



The Advanced customized Electro-Hydraulic Trainer (52290) 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.

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.

Features

- Compact Ergonomic Design.
- ISO Symbol for each mounted components
- User Friendly, Self Explanatory Systems.
- Leak proof Safety Measures, sturdy piping &

Note: Specifications are subject to change.

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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), 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

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 (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).

Services Required

- Electric supply 1 ϕ 230 V AC / 3 ϕ supply of 415 V, 50 Hz suitably used for direct on line starting of an induction motor

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	Bore: 40 mm x Stroke: 75mm/100mm, Mounting: Foot.
3	Double Acting Cylinder	Bore: 40 mm x Stroke: 75mm/100mm, Mounting: Foot.
4	Solenoid Valve	2 Nos., 4/3 way 1/4" 24VDC & 4/2 way 1/4" 24VDC.
5	Hand Lever operated Valves	2 Nos., 4/3 way 1/4" & 4/2 way 1/4"
6	Proximity Sensors	Supply 24 V DC, 4 nos. Type: Inductive 3 wire, Diameter: 18 mm, Sensing Distance: 5 mm.
7	Pressure Gauge	Range- 100 Kg/cm ² , Dial Size: 50/60 mm, Glycerin Filled.
8	Pressure Sequence Valve	1/4" (F), Square Body, 60kg/cm ²
9	Oil Hydraulic power pack	MS Powder Coated Oil Tank, Capacity: 25/30 Liters. With Oil Level Indicator, Breather, Filter, Suction & Drain Port Gear Pump: 3-5 LPM, 40/60 Bar, Breather, Oil filter & suction, Electric Motor- Single Phase, 230VAC / 3 Phase 415 V AC, 1/2 HP/ 1 HP, DOL starter.
10	P & T Manifold Block	4 ways, 1/4" Connection
11	Flow control valve	1/4" (F), Square body, Unidirectional
12	Check valve/NRV	1/4", Non return Valve
13	Relay, Three fold	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
14	Signal Input, Electrical	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.
15	Indicator & Distributor Unit, Electrical	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.
16	Power Supply Unit	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
17	Set of molded Cables	1.5 Meter (2 core) - 4 No. 1.5 Meter (3 core) - 4 No. 1/1.5 Meter (1 core): Red- 04 Nos., Black- 04 Nos. BS5 Patch cords: Red - 4 Nos., Black - 4 Nos.
18	PLC panel (Optional)	Siemens LOGO / Allen Bradley Micro 810/ Equivalent. DI/DO: 8DI/4DO
19	Hydraulic Motor (Optional)	3 LPM, Flange mounting type.
20	Hydraulic Accumulator (Optional)	Capacity : 0.075 Liters, mWP bar: 250 bar Weight: 0.62 Kg, Connection: 1/2" BSP
21	Hose pipe with QRC	High quality Hose pipes: 1/4", 10nos., QUICK RELEASE COUPLINGS (QRC) : 1/4", 20 nos.
22	Meter-in Circuit & Meter Out Circuit	
23	Bleed-off Circuit	
24	Hydraulic Telescopic Cylinder (Optional)	
25	Limited Rotary Actuator (Optional)	
26	Pulley Arrangement to carry load applied to the actuator, i.e., Double Acting Cylinder (Optional)	
27	Hydraulic Simulation Software (Optional)	
28	System Dimension: 4 Ft. (L) X 2 Ft. ((W) X 6.5 Ft (H),	

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