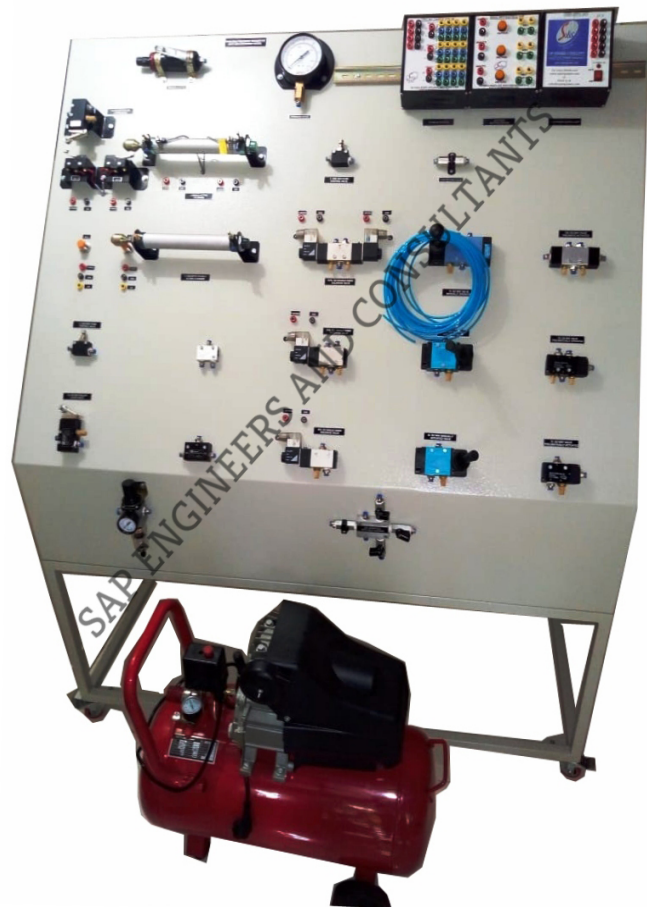


SAP E & C ADVANCED CUSTOMIZED ELECTRO PNEUMATIC TRAINER (FOR ITI)

[PRODUCT CODE: SAP-20B-I, SAP-20B-II (Economy Model)]



**Advanced Customized Electro Pneumatic
Trainer Kit (For ITI) (Product Code: SAP-20B-I)**



**Economy Model of Electro Pneumatic Trainer Kit for
ITI (Product Code: SAP-20B-II)
(Same Technical Specifications but Table Top MS
Powder Coated Model Instead of Aluminium Profile)**

- The **Advanced Customized Electro Pneumatic Trainer (SAP – 20B-I) & Economy Model of Electro Pneumatic Trainer Kit** are capable of being used to demonstrate the design, construction and application of electro-pneumatic components and circuits.
- These pneumatic simulators are used for imparting training with a variety of different circuits which covers the basic pneumatic system. The simulator and its accessories are suitable for working at 10 bar pressure.
- This trolley mounted simulator structure will have adequate space for proper orientation of valves and cylinders. All the valves and cylinders will be mounted on plate with a provision for fixing hoses through push on connector.
- The components are capable of being mounted on an appropriate profile plate with grooves for secure and flexible positioning so that the components can be clamped firmly, quickly and safely through quick fix adaptors. Industrial components are used in the kit so that the students get hands on practical training in using industrial components.

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Objectives: -

- ❖ Function & identification of Pneumatic components & their symbols.
- ❖ Direct and indirect manual controls, stroke dependent controls and pressure dependent controls with Different valves.
- ❖ Design & function of Pneumatic System.
- ❖ Functional diagrams.
- ❖ Application and fault findings of Pneumatic controls.
- ❖ To empower students to design their own circuits.
- ❖ The Trainer is Modular & Upgradable
- ❖ Operation & Instruction Manual provided for Operation ease.

Technical Specification:-

No.	Item Name	Technical Specifications
	Compressor unit	QTY: -1 No., Suitable for Pressure: 8bar, Delivery:50lpm (or more), Reservoir Capacity: 30 Liter (or more), 230V, 50Hz with Pressure regulator and water separator
Pneumatic Trainer Kit each consisting of the following matching components & accessories:		
1	Single Acting Cylinder-	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., Max Stroke length-50mm, Bore Diameter – 20mm
2	Double Acting Cylinder-	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., Max Stroke Length –100 mm, Bore Diameter – 20mm, Magnetic Type.
3	3/2 Way Valve	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -02 Nos., Manually Actuated Normally Closed
4	3/2 Way Valve	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., Pneumatically Actuated, Spring Return.
5	One way flow control valve	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -2 Nos., The One - way flow control valve is a combination of flow control valve & a non-return valve. The cross section of the restrictor can be set by means of a Knurled screw. Design type is combined flow control Valve. Pressure range – (0.5-10 Bar)
6	5/2-way valve	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., With manually operated switch.
7	5/2-way valve	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., Single Pilot, Pneumatically Actuated, Spring Return.
8	5/2-way valve	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., double pilot, Pneumatically Actuated
9	3/2-way Roller Lever Valve	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -02 Nos., Direct Actuation Normally Closed
10	Shuttle Valve (OR)-	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., The Shuttle Valve is switched through to the output by applying compressed air to one of the inputs (OR) function. Design type is OR gate (shuttle valve). Pressure range: (1-10 Bar)
11	Two Pressure Valve (AND)-	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., The dual-pressure Valve is switched through to the output by applying compressed air to both the inputs (AND) Function. Design type is AND Gate (Dual Pressure Valve). Pressure Range: (1-10 Bar)
12	Pressure Gauge	QTY: -1 No., 0-16bar
13	Manifold with Self Closing	QTY: -1 No., NRV, 6-Way, A common manifold for plastic tubing allows supply of compressed air to the control via six individual ports (for plastic tubing PUN 4×0.75)

