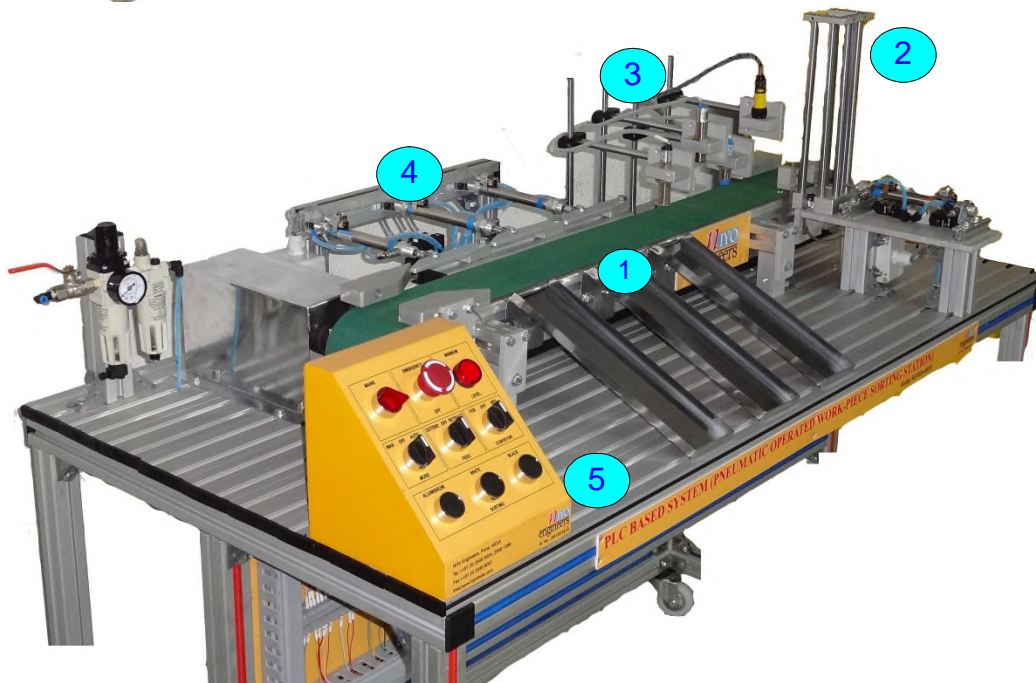
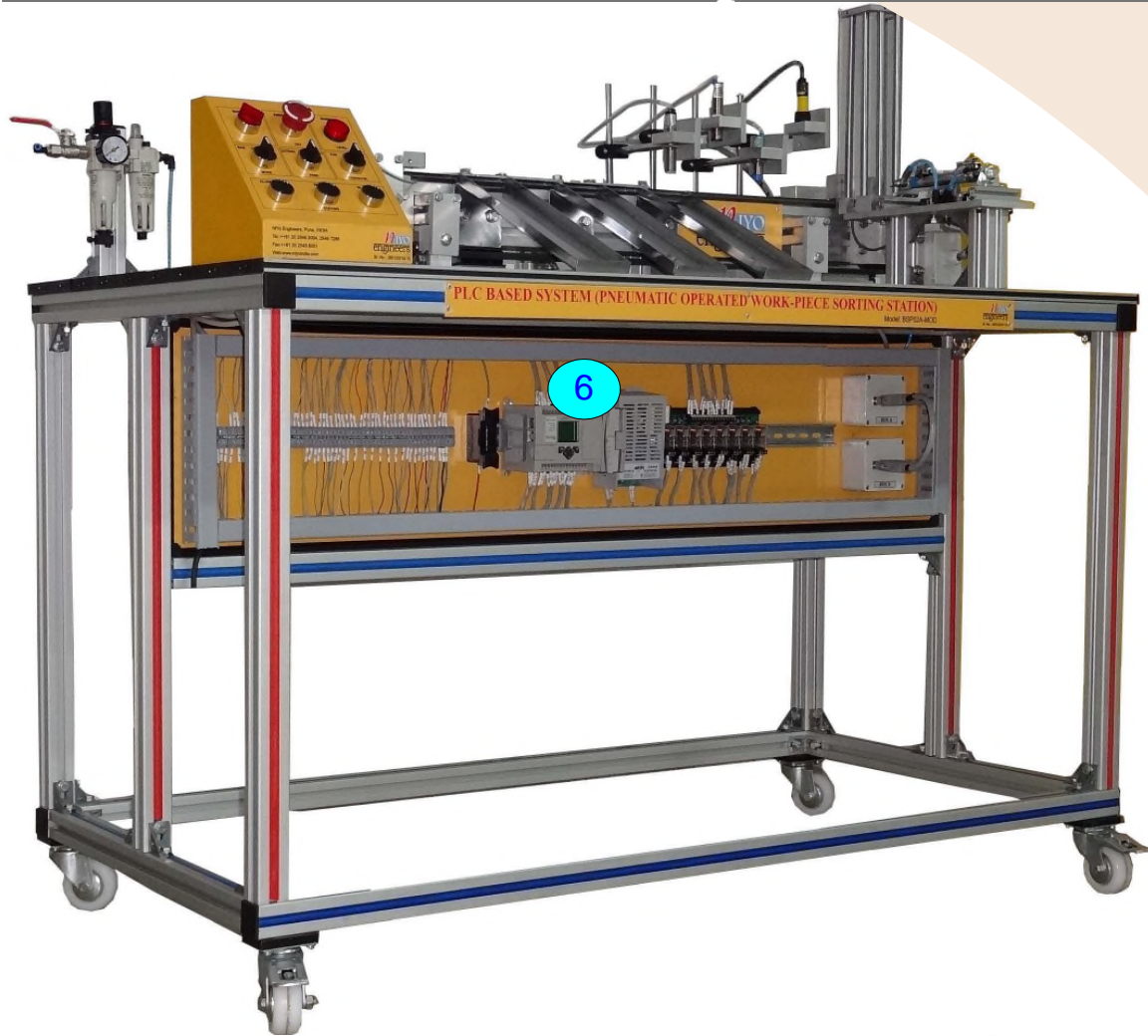


