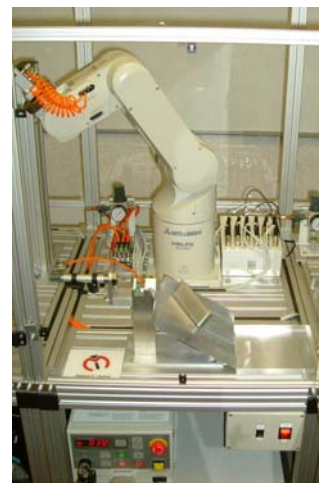
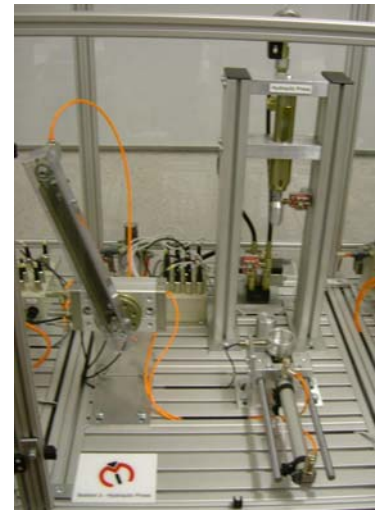
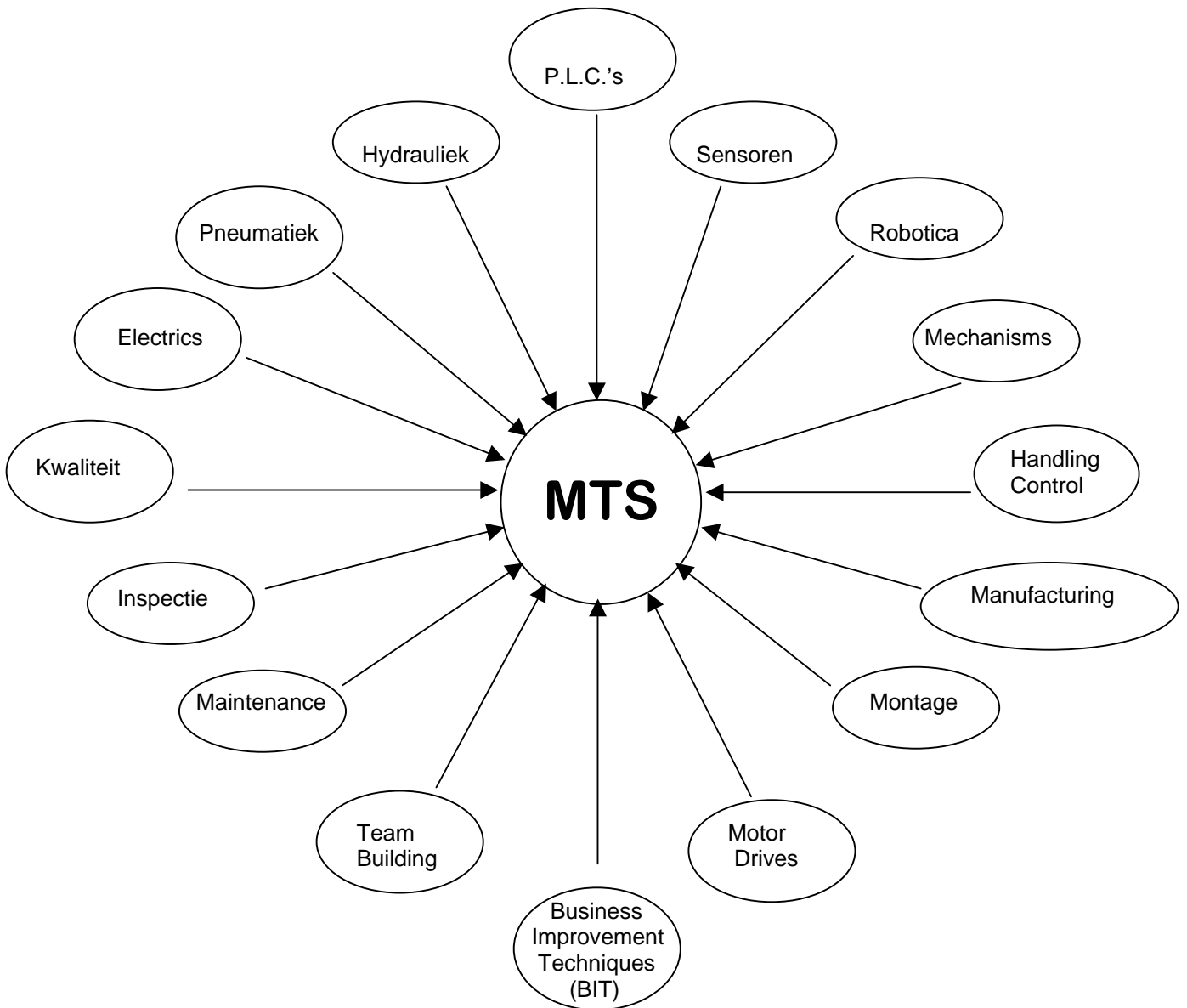