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14	Pushbutton station for electrical signal input	QTY: -1 No., With 3 illuminated momentary contact switches (1NO+1NC) & 1 illuminated maintained contact switch (1NO+1NC), Current Load -2A
15	Relay Station	QTY: -1 No., With 3 relays each with contact sets (3NO+1NC or Change-Over Type), 5A
16	3/2 Solenoid Valve, Single with LED-	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., The status is indicated by an LED on the housing. The valve is equipped with a manual override. Pneumatic Technical data: Design type is spool valve, pilot controlled with return spring, Pressure range: 250-800 kPa (2.5-8 bar), Electrical
17	5/2-way single sided Solenoid Valve with LED-	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., The status is indicated by an LED on the housing. The valve is equipped with a manual override. Pneumatic Technical data: Design type is spool valve, pilot controlled with return spring, Pressure range: 250-800 KPa (2.5-8 bar), Electrical Technical data: Power consumption – 1.5 W
18	5/2 Solenoid Valve, Double sided with LED-	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -1 No., The statuses are indicated by LEDs on the housings. The valve is equipped with two manual overrides. Pneumatic Technical Data: Design-spool valve with pilot control, Pressure range – 150-800KPa (1.5-8 bar) Electrical Technical Data: Power Consumption – 1.5 W
19	Power Supply unit-	QTY: -1 No., Input Voltage – 85-265VAC, Output Voltage :24VDC, Output Current: 4.5A, Short –Circuit Proof
20	Profile Plate- (For SAP-20B-I)	QTY: -1 No., Anodized aluminum 1100x700mm with carriers mounting frames and mounting accessories (to be fitted pneumatic workstation)
21	Pneumatic workstation- (For SAP-20B-I)	QTY: -1 No., With 40mm ² aluminum profiles/MS legs, wooden work surface and one pedestal drawer unit having 5 drawers each with handles & individual locks, on metallic full panel drawer slide: <ol style="list-style-type: none"> 1. Work Table – Size Approx. L1200mmxW900mm with four castor wheels including two lockable wheels at front 2. Drawer – size Approx – L460mmxW495mmxH158mm each & overall Size of drawer unit (Approx.)- L470mmxW495mmxH825mm Drawer Slide Height (Approx.)-85mm
22	DIN rail Channel	Carrier for Mounting components such as PB & Relay Boxes
23	Filter regulator with Gauge-	QTY: -1 No., Filter control valve with pressure gauge, gate valve, quick push-pull connectors & quick couplings mounted on a swivel support. The filter with water separator removes dirt, pipe sinter, rust & condensed water. The pressure control valve regulates the supply. Air pressure to the set operating pressure & compensates pressure fluctuations. The filter bowl has a condensate drain valve. The shutoff valve ventilates & vents entire control. Input pressure –Maximum (16 bar), Output pressure – Max 12 bar, grade of filtration– 40 mm approx., Connector – G 1/8, / PU 4
24	Proximity switch with attachment-	QTY: -2 Nos., The Proximity switch consists of a sensor, the mounting kit and the cable. This proximity switch gives a signal when it detects a metal. The status is indicated by an LED. Switching Voltage – 24 VDC, Switching current – max. 200 mA, Switching Power – 6 W approx., switching accuracy - ±0.1mm
25	Equipment Tray- (For SAP-20B-I)	QTY: -1 No., MS powder coated tray with slots for placing components to be supplied with Electro-pneumatic supplementary kit.
26	Pneumatic Motor	QTY: -1 No., Unidirectional, Air pressure: 0-90 psi.
27	Limit Switch, Left Actuated-	QTY: -1 No., The electrical limit switch comprises a mechanically operated micro-switch. When the roller lever is pressed, for example, by control cam of a cylinder, the micro-switch is actuated. The circuit is closed or opened via the contacts. The micro-switch can be wired as a normally open or normally closed or changeover contact.