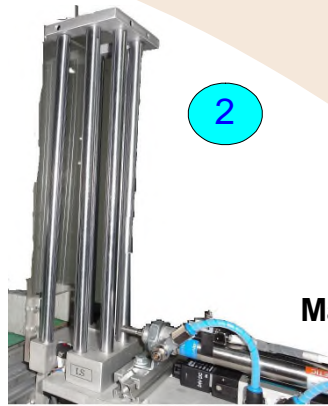
**Flexible Production System-Mini** Model: MCTR-09





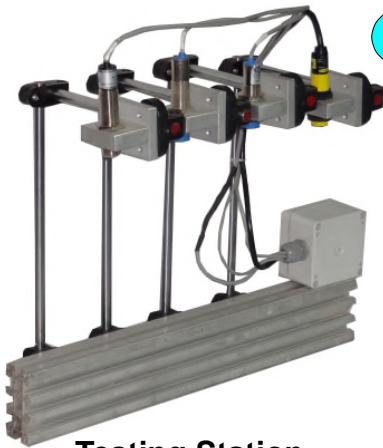
1

**Conveyor Station**



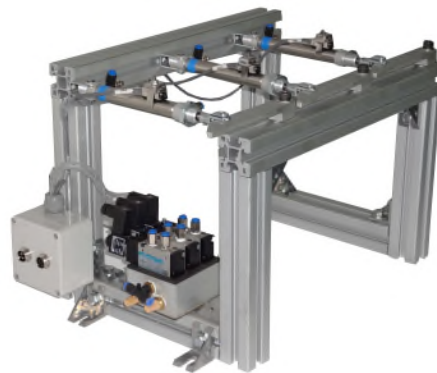
2

**Magazine Station**



3

**Testing Station**



4

**Handling Station**



5

**Base Station**



6

**PLC**



7

**HMI**



8

**Silent Compressor**

## MCTR09-A: Conveyor Station

The conveyor belt system is the element that connects all of the sub-systems and thus forms the backbone of the entire F M S - Mini. A sensor at the end of the conveyor belt senses that a workpiece has arrived, and the conveyor belt stops

MCTR09-A-1: DC Conveyor

MCTR09-A-2: AC Conveyor

Training contents,

- ✂· Generating controlled movements along an axis
- ✂· Incremental positioning of a workpiece carrier
- ✂· Interlocking of forward motion and reverse motion
- ✂· Programming slip and standstill monitoring



## MCTR09-B: Magazine Station

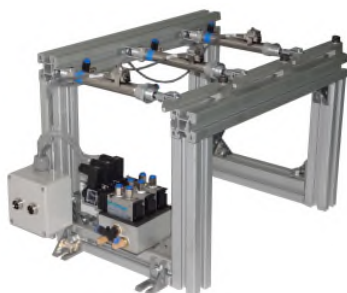
The Magazine station consists of a magazine, workpieces of different types, pneumatic cylinder, sensor, solenoid valve and electrical connector. A micro switch monitors how many pieces are in the magazines. A workpiece carrier is located on the conveyor belt. The magazine accommodates ten workpieces. A pneumatic cylinder pushes the workpiece at the bottom of the pile onto the conveyor belt. One piece is placed on the conveyor which are then conveyed to the end of the belt.

