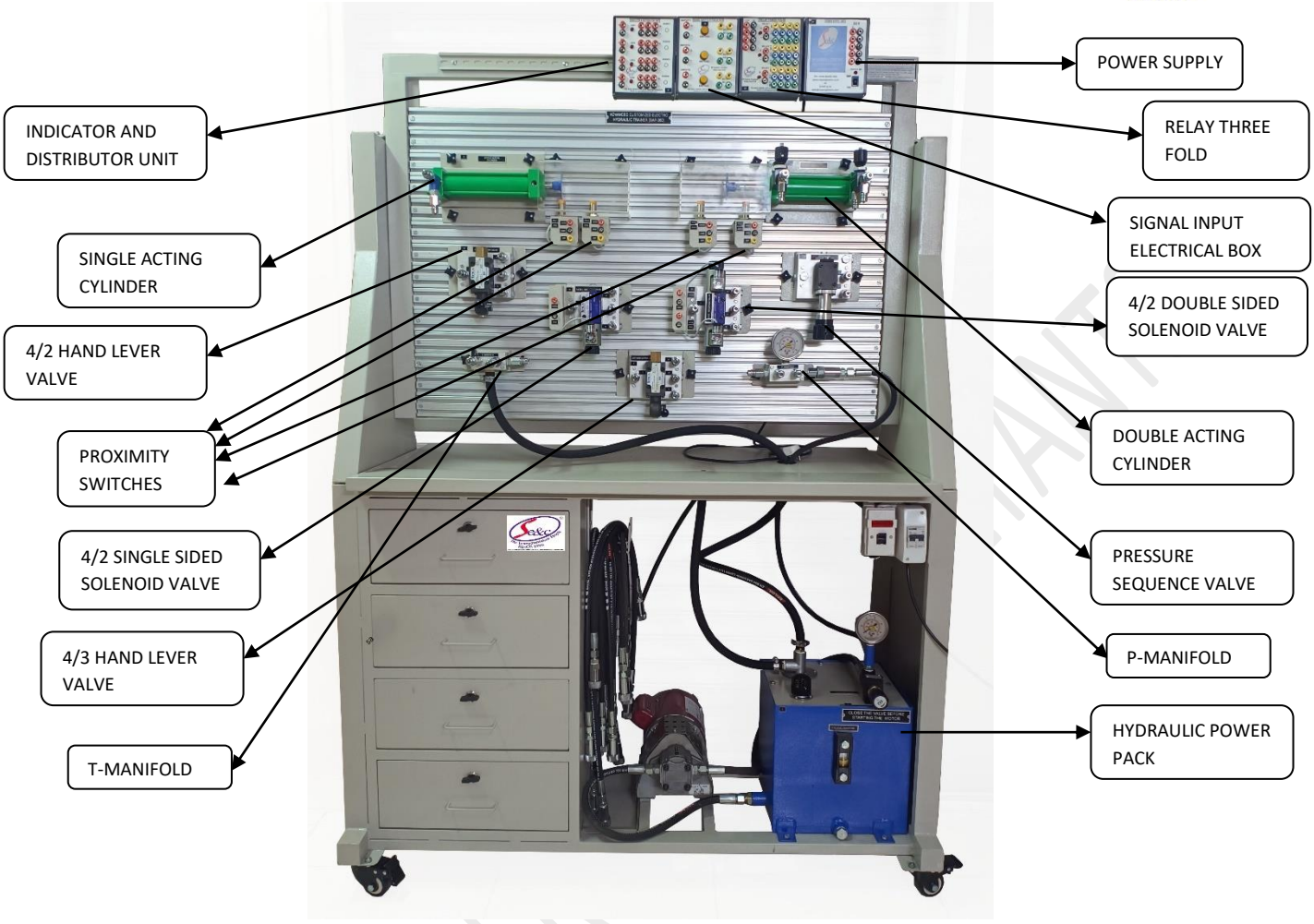
SAP E & C ADVANCED CUSTOMIZED ELECTRO-HYDRAULIC TRAINER
(PRODUCT CODE: SAP - 38D)



