to demonstrate the real life applications of a specific product or a set of products, in order to support the trainers as a training aid and to facilitate easy understanding by the trainees about a product and its applications.



Dynamic Product Displays

- Sleek, Safe, User-friendly and Rugged design.
- Training Exercises based on Real-life Industrial Automation scenarios with Actual Industrial components.
- The worldwide standard Aluminum based mounting board not only improves aesthetics, also makes the Construction, Layout, fixing and rearranging Components easier, thus enabling the user to concentrate more on testing the circuit rather than on mounting the components.
- The mounting board is modular and is being used globally in many educational institutions in setting up World-class Automation laboratory workstations.
- All the Component Modules are provided with suitable “One Touch Fittings / Push-in Fittings / Banana Plugs / Mounting couplings etc” for quick assembly of components and Systems.
- Up gradation and expansion of Trainer Kits possible.



Trainer Kits



# Pneumatic Trainer Kit (Profile Series)

## Pneumatic Trainer Kit

Ordering No.: JTK7-1, JTK7-2

The pneumatic trainer kit is designed with capability to demonstrate the design, construction and application of pneumatic components and circuits.

## Electro Pneumatic Trainer Kit

Ordering No.: JTK8-1, JTK8-2

The Electro Pneumatic Trainer Kit is a stand alone training kit which integrates Electrical Control technology with pure Pneumatic systems to build Electro-Pneumatic Industrial Automation systems. The Design of the kit and components supplied facilitate learning and demonstration of the Design, Construction, Operation, Trouble shooting and Maintenance of Electro Pneumatic Industrial Automation Systems.

## Electro Pneumatic Trainer Kit with PLC

Ordering No.: JTK9-1, JTK9-2

Based on Real-life Industrial Automation scenarios, the Programmable Logic Controller (PLC) Trainer Kit for Industrial Automation is a stand alone training kit. It integrates Programmable Logic Control technology to build Hybrid Industrial Automation systems with pure Pneumatic and Electro-Pneumatic components and Modules. PLC provides the flexibility to design and build numerous systems using software and I/O interfaces without changes to the hard wired connections.

Note: Aluminium workbench is not a part of the trainer kit. It should be ordered separately. Refer Mountings & Accessories section to choose from wide range of options.



## Pneumatic Trainer Kit (Portable Series)

These space saving, compact and portable trainer kits facilitates a trainer to teach fundamental concepts and circuit designing of pneumatic products, and is very handy to carry wherever required for training and demonstrations

Pneumatic Trainer Kit

Ordering No.: PTK1

Electro Pneumatic Trainer Kit

Ordering No.: PTK2

Electro Pneumatic Trainer Kit with PLC

Ordering No.: PTK3



## Pneumatic Trainer Kit (Economy Series)

### Basic Pneumatic Trainer Kit - JPS228

The pneumatic trainer kit is designed with capability to demonstrate the design, construction and application of pneumatic components and circuits.

### Electro Pneumatic Trainer Kit - JPS229

The pneumatic trainer kit is designed with capability to demonstrate the design, construction and application of pneumatic components and circuits, Design and function of a Electro pneumatic system.

### Electro Pneumatic Trainer Kit with PLC - JPS230

The "Electro pneumatic kit with PLC" consists of all the capabilities mentioned under the electro pneumatic training kit, as well as surpasses their capabilities by its flexibility in designing circuits & possibilities of achieving numerous logical circuits using the software interface, with no need for alterations in the connections given to the sensors / actuators.

## Add On Kits:



These space saving add-on kits can be mounted on the side frame units of "Economy series Pneumatic trainer kits".

### Pneumatic Trainer Kit

Ordering No.: JPS228/S

### Electro Pneumatic Trainer Kit

Ordering No.: JPS229/S



### Electro Pneumatic Trainer Kit with PLC

Ordering No.: JPS230/S

## Mountings

### Vertical Workbench (with castor wheel)

Suitable for profile series

Ordering No.: JTK-PTVWB

Size : (1160 x 755 x 1535) mm

Material : Aluminium, Steel, Wood

Recommended accessories: JTK-PTD/W



### Inclined Workbench (Double Side)

Suitable for JTK7, JTK8 & JTK9 only.