Training contents

- ✂· Assembly, set-up and testing of pneumatic cylinders and valves
- ✂· Definition of process sequences for sorting and assembly
- ✂· Programming of production sequences in manual and automatic

## MCTR09-C: Testing Station

Testing station consists of four different types of sensors and electrical connector. The four sensors measure the material properties of the workpiece and its contour. All the mounting and adjusting arrangements are part of the station. This stations sits next to the conveyor station.



## MCTR09-D: Handling Station

Handling station consists of pneumatic cylinders, cams, sensors and solenoid valves. All the mounting and adjusting arrangements are part of the station. This stations sits next to the conveyor station.





### MCTR09-E: Base Station

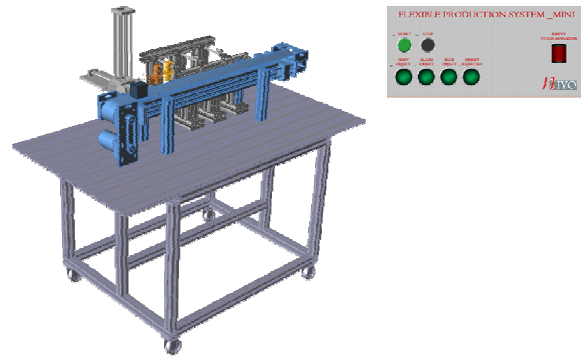
Base Station consists of a mobile table with work surface, a control panel, power supply and contactor circuits. All the stations mentioned above can be mounted on this. The table is made out of extruded aluminium sections. The table has four wheels. All the electrical wiring runs through grooves and trays

### MCTR09-SW: Digital Twin

Digital twin is a simulation of physical system. This software is optionally supplied. Trainee can operate the system either as stand alone or along with the physical system. Fault finding, maintenance etc can be carried out using Digital Twin.

MCTR09-SW-1A: Stand alone software

MCTR09-SW-1B: Hardware to interface software with physical system



### PLC

A standard 24 V DC operated 28 IO PLC is required to operate FMS-Mini. The PLC is supplied with Ladder Logic programming software. Communication with the PC is through USB port.