ADVANCED CUSTOMIZED ELECTRO-HYDRAULIC TRAINER (SAP-38 D)

- The **Advanced customized Electro-Hydraulic Trainer (SAP – 38D)** is capable of being used to demonstrate the design, construction and application of electro-hydraulic components and circuits.
- 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.
- This full-fledged simulator is used for imparting with a variety of 15 no's different circuits which covers the entire range of basic hydraulic system. The simulator and the accessories are suitable for working at 50 Bar pressure each hydraulic components of the simulator can with stand 200 bar working pressure. This unique trolley mounted simulator will be of robust in construction and compact in design there would be adequate space for proper orientation of valves. All the valves will be of subplate mounted with provision for fixing the hoses through quick release couplers facing the front of the simulator, valves along with sub-plate will be mounted on CR Sheet plate with sliding and locking arrangement. A valve stand will be provided at the rare side of the simulator structure for keeping the valves & hoses.
- The power pack will be mounted on the bottom of simulator structure and the headers will be located at the front of simulator. The simulator will show the application of linear actuator, rotary actuator, pressure control circuits, speed control circuits, sequence control circuits, energy saving circuits, logic control circuits etc.

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OBJECTIVES-

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

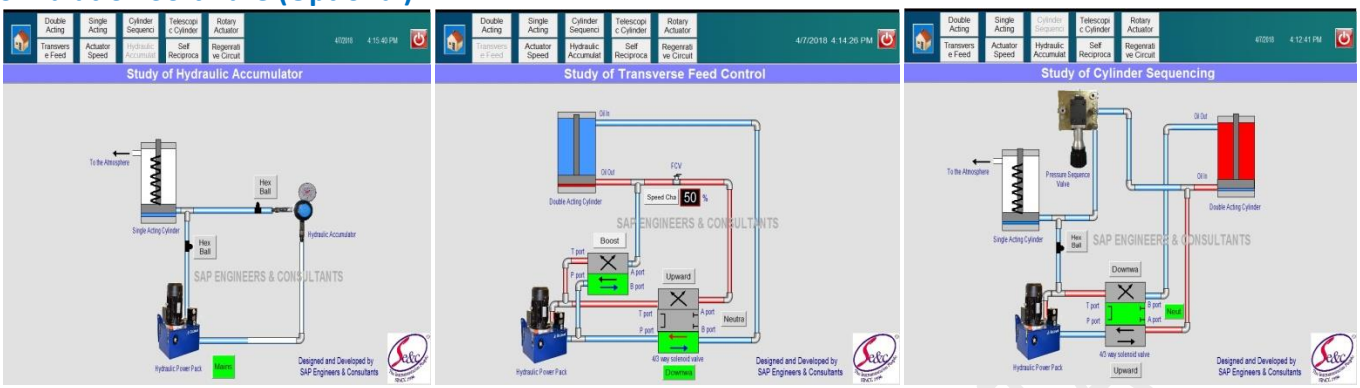
Technical Specification: -

No.	Item Name	Technical Specifications
1	**Profile Plates & Stand-**	The anodized Aluminum profile plate is the basis for training. All components fit securely & safely onto the profile plate with safe fixing arrangement. Grid Dimensions- 50mm, Size: 1000X700mm
2	**Single Acting Cylinder-**	Qty: 1 Nos., Bore: 40 mm × Stroke: 75mm/100mm, Mounting: Foot. **Make**: Polyhydron/ Equivalent
3	**Double Acting Cylinder-**	Qty: 1 No., Bore: 40 mm × Stroke: 75mm/100mm, Mounting: Foot. **Make**: Polyhydron/ Equivalent
4	**Solenoid Valve-**	Qty: 2 Nos., 4/2 Double sided-way ¼'' 24VDC & 4/2 single sided-way ¼'' 24VDC. **Make**: Polyhydron/ Equivalent
5	**Hand Lever operated Valves-**	Qty: 2 Nos., 4/3-way ¼'' & 4/2-way ¼" **Make**: Polyhydron/ Equivalent
6	**Proximity Sensors-**	Qty: 4 Nos., Supply 24 V DC, Type: Inductive 3 wire, Diameter: 18 mm, Sensing Distance: 5 mm.
7	**Pressure Gauge**	Qty: 2 Nos., Range- 100 Kg/cm^2, Dial Size: 50/60 mm, Glycerin Filled.
8	**Pressure Sequence Valve: -**	Qty: 1 No., ¼'' (F), Square Body, 60kg/cm^{2,} **Make**: Polyhydron/ Equivalent
9	**Oil Hydraulic power pack-**	MS Powder Coated Oil Tank, Capacity: 25/30 Liters. With **Oil Level Indicator**, **Breather , Filter , Suction & Drain Port** , **Relief valve with pressure gauge.** Gear Pump: 3-5 LPM, 40/60 Bar, Breather, Oil filter & suction, **Electric Motor-** Single Phase, 230VAC / 3 Phase 415 V AC, ½ HP/ 1 HP, DOL starter.
10	**P & T Manifold Block**	Qty: 1 No., 4 ways, 1/4" Connection **Make**: Polyhydron/ Equivalent