Ordering No.: JTK-PTIDWB

Size : (1004 x 640 x 1355) mm

Material : Aluminium, Steel

Recommended accessories: JTK-PTD



### Inclined Workbench (Single side)

Ordering No.: JTK-PTIWB

Size : (1004 x 640 x 1150) mm

Material : Aluminium, Steel

Recommended accessories: JTK-PTD

### Horizontal Workbench

Ordering No.: JTK-PTHWB

Size : (1000 x 640 x 790) mm

Material : Aluminium

Recommended accessories: JTK-PTD



### Vertical Profile Plate

Ordering No.: JTK-PTVD

Size : (1000 x 640 x 680) mm

Material : Aluminium

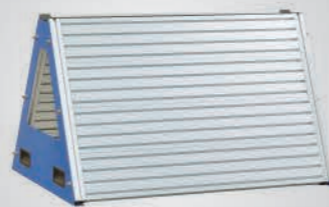


### Inclined Profile Plate (Double side)

Ordering No.: JTK-PTID

Size : (1000 x 640 x 600) mm

Material : Aluminium, Steel

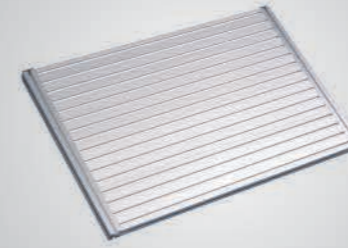
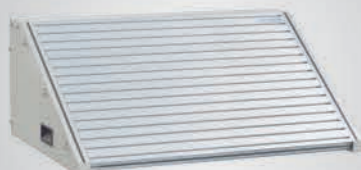


### Inclined Profile Plate (Single Side)

Ordering No.: JTK-PTI

Size : (1000 x 640 x 400) mm

Material : Aluminium, Steel



### Profile Plate

Ordering No.: JTK-PTT

Size : (1000 x 640 x 40) mm

Material : Aluminium

## Accessories

### Draw unit with Castor wheel and lock

Ordering No.: JTK-PTD

Size : (455 x 580 x 750) mm

Material : Steel



### Profile Table Draw without wheel

Suitable for JTK-PTVWB

Ordering No.: JTK-PTDW

Size : (455 x 580 x 700) mm

Material : Steel

### Silent Compressor

Ordering No.: JTK-COMP

Size : (400 x 400 x 750) mm

KW	HP	input Lt.	output Lt.	tank Lt.	dB/A	Bar	Psi
0.35	1/2	50	37	24	40	8	120



### Switch Mode Power Supply

Ordering No.: JTK-SMPS

Input : 230VAC, 50 Hz

Output : 24 VDC, 3A

Recommended for Electro pneumatic & PLC trainer kits

## Janatics Animation Software for Pneumatics - JASP 4.0

This software package is developed keeping in mind that this should be a handy tool for the trainers in Educational Training Institutes & Corporate Training Centers to go hand in hand with the latest in the industry. With this software,

- Functional features of products & components can be understood
- The virtual cut sectional animations of individual components and as a circuit lets the students to know the internal details of the product and to understand the functions better.
- Trainers can explain about the products and can educate the students at a very short period, so as to have ample time on using trainer kits to gain more practical knowledge.
- Flow calculator and cylinder selection module are incorporated with this software to guide the selection of pneumatic components for both industrial and educational projects.



## Wall Posters - JTKWPA1

Matt Laminated Wall Mounted Colour photos Includes:

- Classification of Pneumatic Elements
- Working Elements
- Final Control Elements
- Signal Elements
- Directional Control Valves
- Air Preparation Units
- ISO Symbols - Air Preparation Units, Working Elements, Supplementary Elements



## Cut section - JTKCS

- Single acting cylinder
- Double acting cylinder
- Filter regulator
- Hand lever valve
- Flow control valve
- AND valve
- OR valve
- 3/2 NC flush head valve with actuator - Green
- Quick exhaust valve
- Non return valve
- Double external pilot operated valve