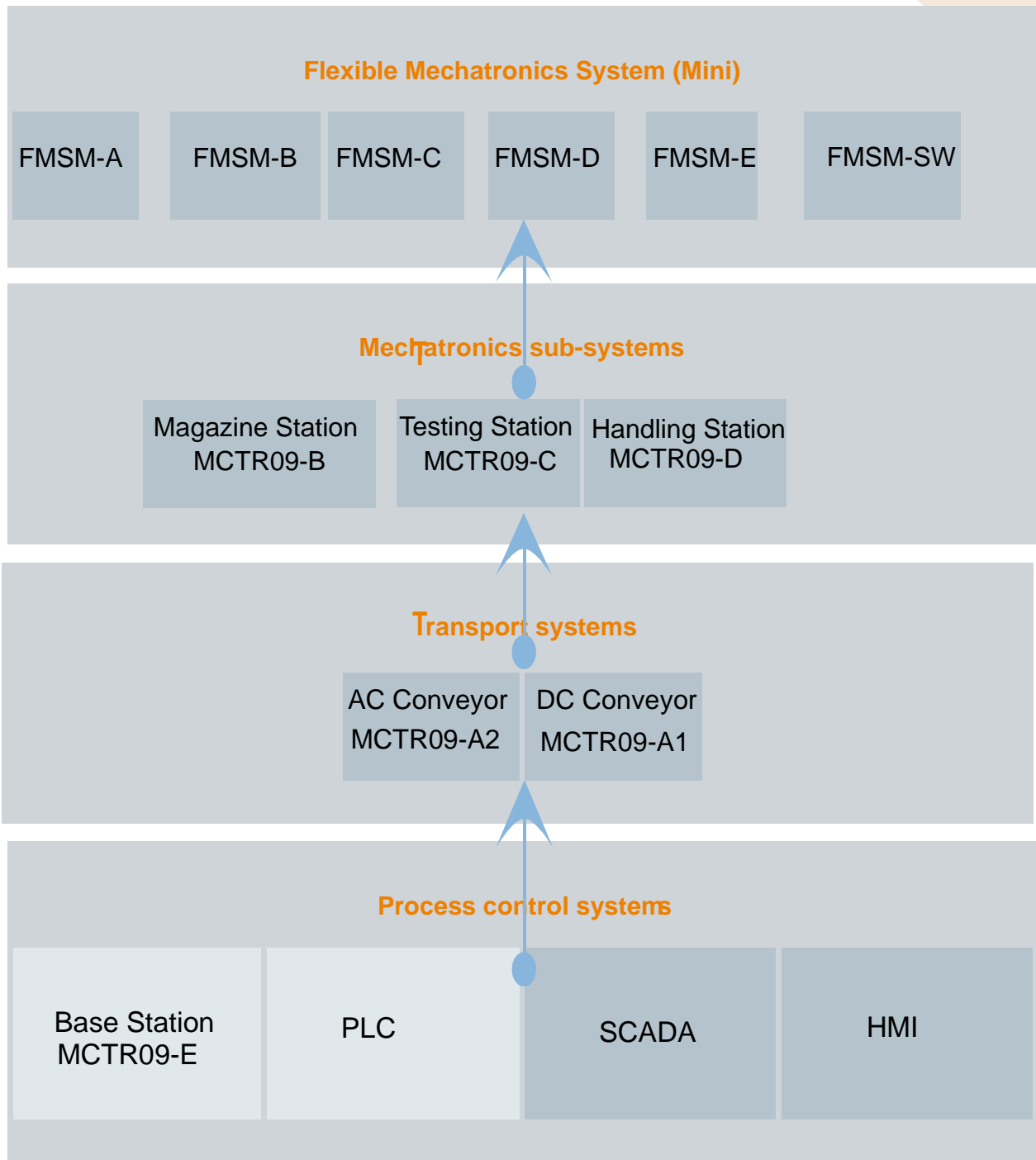
### HMI

If needed a touch screen type colour HMI can be hooked up with the PLC. Operation of FMS-Mini can be integrated with the HMI.



### Silent Compressor

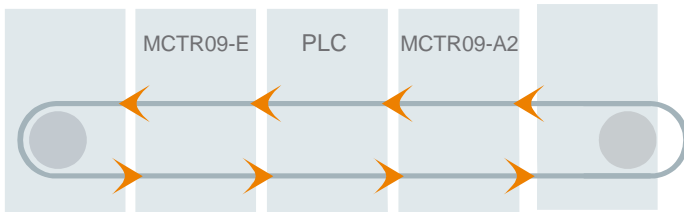
A silent compressor can be supplied with FMS-Mini if needed. Alternately, an existing compressor of required specifications from your laboratory can be hooked up to the trainer.



### MCTR09-1: Production line with 1 sub-systems

MCTR09-A: Conveyor, MCTR09-E: Base Station, PLC

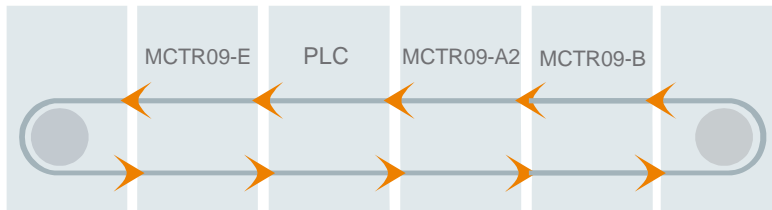
A workpiece loaded manually. Basic concept of conveyor and its control can be learned.



### MCTR09-2: Production line with 2 sub-systems

MCTR09-A: Conveyor, MCTR09-E: Base Station, MCTR09-B: Magazine Station, PLC

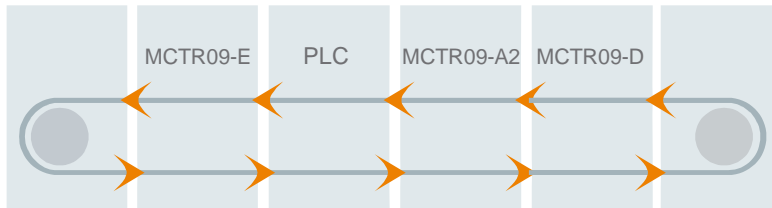
A workpiece is automatically loaded from magazine station. Basic concept of material loading, handling and conveyor control can be learned.



