



**DEGEM  
SYSTEMS**

Tech-Prep

Solar energy training system

Wind energy training system

Solar water heating energy  
training system

Polar robot & robotics principles  
training system

Conveyors & sorting machines  
training system

Cartesian robot & computerized  
storage training system

CNC lathe machine training  
system

CNC milling machine training  
system

Process control training system

Basic electronics training system

Basic communications systems

Basic pneumatics training system

Basic hydraulics training system

Basic mechanics training system

Pressure forming & inflation  
training system

Bending & vacuum forming  
training system

# TP-3724

## Basic Hydraulics Training System

### Objectives

Hydraulics is the engineering field which deals with the creation and transfer of mechanical power in pressurized liquids.

In this course, the students are exposed to various aspects of hydraulics. The course provides the students with an understanding and awareness of uses and applications of hydraulics in the world surrounding him. These include aircraft landing gear, hydraulic lifts, braking systems, etc. The students will gain an understanding of the physical and scientific aspects of hydraulics and their relationship with various commonly found technological applications.

Elementary hydraulic components are introduced and exercised. Industrial applications are demonstrated and explained.

### Description

The system includes two equipment panels which are mounted on a common desktop console. The unit includes various types of pneumatic valves and cylinders, pressure gauges, a flow meter and assorted hosing accessories. All measurements are carried out within the unit.



# Specifications

## LEARNING PROGRAM

- Fluid, fluid power, open and closed hydraulic systems
- Hydraulic fluid properties
- The hydraulic jack
- Pressure, force, area, volume, capacity
- Hydraulic leverage
- Hydraulic components: tank, pump
- Valve types in hydraulic systems
- The hydraulic actuator
- The hydraulic circuit
- Directional control valves
- Experiments with hydraulic circuits demonstrating the use of some of the studied components

## TECHNICAL CHARACTERISTICS

- Pressure gauge (0 to 12 bar; 2 pieces)
- On-off electrical switch (1 piece)
- Flow measuring device (1 piece)
- Non-return valve (1 piece)
- Directional control valve; 5/2 muscular spring (1 piece)
- Adjustable restrictor valve (1 piece)
- One-way restrictor valve (1 piece)
- Single-stage pressure relief valve (1 piece)
- Double-acting hydraulic cylinder (2 pieces)
- Load spring scale (1 piece)
- Roller valve; 5/2 return spring (1 piece)
- Manifold (4 outlets)
- Hydraulic power unit (located in power supply base unit )
  - Oil tank
  - Hydraulic pump (27V DC 6A)
  - Pressure regulator (6 to 8 bars)
  - Oil flow 1.2 liter/minute
- General dimensions (455 x 560 x 560 mm)

## SUPPLIED ACCESSORIES

The learning unit is supplied with the following accessories:

- A set of hydraulic hoses (with non-return valve quick fittings)
- Quick fittings with non-return valves for each component
- T-connectors
- Courseware or soft copy electronic book for MS-Windows PC

## REQUIRED ACCESSORIES

Hydraulic oil (General Motors Dextron II oil, Daimler Benz 236.6 oil or equivalent)

## OPTIONAL ACCESSORY

Personal computer with MS Windows (not included)

The student manual contains the essential theory and detailed procedures for each hands-on activity.