Modulair Mechatronica Systeem





Modulair Mechatronica Systeem

Laad Station



The 'Loading (Handling) Station' when used in a 'system' is the first module and comprises a manually loaded magazine, with pneumatically driven feed, load and transfer mechanisms, all controlled by an industrial P.L.C. Equipment installed on the Loading Station includes:- rodless cylinder, gripper unit, compact cylinder, guided compact cylinder, multimach valve island, air service unit, flow control valves, inductive and magnetic proximity sensors.

The 'Loading (Handling) Station' separates, feeds and distributes components. Components may be stored in the manually fed magazine tube and are detected by means of an inductive sensor. A compact cylinder pushes the components out of the magazine, individually, for transfer by a rodless cylinder with gripper assembly. When used as an independent station the module can be used to perform a wide range of exercises, from simple operations allowing students to become familiar with the system to more complex operations thereby increasing the student's knowledge. If the Loading Station is used as part of a system, it is the first module within the system and feeds components to the downstream (e.g. Processing Station) module.

Technical data:

Operating pressure	: 3 – 8 bar (300 – 800 kPa)
Electrical supply	: 230 Volt a.c. 50 Hz single-phase
P.L.C. specification	: 16 digital inputs 14 digital relay outputs
Component diameter	: 40 mm
Component length	: 40 mm
Components supplied	: 5 off Aluminium, 5 off Nylon

Dimensions:

Length	: 720 mm
Width	: 550 mm
Height	: 800 mm (to top of trolley)



Laad Station

Equipment list:

- 1 off Extruded aluminium profile trolley with 4 castors (2 lockable)
- 1 off Set of safety guards (extruded aluminium framework with clear PETG panels)
- 1 off Control cabinet complete with P.L.C. (16 inputs, 14 relay outputs, 24V d.c. supply), 6 input switches, illuminated mains switch, input fuse, output fuse and Emergency STOP switch
- 1 off Air service unit with 3/2 way solenoid actuated, spring return, ON/OFF valve
- 1 off Pneumatic pressure gauge
- 1 off 4-station pneumatic 'Multimach' valve island
- 1 off Pneumatic compact cylinder
- 1 off Pneumatic compact guided cylinder
- 1 off Pneumatic rodless cylinder
- 1 off Pneumatic gripper unit
- 8 off Cylinder proximity sensor (magnetic)
- 8 off Pneumatic flow control valve
- 5 off Aluminium component workpiece
- 5 off Nylon component workpiece
- 1 off Magazine module
- 1 off Power lead
- 1 off P.C. – P.L.C. connection cable
- 1 off P.L.C. programming software
- 1 off P.L.C. manual
- 1 off Communication cable
- 1 off Accessories pack (tubing, cable, cable ties, sleeves, pneumatic fittings, labels, etc...)
- 1 off Comprehensive user's manual with exercises