### MCTR09-3: Production line with 3 sub-systems

MCTR09-A: Conveyor, MCTR09-E: Base Station, MCTR09-D: Handling Station, PLC

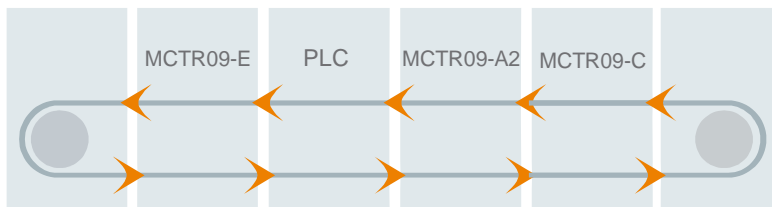
A workpiece is loaded manually. Sorting based on predetermined sequence can be carried out. Basic concept of material handling, sorting and conveyor control can be learned.



### MCTR09-4: Production line with 3 sub-systems

MCTR09-A: Conveyor, MCTR09-E: Base Station, MCTR09-C: Testing Station, PLC

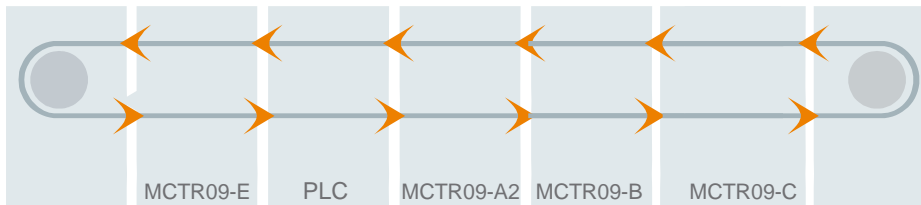
A workpiece is loaded manually. Based on the result of inspection a predetermined movement of conveyor can be carried out. Basic concept of material handling, testing and conveyor control can be learned



### MCTR09-5: Production line with 4 sub-systems

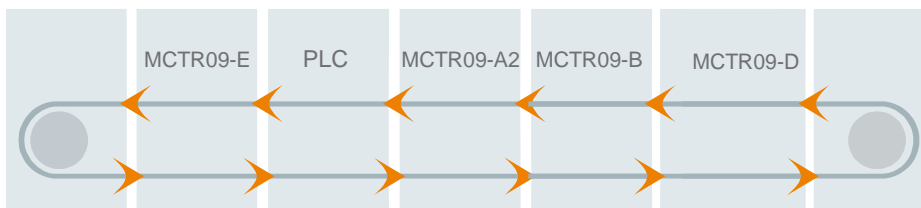
MCTR09-A: Conveyor, MCTR09-E: Base Station, MCTR09-B: Magazine Station, MCTR09-C: Testing Station, PLC

A workpiece is automatically loaded from magazine station. Based on the result of inspection a predetermined movement of conveyor can be carried out. Basic concept of material loading, handling, testing and conveyor control can be learned.



### MCTR09-6: Production line with 4 sub-systems

MCTR09-A: Conveyor, MCTR09-E: Base Station, MCTR09-B: Magazine Station, MCTR09-D: Handling Station, PLC A workpiece is automatically loaded from magazine station. Based on a predetermined sequence, conveyor control can be carried out. Basic concept of material loading, handling and conveyor control can be learned.



### MCTR09-7: Production line with 5 sub-systems

MCTR09-A: Conveyor, MCTR09-E: Base Station, MCTR09-C: Testing Station, MCTR09-B: Magazine Station, MCTR09-D: Handling Station, PLC A workpiece is automatically loaded from magazine station. Based on the result of testing, sorting is done Basic concept of material loading, handling, testing, sorting and conveyor



To see the product video,  
Please visit <https://youtu.be/HORN-9IRJhc>

### Optional additional

MCTR09-SW-1A: Stand alone software

MCTR09-SW-1B: Hardware to interface software with physical system

## NiYO Engineers

Unit 1B, Devgiri Industrial Estate, S. No. 17/1B Plot No. 14, Kothrud, Pune 411 029 INDIA  
Tel-91 20 2546 5004, 2546 8051, 2546 7296 Telefax - 91 20 2546 8051 e-mail- [sales@niyoindia.com](mailto:sales@niyoindia.com)  
Web: [www.niyoindia.com](http://www.niyoindia.com)



(1) Since research and development is an on-going activity, the specifications mentioned herein are subject to change without notice

(2) Photographs are indicative only