## Magnetic Symbols - JTK-MS

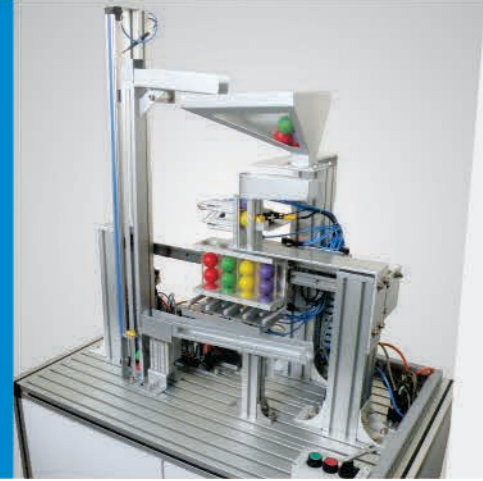
Includes ISO symbols of:

- Air Preparation Units
- Signal Elements
- Directional Control Valves
- Working Elements
- Final Control Elements
- Accessories



Janatics range of trainer kits comes in different product configurations that offer specific levels of functionality to fit your needs. The matrix showcases the features and functionalities of the basic packages and of the subsequent add-on modules to enable the end user in choosing the right kit to suit the academic and industrial training needs.

Trainer Kits	Pneumatic Kit		Electropneumatic Kit		PLC Kit	
	Basic	Advanced	Basic	Advanced	Basic	Advanced
	JTK7-1	JTK7-2	JTK8-1	JTK8-2	JTK9-1	JTK9-2
<b>Add on Module</b>						
<b>JTK-KITA (Basic pneumatic package)</b>						
<ul style="list-style-type: none"> <li>● This is a mandatory basic package that includes basic pneumatic products like Air cylinder, FRL, Multi distributor units, One touch fittings, Final control elements, Tubes etc.,</li> <li>● Function of air preparation units filter, regulator and lubricator</li> <li>● One touch fittings and tubing for easy connect and disconnect</li> </ul>	✓	✓	✓	✓	✓	✓
<b>JTK-KITA-1 (Basic pneumatic add on module)</b>						
<ul style="list-style-type: none"> <li>● Includes basic pneumatic products like directional control valves, logic elements, mechanically actuated valves etc.,</li> <li>● Operation of single acting and double acting cylinder</li> <li>● Speed control techniques of pneumatic actuator</li> <li>● AND, OR logic operation</li> <li>● Position control using Roller lever valve</li> <li>● Operation of manual operated valves</li> <li>● Function of Quick Exhaust valve</li> </ul>	✓	✓	-	-	-	-
<b>JTK-KITA-2 (Advanced pneumatic add on module)</b>						
<ul style="list-style-type: none"> <li>● Includes advanced pneumatic products like pneumatic timer, etc.,</li> <li>● Time delay operations, Pulse counting using Counter</li> <li>● Mid position control using Idle roller lever valve</li> <li>● Creation of advanced pneumatic circuits</li> </ul>	-	✓	-	-	-	-
<b>JTK-KITB (Basic electro pneumatic package)</b>						
<ul style="list-style-type: none"> <li>● Includes basic electro pneumatic products like solenoid valves, magnetic sensors etc.,</li> <li>● Solenoid valves for actuator control</li> <li>● Position sensing using magnetic sensors</li> <li>● Operation of signal elements</li> <li>● Cables with banana plugs for easy connect &amp; disconnect</li> <li>● Creation of basic electro pneumatic circuits</li> </ul>	-	-	✓	✓	✓	✓
<b>JTK-KITB-1 (Basic electro pneumatic add on module)</b>						
<ul style="list-style-type: none"> <li>● Includes basic electro pneumatic products like relay etc.,</li> <li>● Latching of solenoid coils using Relay</li> <li>● Function of 4C/O Relay</li> <li>● Understanding of Latching circuits</li> <li>● Creation of basic electro pneumatic circuits using relay</li> </ul>	-	-	✓	✓	-	-
<b>JTK-KITB-2 (Advanced electro pneumatic add on module)</b>						
<ul style="list-style-type: none"> <li>● Includes advanced electro pneumatic products like electrical timer and counter etc.,</li> <li>● Functions of ON delay &amp; OFF Delay timer</li> <li>● Pulse counting using Counter</li> <li>● Operation of Various types of proximity sensors - inductive, capacitive, Photo electric</li> <li>● Creation of advanced electro pneumatic circuits</li> </ul>	-	-	-	✓	-	-
<b>JTK-KITC-1 (Basic PLC add on module)</b>						
<ul style="list-style-type: none"> <li>● Includes siemens LOGO PLC / equivalent with software and cable</li> <li>● Control of electro pneumatic components using PLC</li> <li>● Hardwired PLC with a proprietary I/O interface for banana plug connections</li> <li>● Simulation of PLC ladder logics without hardware</li> </ul>	-	-	-	-	✓	-
<b>JTK-KITC-2 (Advanced PLC add on module)</b>						
<ul style="list-style-type: none"> <li>● Includes Siemens S7-200 PLC / equivalent with software and accessories</li> <li>● Control of electro pneumatic components using PLC</li> <li>● Hardwired PLC with a proprietary I/O interface for banana plug connections</li> <li>● Provision for OPC interface</li> <li>● Real time communication</li> </ul>	-	-	-	-	-	✓