Modulair Mechatronica Systeem

Processing Station



The 'Processing Station' when used in a 'system' is an intermediate module, that is installed downstream of the Loading Station and comprises an electrically driven rotary index table, with drilling and tapping stations mounted around the perimeter of the index table, all controlled by an industrial P.L.C. Equipment installed on the Processing Station includes:- stepper motor with drive card, d.c. motor, d.c. motor with gearbox, twin-rod guided pneumatic cylinders (2 off), single acting cylinder, manifold mounted pneumatic control valves, air service unit, flow control valves, inductive, capacitive and magnetic proximity sensors.

On the 'Processing Station' components are drilled and tapped (simulated) on a rotary index table, which is driven by an electrical (d.c.) stepper motor. A P.L.C. controlled circuit positions the index table, its position is detected by means of an inductive sensor and locked in position by a single acting cartridge cylinder. When on the index table the components are drilled and tapped in two parallel processes, the drilling and tapping heads are powered by d.c. motors (tapping head motor also incorporates a gearbox) and fed by means of twin-rod guided pneumatic cylinders, with position sensors and flow control valves incorporated.

When used as an independent station the index table can be programmed to give numerous operations (number of indexed positions selectable is infinitely variable e.g. if indexing to 1° angle then 360 positions are possible, both clockwise and counter-clockwise). The drill or tapping unit (or both) can be used in conjunction with the index table, or they may be used independently of each other or the index table.

If the Processing Station is used as part of a system it is fed with components from an upstream module (e.g. Loading Station) before processing the component, which is then presented for transfer to a downstream module (e.g. Hydraulic Press Station).

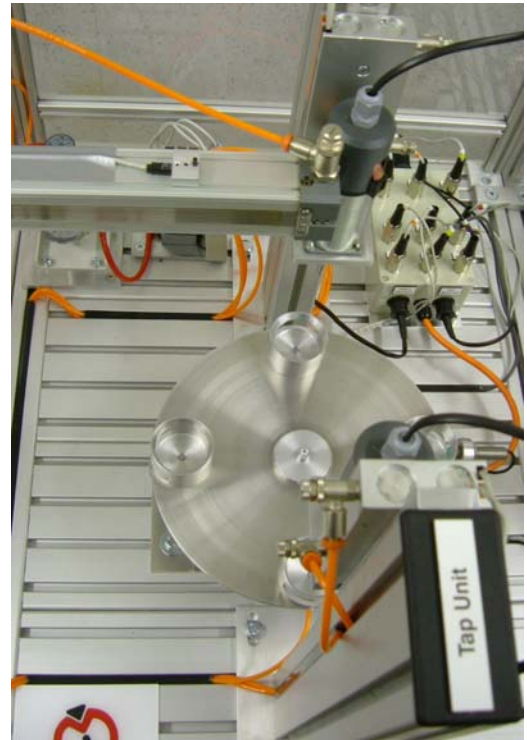
Processing Station

Technical data:

Operating pressure	: 3 – 8 bar (300 – 800 kPa)
Electrical supply	: 230 Volt a.c. 50 Hz single-phase
P.L.C. specification	: 16 digital inputs 14 digital transistor outputs

Dimensions:

Length	: 720 mm
Width	: 550 mm
Height	: 800 mm (to top of trolley)

