



## HYDRAULIC BENCH TRAINER



**DL 8110H**

The **DL 8110H** is a robust and flexible hydraulic bench with industrial characteristics designed for the study of basic hydraulic automation topics. The bench characteristics permits to broaden the didactic experience with additional trainer kit as: additional kit for the study of advanced hydraulic (DL 8110H-2), additional kit for the study of electromechanics hydraulic (DL 8110EH) and additional kit for study of proportional control (DL 8110HCA).

### Highlights

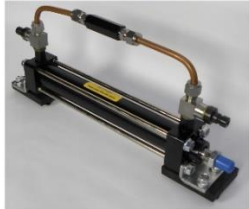
- The system can be used to design hydraulic circuits and to learn the hydraulic control techniques.
- The components of the trainer are based on standard industrial hydraulic components.
- A T-slot aluminium platform allows a rapid connection of the components
- Multiple didactic experiences with the addition of accessories kit

### Technical features:

- Dimensions: 1500mm x 780mm x 1700mm
- The bench includes 4 wheels and three drawers.
- Power supply: Three phase by the mains



## THIS TRAINER IS COMPOSED AS FOLLOWS:



- Work bench complete with metal working panel with holes for clamping the hydraulic components without using additional tools, 4 wheels and 3 drawers for storing components.
- Hydraulic power unit assembled onto the metal structure, under the panel; 4.5 liters /min., noise level 60 db - 1 meter, pressure relief valve, oil level viewfinder, air inlet filter, oil return filter, 1 pressure gauge, oil reservoir 30 liters, on-off control box with two push buttons and motor overload protection.
- Pressure relief valves 2 ...125 bar (2 off )
- One way flow restrictor
- Shut off ball valve
- Two way flow restrictor
- "T" distributor with pressure gauge
- Cross distributor, 4 connections
- Pressure compensated one way flow regulator
- Four connections distributor on manifold with pressure gauge 0 .. 100 bar
- One way restrictor (non-return valve)
- Double acting differential cylinder
- Piloted one way restrictor
- 2/2 manual acting valve, spring return
- 3/2 manual acting valve, spring return
- 4/2 manual acting valve, spring return
- 4/3 manual acting valve, spring centred
- Set of tubes for testing pressure drops
- Set of 12 hoses with quick female connectors



## Additional kit

### ADVANCED HYDRAULIC KIT - DL 8110H-2



- Four connections distributor on manifold with pressure gauge 0 .. 100 bar
- Pressure reducing valve. 3 ways, 2 ...125 bar
- Pressure relief valve with spool and clamping, 2...125 bar
- Pressure relief valve with spool, piloted, 2...125bar
- Hydraulic motor
- Double acting cylinder, 32, 16 x 200mm stroke
- 2/2 valve, ball actuated, spring return
- Counter-weight 10 Kg with protection.
- Hydraulic diaphragm accumulator, 2 manual valves and a relief security valve
- Set of 10 hoses with quick female connectors 10pcs

### ELECTRO-HYDRAULIC TRAINER KIT - DL 8110EH



- Electronic power supply module, with overload and short circuit protection
- Control unit, with 4 push buttons, 1 switch, 1 connection / disconnection electronic timer, 4 indicator lights, 6 connection dividers for positive voltage and 6 for negative voltage
- Relay module, with 3 relay units, with 4 exchanged (switched) contacts each, an on-off light indicator on every relay solenoid, spark suppressing
- diode on every solenoid
- 4/2 solenoid valve, spring return
- 4/3 solenoid valve, spring centered
- Set of connectors for solenoids
- Limit switch, with 1 normally closed contact + 1 normally open contact (3 off) with support.
- Adjustable pressure switch, max. pressure = 125 bar.
- Cable + connector for pressure switch, limit switch
- Sets of 4mm banana connect cables and wires



## PROPORTIONAL CONTROL KIT - DL 8110HCA



- Tee couplings to distribute flow to 2 components
- Hydraulic sequence valve, operating pressure 60 bar, max. 120 bars
- Balanced pressure hydraulic valve
- Check valves controlled, DC 24V, operating pressure 60 bar, max. 120 bars
- Proximity sensors, inductive with LED (yellow) indicating the switching state. The sensor is protected against reverse polarity, overload and short circuit. Switching voltage: 10 - 30 V DC
- Proportional amplifiers and setpoint module
- Proportional pressure-limiting valve
  - Pressure maximum 12 MPa (120 bar)
  - Pressure adjustment of 6.3 MPa (63 bar) for 600 mA at 1 l / min
- Electro proportional valve 4/3
  - Operating pressure p: 6 MPa (60 bar)
  - Max. Permissible pressure Pmax: 12 MPa (120 bar)
  - Design: with direct drive drawer
  - Control: Proportional coil, sealed, pushing
  - Nominal flow qN: 1.5 l / min, with dpN = 0.5 MPa (5 bar) / pilot edge
  - Rated current: 800 mA
- Proportional amplifiers
  - Controlling proportional valves, designed to allow the control of two independent coils (1 channel) or a two-coil (2-channel) distributor, such as a 4/3 proportional valve.
- Setpoint values unit with the following functions:
  - Generation of programmable setpoint values, Programmable ramps, Cyclical sequence of setpoint values and ramps, stopwatch
- Pressure filter
  - Filter blocking indicator
  - Service pressure p: 6 MPa (60 strips)
  - Maximum allowable pressure Pmax: 12 MPa (120 bar)
  - Filter micro: 5 microns
- 4/2-way monostable solenoid valve
- 4/3-way solenoid valve, spring center