## Colour Sorting

### Features

- Multi position cylinder
- Compact cylinders

### Application

This working model demonstrates the function of multiposition cylinders and other pneumatic products along with colour sensor for usage in sorting application

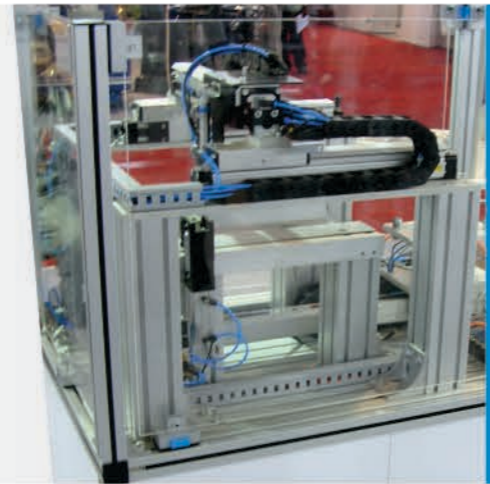
## Sheet Metal Welding Automation

### Features

- Rodless cylinders used for gantry movement and for pick & place
- Rotary clamp cylinders used to hold the work piece

### Application

This is a replica of a transfer line / clamping automation cell in a typical weld shop for sheet metal parts like doors etc.



## Pneumatic Simulator

### Features

- Intermediate positioning of cylinders using valve positioner
- Manual control using precision pressure regulator

### Application

Used to control conditions such as flow, pressure, and liquid level by fully or partially opening or closing in response to signals received from controllers that compare a "setpoint" to a "process variable" whose value is provided by sensors that monitor changes in such conditions



## Automated Piano

### Features

- Cartridge type cylinders and valves with space saving design
- High response valves with response time of 10 milli seconds
- High speed miniature cylinders with cycles upto 900 per minute

### Application

Can be used for entertainment purpose in a restaurant lounge, airport and in training centers for educational purpose



\* - iPad is not a part of the equipment. It is shown only for illustration purpose.



## Dispensing module

Work piece stored in the stack magazine is distributed one by one by a double acting cylinder. Diffuse sensors are used in two locations, one for consumption and another for checking availability in the stack magazine in order to distribute it as and when the demand for supply arises

## Rotary Pick & Place Module

The pneumatic transfer module picks the work pieces and relocates them to positions from '0 degree to 180 degrees' on a horizontal plane is done by using Pneumatic rotary actuator and vacuum suction cups

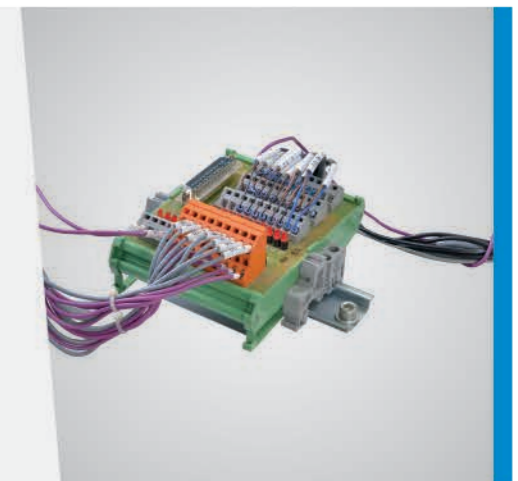


## Measuring Module

Measuring module fitted with linear transducer checks the height of the workpiece. An arrangement is provided to transfer the approved work piece by a slide to the next station and for segregating the faulty work piece to the rejection bay

## I/O interface module

I/O Interface module consist of cage type terminal connectors for ease wiring of input (sensors) and output elements (solenoids, drives etc., ), and on the other end with 25pin D- sub connector to connect with PLC through D-Sub cable