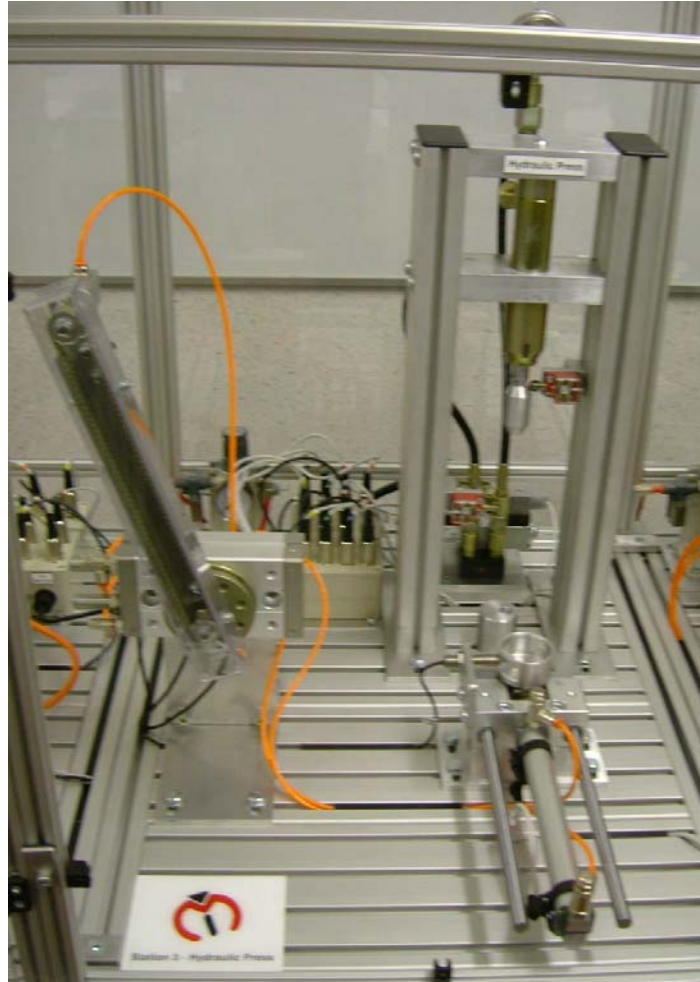


Equipment list:

- 1 off Extruded aluminium profile trolley with 4 castors (2 lockable)
- 1 off Set of safety guards (extruded aluminium framework with clear PETG panels)
- 1 off Control cabinet complete with P.L.C. (16 inputs, 14 transistor outputs, 24V d.c. supply), 6 input switches, illuminated mains switch, input fuse, output fuse and Emergency STOP switch
- 1 off Air service unit with 3/2 way solenoid actuated, spring return, ON/OFF valve
- 1 off Pneumatic pressure gauge
- 1 off Index table with 4 component locations (24V d.c. stepper motor driven)
- 1 off Inductive sensor for index table positioning
- 1 off Capacitive sensor for component registration
- 1 off 3-station manifold mounted pneumatic valve island
- 2 off Pneumatic twin-rod guided cylinder
- 1 off Pneumatic single acting cartridge cylinder
- 1 off Drill station (24V d.c. motor)
- 1 off Tapping station (24V d.c. motor & gearbox)
- 4 off Cylinder proximity sensor (magnetic)
- 4 off Pneumatic flow control valve
- 1 off Power lead
- 1 off P.C. – P.L.C. connection cable
- 1 off P.L.C. programming software
- 1 off P.L.C. manual
- 1 off Communication cable
- 1 off Accessories pack (tubing, cable, cable ties, sleeves, pneumatic fittings, labels, etc...)
- 1 off Comprehensive user's manual with exercises

Modulair Mechatronica Systeem

Hydraulic Press Station



The 'Hydraulic Press Station' when used in a 'system' is an intermediate module, that is installed downstream of the Processing Station and upstream of the Robot (Inspection) Station and comprises hydraulic, pneumatic, vacuum and P.L.C. controls all within one module. This station will simulate the stamping of a product (e.g. date or serial number stamping).