11	**Flow control valve**	Qty:2 Nos, 1/4" (F), Square body, Unidirectional, **Make**: Polyhydron/ Equivalent
12	**Check valve/NRV**	Qty:2 Nos, 1/4", Non return Valve, **Make**: Polyhydron/ Equivalent
13	**Pressure Relief Valve-**	Qty: 1 No ¼'', 60 Kg/cm^{2,} **Make**: Polyhydron/ Equivalent
14	**Relay, Three fold-**	Qty: 1 No., the device has three relays with terminals and two buses for power supply, Contact set – Single change-over switches, Contact load – maximum 5 A
15	**Signal Input, Electrical-**	Qty: 1 No., The device contains an illuminated push-button switch (control switch) & two illuminated push buttons (momentary contact switches) with terminals & two buses for power supply. Contact set- 2 makes, 2 breaks, Contact load- max 1A.
16	**Indicator & Distributor Unit, Electrical-**	Qty: 1 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.
17	**Power Supply Unit-**	Qty: 1 No., Input Voltage: 230 VAC ,(47 - 63 Hz.), Output Voltage: 24 V DC, short circuit proof, output current: Max. 4.5 A, Connection Cable – 3m
18	**Set of molded Cables-**	1 meter: Red(8nos.), Black(8nos.) and Yellow(2nos.) 12": Red(5nos.), Black(5nos.)
19	**PLC panel (Optional)-**	Qty: 1 No., Siemens LOGO / Allen Bradley Micro 810/ Equivalent. DI/DO: 8DI/4DO
20	**Hydraulic Motor (Optional)-**	Qty: 1 No., 3 LPM, Flange mounting type. **Make**: Polyhydron/ Equivalent
21	**Hydraulic Accumulator (Optional)**	Qty: 1 No., Capacity : 0.075 Liters, mWP bar: 250 bar Weight: 0.62 Kg, Connection: ½" BSP **Make**: Polyhydron/ Equivalent
22	**Pilot operated pressure relief valve (Optional)**	Qty:1 No., 1/4" Connection, **Make**: Polyhydron/ Equivalent
23	**Direct operated pressure relief valve (Optional)**	Qty:1 No., 1/4" Connection, **Make**: Polyhydron/ Equivalent
24	**Pressure Reducing Valve (Optional)**	Qty:1 No., 1/4" Connection, **Make**: Polyhydron/ Equivalent
25	**Hose pipe with QRC**	Hydraulic Rubber Hoses with Quick Release Coupler Fitted at both ends High quality Hose pipes:1/4",10nos., QUICK RELEASE COUPLINGS(QRC) :1/4",20nos.
26	**Meter-in Circuit & Meter Out Circuit**	
27	**Bleed-off Circuit**	
28	**Hydraulic Telescopic Cylinder (Optional), Hydraulic Deceleration Valve (Optional)** Qty:1 No., 1/4" Connection, **Make**: Polyhydron/ Equivalent	
29	**Limited Rotary Actuator (Optional), Hydraulic Counter Balance Valve (Optional)** Qty:1 No., 1/4" Connection, **Make**: Polyhydron/ Equivalent	
30	**Incorporation of Hydraulic Clamping Operation Module (Optional)** Qty:1 No., 1/4" Connection, **Make**: Polyhydron/ Equivalent	
31	**Incorporation of Hydraulic Press Module (Optional)** Qty:1 No., 1/4" Connection, **Make**: Polyhydron/ Equivalent	
32	**Incorporation Of Linear Actuator Testing Facility (Optional)** Qty:1 No., 1/4" Connection, **Make**: Polyhydron/ Equivalent	
33	**Incorporation of Gear Pump Testing Facility (Optional)** Qty:1 No., 1/4" Connection, **Make**: Polyhydron/ Equivalent	
34	**Hydraulic Pressure Switch (Optional)** Qty:1 No., 1/4" Connection, **Make**: Polyhydron/ Equivalent	
35	**Pulley Arrangement to carry load applied to the actuator**, i.e., Double Acting Cylinder (Optional)	
36	**Hydraulic Simulation Software (Optional)**	
37	**Sufficient Hydraulic Oil for hydraulic power pack.**	

