

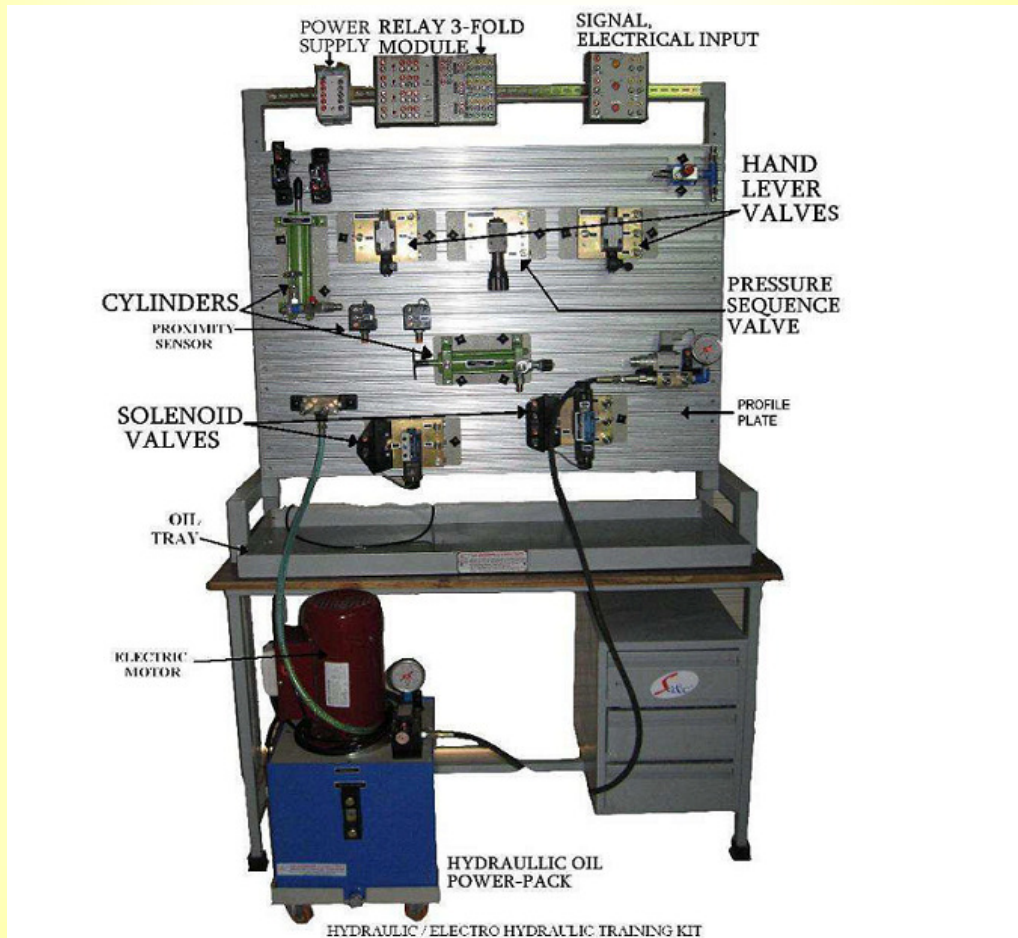
**HYDRAULIC & ELECTRO HYDRAULIC TRAINING  
SAP E&C  
KIT  
PRODUCT CODE: SAP-38 D**



The Hydraulic & Electro Hydraulic Training Kit (Double Sided) (Product Code: SAP-38 D) is capable of being used to demonstrate the design, construction and application of Hydraulic components and circuits.