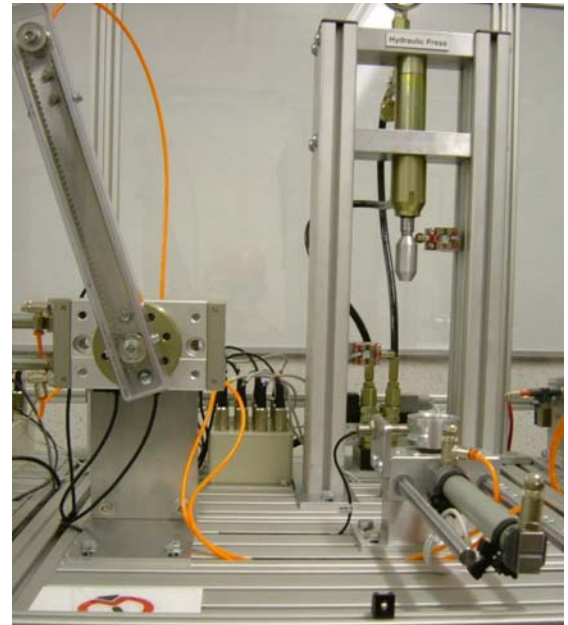
The 'Hydraulic Press Station' takes the components that are presented from an upstream module (e.g. Processing Station) and transfers them by means of a swing transfer mechanism and vacuum into a holding device, which is then fed into the stamping fixture. Once stamped (simulated) the component is removed from the holding device and transferred to a downstream module (e.g. Robot (Inspection) Station).

Technical data:

Operating pressure (air)	: 3 – 8 bar (300 – 800 kPa)
Operating pressure (hyd.)	: 30 bar (3000 kPa)
Electrical supply	: 230 V/50 Hz single-phase
P.L.C. specification	: 16 digital inputs 14 digital relay outputs

Dimensions:

Length	: 720 mm
Width	: 550 mm
Height	: 800 mm (to top of trolley)