Note: We will also provide pressure header, return header, leakage header fitted with quick coupler and other necessary fitting and fitting with quick couplers which would be required to develop the different said hydraulic circuits.

Simulation Software (Optional):



Range of experiments:

- Study of fundamental principles of Hydraulics & its applications.
- Study of different hydraulic valves.
- Study of Pressure Relief valve (Pressure Control)
- Study of Direction control Valves (Hand Lever operated)
- Study of Direction control Valves (Electrically/Solenoid operated)
- Study of Flow control valve - Meter-in circuit,
- Study of Meter-out circuit
- Study of Bleed-off circuit.
- Study of Transverse & Feed Circuit
- Study of control of operation of Single acting Cylinder
- Study of control of operation of Double acting Cylinder
- Study of power pack control characteristics.
- Study of sequencing of two cylinders using Pressure sequence valve.
- Study of operation electro-hydraulic control.
- Study of sequencing operation of two cylinders using electro-hydraulic components.
- Study of operation Regenerative circuit.
- Study of operation Hydraulic Motor (Rotary Actuator) (Optional).
- Study of operation Hydraulic Accumulator (Optional).
- Study of operation of Telescopic Cylinder (Optional).
- Study of operation of Limited Rotary Actuator (Optional).
- Study of operation of Simulation software (SCADA) (Optional).

Features: -

- Compact Ergonomic Design.
- ISO Symbol for each mounted component
- User Friendly, Self-Explanatory Systems.
- Leak proof Safety Measures, sturdy piping & Robust Construction.
- System Frame with Caster Wheel Arrangement for ease in movement.
- Inbuilt Safety Measures to avoid improper usage.
- Wall mounting assemblies of hydraulic actuator & self-reciprocating cylinder.

- Hydraulic motor (optional), Hand Lever Valves (D.C. hydraulic operated) Solenoid Valves (electro-hydraulic), Limit Switches.
- Proximity type sensors (electro-hydraulic),
- QRC Couplings provided Tubing /hose pipes for circulation of pressure.
- Manifold for distribution.
- Oil Hydraulic power pack for power supply.
- Optional components are available to allow fault operation and diagnosis training.
- 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 Ft. ((W) X 6.5 Ft (H),

Weight: Approx.: 190 Kg

Services Required: Electric supply 1ϕ 230 V AC, 6A, 50Hz / 3ϕ supply of 415 V AC, 16A, 50Hz suitably used for direct on line starting of an induction 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.

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