### Drilling Module

Drilling module consists of a Pneumatically operated drilling machine and the up and down movement of the drilling machine is carried out using pneumatic linear drive unit



### FRL Module

Is an Air preparation unit, and it consists of a Filter, Regulator and Lubricator for supply of filtered, regulated (steady pressure at the outlet), lubricated compressed air to the pneumatic system

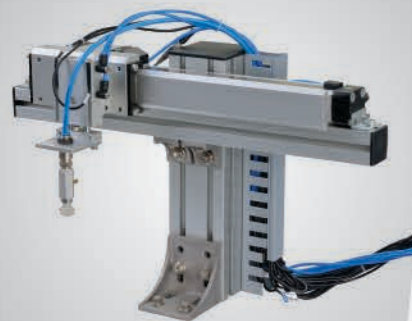
### Rotary Indexing Module

The rotary indexing table is driven by a pneumatic cylinder to index the jobs at an angle of 60 degrees. Aluminum anodized plate mounted on top of the rotary indexing table has provision to sense the presence of the incoming work piece in order



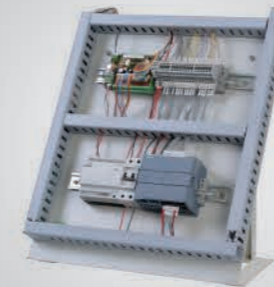
### Control Console Module

Control console module could be used for any of the DIY kit / MMS station, with various Push buttons for functions like start, Auto / Manual, Emergency stop and emergency reset, pre-wired with quick-disconnect terminals



### Linear Pick & Place Module

The transfer of workpiece to the subsequent station is done by a pick and place unit which is composed of Pneumatic linear drive, twin rod cylinder and Vacuum cups. The end position of all pneumatic actuators is detected by using Magnetic sensors

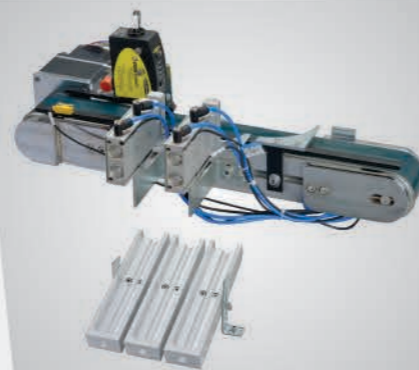


### PLC Module

PLC module is a prewired control panel assembly, and it consist of PLC with Digital / Analogue expansion module, relay interface unit, motor driver unit and signal conditioning unit ..etc. for execution of various tasks as designated by the programme based on the requirements of the individual DIY kits or MMS stations

### Sorting Conveyor Module

The sorting module has photo electric, inductive and colour sensors to detect the presence of the workpiece, its material and colour respectively and guide them to the corresponding slide arrangements. Pneumatic actuators on the conveyor module extends to intercept the work pieces into the appropriate slides.



### Valve Module

Valve module has preassembled solenoid valves with all necessary connectors fitted on the manifold with a common inlet and exhaust port, saves space and facilitates flexible wiring / tubing



### Buffer Conveyor Module

Buffer conveyor module maintains a buffer stock up to a maximum of five workpieces, is assembled with sensors and pneumatic actuators for timely detection of the workpiece and for supplying them one by one based on the demand from the subsequent station



### Horizontal profile table work bench

The modular, rugged and sleek design enables easy assembly / disassembly of components. Caster wheel base facilitates mobility, and bridging of two stations in line to make sequence operation / function is enabled with the help of connector plate accessories

# Modular Manufacturing Systems (MMS)

## Feeder Station

Ordering No.: MMS01

Stack magazine and vacuum switch module for distribution of work piece for inspection

## Inspection Station

Ordering No.: MMS02

Pneumatic linear drive fitted with linear transducer measures the height of work piece and segregates the approved / rejected ones

## Buffer Station

Ordering No.: MMS03

Holds a buffer stock of maximum 5 work pieces and feeds them to the processing station

## Processing Station

Ordering No.: MMS04

Demonstrates processes like drilling, inspection and transfer of finished component to the next station

## Sorting Station

Ordering No.: MMS05

Finished components are sorted to the appropriate bay based on their material and colour