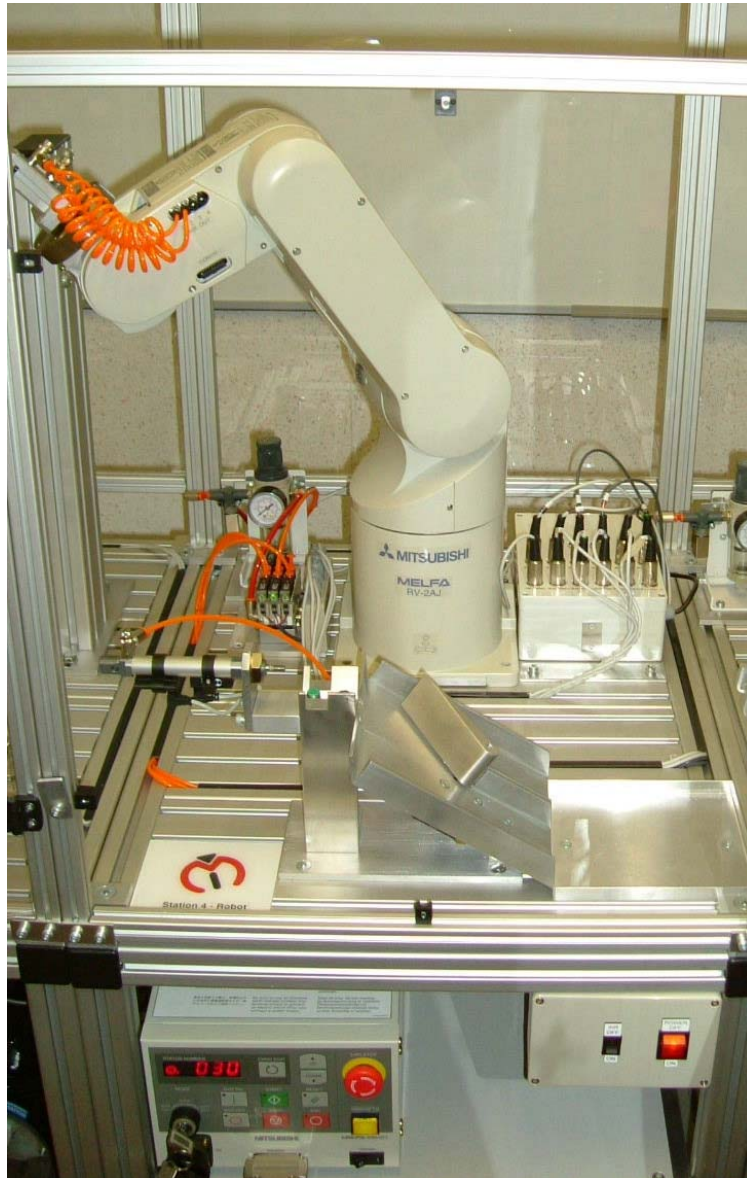
Hydraulic Press Station

Equipment list:

- 1 off Extruded aluminium profile trolley with 4 castors (2 lockable)
- 1 off Press frame
- 1 off Set of safety guards (extruded aluminium framework with clear PETG panels)
- 1 off Control cabinet complete with P.L.C. (16 inputs, 14 relay outputs, 24V d.c. supply), 6 input switches, illuminated mains switch (system), illuminated mains switch (hydraulics), thermal overload (hydraulics), input fuse, output fuse and Emergency STOP switch
- 1 off Hydraulic power pack
- 1 off Hydraulic double acting cylinder
- 1 off Hydraulic 4/3 way Solenoid / solenoid valve (tandem centre)
- 1 off Hydraulic flow control valve
- 1 off Hydraulic pressure gauge
- 2 off Limit switches
- 1 off Air service unit with 3/2 way solenoid actuated, spring return, ON/OFF valve
- 1 off Pneumatic pressure gauge
- 1 off Pneumatic double acting cylinder (ISO 6432)
- 1 off Pneumatic cylinder guide unit
- 1 off Pneumatic rotary actuator 180°
- 1 off 3-station manifold mounted pneumatic valves
- 1 off Vacuum generator
- 1 off Vacuum cup
- 1 off Swing frame mechanism
- 1 off Capacitive sensor
- 4 off Cylinder proximity sensor (magnetic)
- 1 off Power lead
- 1 off P.C. – P.L.C. connection cable
- 1 off P.L.C. programming software
- 1 off P.L.C. manual
- 1 off Communication cable
- 1 off Accessories pack (tubing, cable, cable ties, sleeves, pneumatic fittings, labels, etc...)
- 1 off Comprehensive user's manual with exercises

Modulair Mechatronica Systeem

Robot (Inspectie) Station



The 'Robot (Inspection) Station' when used in a 'system' is an intermediate module, that will transfer a component from an upstream module (e.g. Hydraulic Press Station) to a downstream module (e.g. Pick & Place Station) and comprises a 'genuine' industrial robot (**MITSUBISHI RV-2AJ**), complete with industrial programming software (Cosirop) for programming from a PC and also a hand-held teach pendant.

The 'Robot (Inspection) Station' can take components that are presented from an upstream module (e.g. Hydraulic Press Station) and manipulate them before presenting them to an inspection jig, provided the component passes the inspection the robot then takes it and processes it on to the downstream module (e.g. Pick & Place Station).

The robot used is a genuine industrial version (Mitsubishi model RV2AJ), which is supplied complete with controller, hand-held teach pendant and PC programming software (Cosirop).

Technical data:

Operating pressure (air) : 3 – 8 bar (300 – 800 kPa)
 Electrical supply : 230 V-50 Hz single-phase

Dimensions:

Length : 720 mm
 Width : 550 mm
 Height : 800 mm (to top of trolley)



