Order Code - 52268
Customized Basic Electro-pneumatic Trainer

The Advanced Customized Electro Pneumatic Trainer (52268) is capable of being used to demonstrate the design, construction and application of electro-pneumatic components and circuits.

Objectives

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.

Features

- Function & identification of Electro-pneumatic components & their symbols.
- Direct and indirect manual controls, stroke dependant controls, time dependant and pressure
- dependant controls with time delay, pressure sequence valves.
- Design & function of a 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

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 Pressure Sequence Valve
- Study of Flow Control Valve & Pneumatic Motor
- Study of P To E Converter
- Study of using Signal Input Electrical Box , Relay Three Fold, Indicator & Distributor Unit
- Study of Pneumatic & Electro-Pneumatic Circuits.

Note: Specifications are subject to change.

Tesca Technologies Pvt. Ltd.
IT-2013, Ramchandrapura Industrial Area, Sitapura Extension,
Near Bombay Hospital, Vidhani Circle, Jaipur-302022, Rajasthan, India,
Tel: +91-141-2771791 / 2771792; Email: info@tesca.in, tesca.technologies@gmail.com
Website: www.tescaglobal.com

Technical Specification		
No.	**Item Name**	**Technical Specifications**
1	Compressor unit	Suitable for Pressure: 8bar, Delivery: 50 lpm (or more), Reservoir Capacity: 24 Litre (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	Max Stroke length–50mm , Bore Diameter – 20mm
2	Double Acting Cylinder	Max Stroke Length –100 mm, Bore Diameter – 20mm, Magnetic Type.
3	3/2 Way Valve	Manually Actuated Normally Closed
4	3/2 Way Valve	Pneumatically Actuated, Spring Return.
5	One way flow control valve	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	With manually operated switch.
7	5/2 way valve	Single Pilot, Pneumatically Actuated, Spring Return.
8	5/2 way valve	double pilot , Pneumatically Actuated
9	3/2 way Roller Lever Valve	Direct Actuation Normally Closed
10	Shuttle Valve (OR)	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)	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	0-16bar
13	Manifold with Self Closing	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)
14	Pushbutton station for electrical signal input	With 3 illuminated momentary contact switches (1NO+1NC) & 1 illuminated maintained contact switch (1NO+1NC) , Current Load -2A
15	Relay Station	With 3 relays each with contact sets (3NO+1NC or Change-Over Type) , 5A
16	3/2 Solenoid Valve, Single with LED	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	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	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	Input Voltage – 85-265VAC , Output Voltage :24VDC , Output Current : 4.5A, Short –Circuit Proof
20	Profile Plate	Anodized aluminum 1100x700mm with carriers mounting frames and mounting accessories (to be fitted pneumatic workstation)
21	Pneumatic workstation	With 40mm2 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 :

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Technical Specification

No.	Item Name	Technical Specifications
		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 3. Drawer Slide Height (Approx.)-85mm
22	DIN rail Channel	Carrier for Mounting components such as PB & Relay Boxes
23	Pressure Sequence Valve assembly (Optional)	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 – 8 bar). Control Pressure range - (1 – 8 bar)
24	Filter regulator with Gauge	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 ondensate 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
25	Indicator & Distributor Unit	1 No., The device contains an acoustic indicator and four lamps with terminals electrical-and three buses for power supply. Through-contact socket pairs per lamp allow the element to also be used as a Distributor.
26	Proximity switch with attachment-	2 No. : 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
27	Equipment Tray	1 No., MS powder coated tray with slots for placing components to be supplied with Electro-pneumatic supplementary kit.
28	Pneumatic Motor	Unidirectional, Air pressure: 0-90 psi.
29	Pneumatic – Electric convertor (Optional)	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)
30	Limit Switch, Left Actuated	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 microswitch 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
31	Limit Switch, Right 1 No., actuated	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 microswitch 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
32	Plug in adapter	For mounting components with plug-in foot on the aluminum profile plate.
33	Quick Push-Pull connectors	Sufficient shall be supplied for branching of the tubing for making of the circuitry
34	Plastic Tubing	PUN 4×0.75, Exterior Diameter-6mm, Interior Diameter- 4mm, Transparent – 10mtrs/Blue-10mtrs
35	Set of molded Cables	1.5 Meter (2 core) - 4 No. 1.5 Meter (3 core) - 3 No. 1.5 Meter (1 core): Red- 05 Nos, Black- 05 Nos. BS5 Patch cords: Red - 4 Nos., Black - 4 Nos.

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