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		Contact load: maximum 5A, switching frequency: maximum 200Hz, Reproducible accuracy: 0.2mm, Switch travel: 2.7 mm, Actuator force: 5N
28	Limit Switch, right actuated-	QTY: -1 No., The electrical limit switch comprises a mechanically operated micro-switch. When the roller lever is pressed, for example, by control cam of a cylinder, the micro-switch is actuated. The circuit is closed or opened via the contacts. The micro-switch can be wired as a normally open or normally closed or changeover contact. Contact load: maximum 5A, switching frequency: maximum 200Hz, Reproducible accuracy: 0.2mm, Switch travel: 2.7 mm, Actuator force: 5N
29	APR with Gauge	Make: JELPC/ JANATICS / kushako/Eqvt, QTY: -01 Nos.,
30	Indicator & Distributor Unit, electrical-(Optional)	QTY: -01 No., The device contains an acoustic indicator and four lamps with terminals and three buses for power supply. Through-contact socket pairs per lamp allow the element to also be used as a Distributor.
31	Pneumatic – Electric convertor- (Optional)	Make: Orion/Eqvt QTY: -1 No., The pneumatic – electric convertor can fulfill 3 functions: Pressure Switch, Vacuum Switch and Differential Pressure Switch. Pneumatic Technical Data- Pressure Ranges: Pressure Switch connector, P1: 0.25 to 3.5bar, Vacuum Switch: -0.2 to -0.8 bar, Differential Pressure Switch: Connector, P2 - (-0.95 to 3.5 bar)
32	Pressure Sequence Valve assembly- (Optional)	Make: JELPC/ JANATICS / kushako/Eqvt QTY: -01 No., The pressure of the control signal can be set by means of the pressure setting screw (variable). Design type is poppet valve with return spring. Operating pressure range- (1.8 bar to 8 bar), control pressure range (1 bar to 8 bar),
33	Plug in adapter-	For mounting components with plug-in foot on the aluminum profile plate.
34	Quick Push-Pull connectors-	Sufficient shall be supplied for branching of the tubing for making of the circuitry
35	Plastic Tubing-	PUN 6×0.75, Exterior Diameter-6mm, Interior Diameter- 4mm, Transparent – 10mtrs/Blue-10mtrs
36	Set of molded Cables-	1 Meter (Red)- 08 No., 1 Meter (Black)-08 No, 1 Meter (Yellow)-02 No; BS5 Patch Cord – 05 No (Red), 05 No (Black)

Note: We will also provide headers, fitted with push on connector and other necessary fittings which would be required to develop the different said pneumatic circuits. Apart from the above we will also supply sintered bronze silencer, push on connector for 6 mm O.D tube, headers fitted with push on connectors and 6 mm O.D nylon tube of adequate length and necessary fitting

Range of experiments:

- ❖ Study of Advanced Electro – Pneumatic Trainer.
- ❖ Study of Self Reciprocation of Single Acting Cylinder by Using Electric Limit Switch & 3/2 Solenoid Valve
- ❖ Study of Self Reciprocation of Double Acting Cylinder by Using Proximity Switch & 5/2 Double Sided S.V.
- ❖ Study of Self Reciprocation of Double Acting Cylinder by Using Proximity Switches & 5/2 Single Sided S.V.
- ❖ Study of AND Valve (Dual Pressure Valve)
- ❖ Study of Shuttle Valve (OR Valve)
- ❖ Study of operation of Hand Lever Valve (3/2 & 5/2 DCV)
- ❖ Study of operation of 5/2 Single & Double Pilot Operated Valve
- ❖ Study of operation of 3/2 Single Pilot Operated Valve
- ❖ Study of Flow Control Valve & Pneumatic Motor
- ❖ Study of using Signal Input Electrical Box & Relay Three-Fold
- ❖ Study of Pneumatic & Electro-Pneumatic Circuits.

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Features: -

- ❖ Function & identification of Electro-pneumatic components & their symbols.
- ❖ Direct and indirect manual controls, stroke dependent controls, time dependent and pressure dependent controls
- ❖ Design & function of an electro-pneumatic System.
- ❖ Functional diagrams.
- ❖ Logic AND/OR function to start signals.
- ❖ Application and fault findings of Electro Pneumatic controls.
- ❖ Pneumatic power section – Electric control section.
- ❖ To empower students to design their own circuits.
- ❖ The kit is modular and upgradeable.
- ❖ Training literature – Instruction & operation manual, troubleshooting & maintenance tips will be provided in soft copy as well as hard copy format

System Dimension- 4 Ft. (L) X 2.5 Ft. ((W) X 6.5 Ft (H)

Weight of Machine: 140 Kg. Approx.

Services Required:

- ❖ Compressed clean, dry air supply at 4-5 Kg/cm².
- ❖ Electric Supply of 1ϕ 230 VAC motor.

Note:

All descriptive matter and illustrations are intended to give only a general idea of the equipment Detailed specifications may be altered at the company's discretion without any notice.