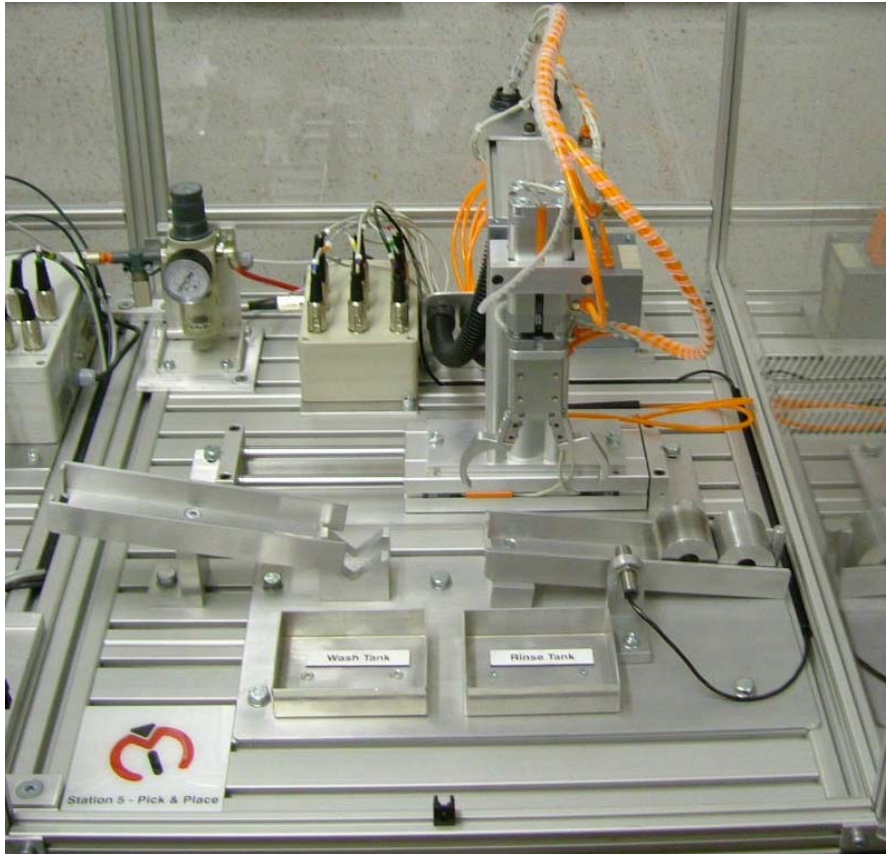
Robot (Inspectie) Station

Equipment list:

- 1 off Extruded aluminium profile trolley with 4 castors (2 lockable)
- 1 off Set of safety guards (extruded aluminium framework with clear PETG panels)
- 1 off Mitsubishi RV-2AJ industrial 5-axis robot
- 1 off Mitsubishi robot controller
- 1 off Mitsubishi teach pendant (hand-held)
- 1 off Mitsubishi 'Cosirop' PC programming software
- 1 off Set of manuals for robot, software and controller
- 1 off Air service unit with 3/2 way solenoid actuated, spring return, ON/OFF valve
- 1 off Pneumatic pressure gauge
- 1 off Pneumatic gripper unit
- 1 off Pneumatic single acting cylinder (ISO 6432)
- 1 off Pneumatic rotary actuator 90°
- 5 off Pneumatic flow control valve
- 5 off Cylinder proximity sensor (magnetic)
- 1 off 3-station manifold mounted pneumatic valves
- 1 off Inductive sensor
- 1 off Capacitive sensor
- 1 off Power lead
- 1 off Communication cable
- 1 off PC to Robot controller connection cable
- 1 off Accessories pack (tubing, cable, cable ties, sleeves, pneumatic fittings, labels, etc...)
- 1 off Comprehensive user's manual with exercises

Modulair Mechatronica Systeem

Pick & Place Station



The 'Pick & Place Station' when used in a 'system' can be an intermediate or final module, that is typically installed downstream of the Robot (Inspection) Station and comprises a pneumatically driven 4-axis manipulator, with varying functions (in fact the module comes with 2 different location plates, so that different processes may be carried out), all controlled by an industrial P.L.C. Equipment installed on the Pick & Place Station includes:- double ended twin-rod guided cylinder, twin-rod guided cylinder, guided compact cylinder, pneumatic gripper unit, 'Multimach' valve island, air service unit, sensors (magnetic and inductive) and flow control valves.