The Kit is capable of being used to demonstrate the following:

- ⊗ Design & function of a Hydraulic System Basic
- ⊗ Design and Function of Valves
- ⊗ Symbols in accordance to ISO 1219.
- ⊗ Basic Hydraulic Circuit Diagrams on practical applications.
- ⊗ Hydraulic Controls with Pilot operated valves
- ⊗ Hydraulic Reservoirs, Flow distributors etc.
- ⊗ The Components are of Polyhydron / SAP E & C / Equivalent Make
- ⊗ 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.
- ⊗ All Hydraulic Connections are self closing, quick connector, Safety Clamping and quick plug in Locking System for Profile Panels – (unless specified against individual item)
- ⊗ The operating pressure in general is given below unless otherwise specified against individual item
  - 1] Operating pressure: 6MPa (60 Bar)
  - 2] Pmax: 12MPa (120 Bar)



Photograph: Hydraulic Training Kit

## Technical Specifications

- 1] Main Unit on Wheels Contains Drawers.
- 2] Single Acting Hydraulic Cylinder – Quantity: 1 No.  
Bore: 40 mm × Stroke: 75mm /100mm, Mounting: Foot.
- 3] Double Acting Hydraulic Cylinder (Normal / Transparent)– Quantity: 2 No.  
Bore: 40 mm × Stroke: 75mm /100mm, Mounting: Foot.
- 4] Flow Rate Meter i.e. Rotameter Quantity: 1 No.  
Oil Application, Range: 25 LPM , Glas Tube Type,  
Connection: ½”, Mounting: Inlet Bottom Outlet Top
- 5] Accumulator with Pressure Gauge Quantity: 1 No.  
Capacity 0.075 Ltrs, mWP bar: 250 bar Weight: 0.62 Kg, Connection: ½” BSP
- 6] Pressure Gauge – Quantity: 3 Nos.  
Damping Fluid: Glycerin, Range of Indication: 0-100 Bar  
Nominal Diameter: 63 mm, Max. Pressure: 120 Bar  
Connection: for coupling , nipple / socket
- 7] 3 Openings Distributor - Quantity: 2 No.
- 8] 4 Openings Distributor - Quantity: 2 No.
- 9] 4/2Hand Valve with Hinged Arm + Spring - Quantity: 2 No.  
Connection : ¼” , Hand Lever Operated, Max. Permissible P max. : 120 Bar  
Connection: for 2 coupling , 1 quick acting nipple /socket
- 10] 4/3Hand Valve with Hinged Arm for position - Quantity: 2 No.  
Connection : ¼” , Hand Lever Operated, Connection : ¼” , Hand Lever Operated, Max. Permissible P max. : 120 Bar  
Connection: for 2 coupling , 1 quick acting nipple /socket
- 11] Flow Rate Hand Valve : (Qty: 2 nos.)  
Adjustable by rotary knob, Actuation: Manual , Nominal Flow Rate : 9 Litres/min  
P max. : 120 Bar , Connection: for coupling , nipple / socket
- 12] Non Return Hand Valve– Quantity: 1 No.  
Operating Pressure : 5 Bar, Actuation: Hydraulic, Operating Pressure : 60 Bar  
Max. Permissible Pressure: 120 Bar, Connection: for coupling , nipple / socket
- 13] 3/2 Electric (Solenoid) Valve for Electrical Control (Single)- Quantity : 1 No  
Power: 12 W, Actuation: Electrical, Nominal Flow Rate : 9 Litres/min ,  
Operating Pressure: 60 Bar , Max. Permissible P max. : 120 Bar  
Connection: 4 coupling , nipple /socket
- 14] 4/2 way Electric (solenoid) valve for Electric Control Single - Quantity : 2 No.  
Power: 12 W, Actuation: Electrical, Nominal Flow Rate : 9 Litres/min ,  
Operating Pressure: 60 Bar , Max. Permissible P max. : 120 Bar  
Connection: 4 coupling , nipple /socket

15] Profile Plate (Double Sided) : 1 No.  
Material: Anodized Aluminium Profile  
All of the Components fit securely and safely onto the profile plate  
Grid Dimensions: 50mm  
Dimensions: 1100 X 700mm

16] Hydraulic Power Pack– Quantity: 1 No.  
MS Powder Coated Oil Tank, Capacity: 25 Liters. with Oil Level Indicator, Gear Pump: 3-5 LPM, 40-70 Bar,  
Breather, Oil filter & suction,  
Electric Motor: Single Phase, 0.5 HP/ 1HP, 230VAC /3 Phase, 0.5HP/ 1 HP,415V AC with DOL starter.

