



PHOTO: Hydraulics Training Kit
(image for reference only, actual product may differ)

SYSTEM OVERVIEW

The **Hydraulics Training Kit** is a compact and modular laboratory system designed for practical training in hydraulic control systems and skill-test preparation. The system enables free configuration of hydraulic circuits using miniature industrial-type components mounted on a profile practice panel with secure safety locking mechanisms.

All hydraulic connections utilize fittings and hoses equipped with built-in check valves to ensure zero oil leakage during operation and disconnection. Components are designed for snap-in two-way one-touch mounting, allowing safe horizontal or vertical installation with a cam-and-spring locking mechanism.

Electrical components operate at 24 V DC and are provided with laboratory-compatible safety sockets (2 mm or equivalent), ensuring safe low-power training operation. The system is housed in a portable case with integrated power unit, valves, cylinders, flow control devices, pressure elements, electrical control modules, and interconnection accessories for comprehensive hydraulic experimentation.

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.



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IT-2013, Ramchandrapura Industrial Area,
Sitapura Extension, Jaipur-302022, India.



info@tesca.in
www.tescaglobal.com

TECHNICAL SPECIFICATIONS

Sl. No.	Item Name	Technical Specifications	Qty
1	Portable Case with Profile Panel	Case size 750 × 550 × 250 mm (±5 mm) with handle & wheels. Profile mounting panel with safety locking.	1 ea/set
2	Portable Hydraulic Power Unit	Power 0.37 kW (1/2 HP); supply AC 220 V, 1-phase, 2.9 A; flow 1.1 L/min; tank 2 L; external gear pump; operating pressure 0.5–6 MPa; distribution block with pressure gauge; 2 pressure ports & 2 drain ports; column connection Ø30.	1 ea/set
3	Double-Acting Cylinders	Spring return hand lever type; max operating pressure ≈12 MPa; sub-base with internal conduit & connector; snap-in mounting.	2 ea/set
4	4/2-Way Directional Valve	Hand lever, spring return; max operating pressure ≈12 MPa; sub-base with internal conduit & connector; snap-in mounting.	1 ea/set
5	4/3-Way Directional Valve (All Ports Blocked)	Hand lever; all-ports-blocked; max operating pressure ≈12 MPa; sub-base with internal conduit & connector; travel ≈45 mm.	1 ea/set
6	2/2-Way Check Valve (NC)	Spring return; DC 24 V coil; LED indicator; reverse polarity protection; max operating pressure ≈12 MPa; sub-base mounting.	1 ea/set
7	3/2-Way Solenoid Valve	DC 24 V; power 18 W; LED indicator; reverse polarity protection; max operating pressure ≈12 MPa; sub-base mounting.	1 ea/set
8	4/2-Way Solenoid Valve	DC 24 V; 18 W; LED indicator; reverse polarity protection; max operating pressure ≈12 MPa; sub-base mounting.	1 ea/set
9	4/2-Way Double Solenoid Valve	Double solenoid; DC 24 V; 18 W; LED indicators; max operating pressure ≈12 MPa.	2 ea/set
10	4/3-Way Double Solenoid Valve	All-ports-blocked; DC 24 V; 18 W; LED indicators; max operating pressure ≈12 MPa.	2 ea/set
11	Pressure Relief Valve	Relief & sequence function; max operating pressure ≈12 MPa; sub-base mounting.	2 ea/set
12	Adjustable Quick Exhaust Valve	Adjustable flow; rated flow 9 L/min; max operating pressure ≈12 MPa.	1 ea/set
13	Counterbalance Valve	Inlet range 0–12 MPa; adjustment 0–6 MPa; manual adjustment.	1 ea/set
14	Pressure Gauge	Range 0–100 bar; Ø60 mm dial; glycerin-filled; accuracy ±1.6% F.S.; max operating pressure ≈12 MPa.	4 ea/set
15	Pressure Regulator with Gauge	Relieving type; 0–100 bar; Ø60 mm dial; glycerin-filled; accuracy ±1.6% F.S.; max operating pressure ≈12 MPa.	1 ea/set
16	Bi-Directional Flow Control Valve	Rated flow 9 L/min; opening pressure 0.7 bar; max operating pressure ≈12 MPa.	2 ea/set
17	Uni-Directional Flow Control Valve	Rated flow 9 L/min; opening pressure 0.7 bar; max operating pressure ≈12 MPa.	2 ea/set
18	Pilot-Operated Check	Non-return type; area ratio 5:1; max operating pressure	1

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	Valve	≈12 MPa.	ea/set
19	Check Valve (1 bar)	Cracking pressure 1 bar; max operating pressure ≈12 MPa.	1 ea/set
20	Check Valve (5 bar)	Cracking pressure 5 bar; max operating pressure ≈12 MPa.	1 ea/set
21	Shut-Off Valve	Hand lever type; max operating pressure ≈12 MPa.	1 ea/set
22	T-Connector	Coupling socket with built-in check valve and two nipples.	4 ea/set
23	Hydraulic Hose 1000 mm	ID 6.3 mm; min bend radius 50 mm; max pressure 10.3 MPa.	2 ea/set
24	Hydraulic Hose 600 mm	ID 6.3 mm; min bend radius 50 mm; max pressure 10.3 MPa.	6 ea/set
25	Hydraulic Hose 400 mm	ID 6.3 mm; min bend radius 50 mm; max pressure 10.3 MPa.	12 ea/set
26	Power Supply	Input 220 V AC, 50–60 Hz; output 24 V DC, 2.2 A.	1 ea/set
27	Pushbutton Switch Set	Two pushbuttons + latching; 2NO–2NC; rating 2 A; 2 mm safety sockets.	1 ea/set
28	Electric Timer	ON-delay & OFF-delay; 2NO–2NC; rating 2 A.	1 ea/set
29	Triple Relay Module	Three 4C relays; rating 2 A; LED indicators.	2 ea/set
30	Electric Limit Switch (Left)	24 V DC; max 5 A; switching frequency 200 Hz; repeat accuracy 0.2 mm; travel 2.7 mm; operating force 5 N.	2 ea/set
31	Electric Limit Switch (Right)	Same as item 30.	2 ea/set
32	Electrical Cable Set	2 mm cables – red, blue, black assorted lengths.	1 ea/set
33	Pressure Releaser	Manual residual pressure release type.	2 ea/set
34	Accessories	User manual (English).	1 ea
35	Installation & Inspection	Installation at site.	1 job
36	Warranty	1-year warranty.	1 year

RANGE OF EXPERIMENTS

- Basic hydraulic circuit assembly and testing
- Directional control valve operation (4/2 and 4/3 configurations)
- Solenoid valve operation and electro-hydraulic interfacing
- Pressure regulation and pressure relief applications
- Counterbalance and pilot-operated check valve experiments
- Flow control (bi-directional and uni-directional)
- Sequential control using double-acting cylinders
- Timer and relay-based electro-hydraulic circuits
- Limit switch integration in hydraulic positioning systems

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- Safe hose connection, mounting practice, and pressure monitoring

FEATURES

- Portable integrated hydraulic training system with power unit
- Leak-proof quick-connect hydraulic fittings with built-in check valves
- Snap-in modular mounting with cam-and-spring safety locking
- Miniature industrial-grade hydraulic components
- 24 V DC electrical operation with laboratory-compatible safety sockets
- Built-in pressure monitoring and regulation devices
- Suitable for skill-test preparation and laboratory training

SERVICES REQUIRED

- Standard **230 V AC, 60 Hz** power supply
- Proper earthing/grounding required

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