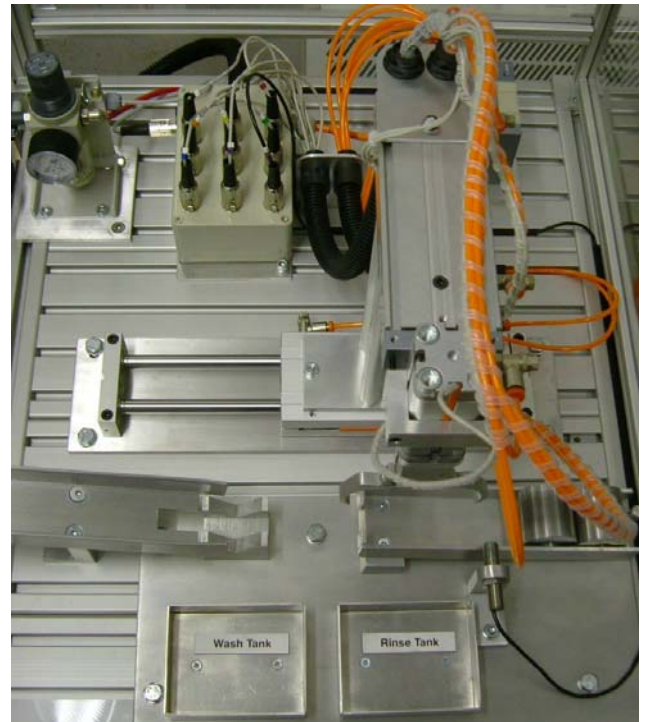
On the 'Pick & Place Station' various processes may be performed, for instance components can be sorted and rotated from one position to any of three others, according to the P.L.C. programme used. The Pick & Place manipulator is operated and positioned by a P.L.C. controlled circuit with its positions being detected by cylinder proximity (magnetic) sensors. Numerous P.L.C. programmes can be entered into the module and therefore the number of exercises possible is too long to list here, with the two options of component location plate supplied the number of exercises becomes long enough to keep even the most advanced student/s occupied. If the Pick & Place Station is used as part of a system it is fed with components from an upstream module (e.g. Robot (Inspection) Station), before processing them and presenting them for transfer to a downstream module.

Technical data:

Operating pressure : 3 – 8 bar (300 – 800 kPa)
 Electrical supply : 230 V / 50 Hz single-phase
 P.L.C. specification : 16 digital inputs
 : 14 digital relay outputs

Dimensions:

Length : 720 mm
 Width : 550 mm
 Height : 800 mm (to top of trolley)



Pick & Place Station

Equipment list:

- 1 off Extruded aluminium profile trolley with 4 castors (2 lockable)
- 1 off Set of safety guards (extruded aluminium framework with clear PETG panels)
- 1 off Control cabinet complete with P.L.C. (16 inputs, 14 relay outputs, 24V d.c. supply), 6 input switches, illuminated mains switch, input fuse, output fuse and Emergency STOP switch
- 1 off Pick & place component location plate (component sorting)
- 1 off Pick & place component location plate (clean & rinse of component)
- 1 off Air service unit with 3/2 way solenoid actuated, spring return, ON/OFF valve
- 1 off Pneumatic pressure gauge
- 1 off Pneumatic double ended, twin-rod guided cylinder
- 1 off Pneumatic twin-rod guided cylinder
- 1 off Pneumatic compact guided cylinder
- 1 off Pneumatic gripper unit
- 1 off 4-station pneumatic 'Multimach' valve island
- 8 off Cylinder proximity sensor (magnetic)
- 8 off Pneumatic flow control valve
- 1 off Power lead
- 1 off P.C. – P.L.C. connection cable
- 1 off P.L.C. programming software
- 1 off P.L.C. manual
- 1 off Communication cable
- 1 off Accessories pack (tubing, cable, cable ties, sleeves, pneumatic fittings, labels, etc...)
- 1 off Comprehensive user's manual with exercises