17] Hose Line with Quick Release Coupling – 10 / 12 nos.  
Hose Length : 600mm-6 nos., 1000mm – 4 Nos, 1500 – 2 Nos.  
Nominal Size: 6 mm Operating pressure: 60 Bar  
Max. Permissible P max. : 120 Bar , Connection: for 4 coupling , nipple /socket

#### ELECTRO HYDRAULIC COMPONENTS

- 1] Relays : Quantity: 4 Nos., i.e. Relay 3 Fold  
Contacts with power rail & earthing rail,  
Contact load – maximum 5 A, Cut off power – maximum 90W  
On time – 10 ms Off time – 8 ms
- 2] Switches : Quantity 3 Nos
- 3] Selector Switches: Quantity 3 nos.
- 4] Indicator & Distributor Unit: Quantity : 1 no.  
A] Indicator LED: Quantity 3 nos.  
B] Alarm LED : Quantity 3 nos.
- 5] Time Relay: Quantity 2 nos.
- 6] Limit Switch, Electrical actuation via trip cams Quantity: 4 Nos.  
Consists of a mechanically operated micro-switch, actuated by a roller lever, with spring return one change over contact  
Contact load : maximum 5A, switching frequency – maximum 200Hz,
- 7] Metal Sensor, i.e. Inductive Proximity Sensor: Quantity : 1 No  
Switching Voltage – 24 VDC, Residual ripple – max 10 %  
Nominal switching distance – 5 mm (material: mild steel)  
Output Function – normally open contact, positive switching, Output current – max. 400 mA
- 8] Non Return Valve with Control Point– Quantity: 1 No.  
Operating Pressure: 5 Bar, Actuation: Hydraulic, Operating Pressure : 60 Bar  
Max. Permissible Pressure: 120 Bar, Connection: for coupling , nipple / socket
- 9] Operated Pressure Relief Valve Pilot: Quantity : 1 No.
- 10] Electronic control board showing speed meters and indicators equipped with touch screen that can be used to teach all parts of the equipment using sound and pictures (Animation) with questions to evaluate each student and ability to control and generate faults (Arabic language support).

11] Cable set, Universal Quantity: 1 set

1.5 Meter (2 core)\_\_\_\_\_ 6 No.

1 Meter (3 core)\_\_\_\_\_ 3 No.

300 mm Red:- 10 No.

300 mm Black:- 10 No.

12] Table top Power Supply Unit – Quantity : 1 no

Input Voltage - 230/115 V Ac (47-63 Hz.),

Output Voltage – 24 V DC,

Output current – Max. 4.5 A,

Connection Cable – 1.3m

Dimension – 115 X 155 X 200 mm, short circuit proof,

#### Range Of Experiments:

- ⊗ Study of pressure control & direction control
- ⊗ Study of fundamental principles of Hydraulics & its applications.
- ⊗ Study of different Hydraulic circuits.
- ⊗ Study of flow control.
- ⊗ Study of hydraulic valves.
- ⊗ Study of cylinder control.
- ⊗ Study of power pack control characteristics.
- ⊗ Study of Hydraulic Accumulator.
- ⊗ Study of sequencing of two cylinders using sequence valve
- ⊗ Study of electro-hydraulic control.
- ⊗ Study of sequencing operation of two cylinders using electro-hydraulic components.

#### Services Required:

- ⊗ Single-phase supply of 230 V/ 3Phase 415 V 50 Hz suitably used for direct on line starting of an induction motor

System Dimensions: 4 Ft. (L) X 2.5 Ft. ((W) X 6.5 Ft (H)

#### 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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