GR0300

EDUCATIONAL AND TRAINING EQUIPMENT FOR REFRIGERATION AND AIR CONDITIONING
The widespread use of air conditioning systems, both civil and industrial, in order to increase the comfort at work and at home, as well as the use of refrigerating systems for food preservation, gives an idea of the operating dimensions of this field.

The continuous expansion of the range of applications of cold and the improvement of all the technologies concerned with it, requires highly specialized and skilled technicians having a suitable theoretical and practical acquaintance in order to carry out the assembling, testing, checking and maintenance of such plants.

It is a duty of the school to guarantee this formation and make it possible by organizing courses where the theory is directly supported by the practice on suitable educational equipment.

The equipment designed and produced by Prodit are the indispensable tools for vocational formation since, beside pursuing the objective of the practical training, they also allow to acquire the manual skill necessary to operate in this field.

Furthermore, the design of these equipment, takes into great consideration the use of industrial components in order both to reproduce as well as possible the conditions the students will find in their professional activity and to guarantee a high reliability of the equipment thus preventing expensive maintenance costs.
**DEMONSTRATIVE CYCLE REFRIGERATION AND HEAT PUMP STUDY UNIT**

Compact table top unit enable to the study in the practical aspect of the refrigeration cycle. It also allows a theoretical analysis and calculation on the unit performance by means of the instrumentation fitted on.

- Self contained table top unit
- Transparent condenser and evaporator for immediate visualisation of the phenomena involved
- Digital multi probe temperature measurement
- Energy balance determination
- Variable evaporation/condensation conditions through manually adjustable expansion valve.

The condenser and the evaporator are realized with high resistance clear material; their back illumination makes the condensation and evaporation phenomena fully visible in a very impressive way.

For further information please ask for the relevant Technical Description.

**Experimental range:**

- capacity of the evaporator (measurement of the cooling effect)
- curves plotting of global efficiency against condenser saturation temperature
- overall heat balance of the unit
- pressure measurement of the cycle components
- temperature measurement of the cycle components
- visual observation of the condensation phenomenon under various operating condition
- visual observation of the evaporation phenomenon under various operating condition
- curves plotting of cooling effect against condenser saturation temperature
- curves plotting of cooling effect against evaporator saturation temperature
- pressure-temperature relationship of refrigerant
- demonstration of the refrigerant pumping into the condenser
- evaporation and condensation
- cyclic process on the p-h state diagram
- calculation of the heat transfer rate at evaporator and condenser
- determination of efficiency and coefficient of performance

Code: GR0300/000036 SERIES
REFRIGERATION AND AIR CONDITIONING

Educational and Training Equipment

Available options:
- Recirculating Air Conditioning Study Unit with forced air condenser
- Water condenser instead of forced air condenser
- Cooling tower option for condenser water cooling
- Computerized Data Acquisition and processing

For further information please ask for the relevant Technical Description.

Experimental range
- condenser heat balance
- refrigerant flow measurement
- air properties - psychrometry charts: use, reading, plotting & problem solving
- air treatment processes demonstration: heating, cooling, h-u-dehumidifying
- air treatment processes demonstration: recirculation and mixing
- moisture content determination
- air flow measurement with orifices
- determination of the State Points before and after the various process (psych. chart)
- testing of small components under environmental controlled conditions
- comparison of the heat transfer rate to the air with what shown on the control panel
- conditioning of room air
- mixing of various air flow
- humidifying and de-humidifying on a h, (omega) diagram
- depiction of a p-h state diagram
- effects of a heat load humid (latent) and dry (sensitive)
- familiarization with a multiple circuit control processor
- automatic operation with control processor
- recirculation and fresh air operation

Code: GR0000/000/029 SERIES
COMPRENSIVE AIR CONDITIONING STUDY UNIT

The comprehensive air conditioning unit is a fully functional system where, through an air conditioning duct with ventilation fan, the airflow climatic conditions are controlled by means of a cooling evaporator and heater Hermetic compressor. Fully instrumented with gauges, pressure switch, temperature display, heater control, fan speed control.

An heating element is placed in the evaporator delivery duct. Student can set the heating power by a control knob placed on the front panel of the trainer, simulating this way different work conditions.

A circuit layout is printed onto a panel to show where main devices, temperature probes and gauges are located along the refrigerant circuit and air paths.

Experimental range:

- Operating cycle on pressure-enthalpy diagram.
- Calculation of coefficient of performance
- Calculation of compressor performances.
- Calculation of efficiency of the real cycle with reference to the ideal cycle.
- Air temperature at the evaporator outlet against refrigerant flow rate.
- Evaporator overall heat transfer
- Condenser overall heat transfer.

Code: GR0300/000/115
CHILLER EDUCATIONAL TRAINERS

Features:
- Fully instrumented with digital read-out of temperature
- Compact high capacity experimental test unit
- Provides self-sealing quick action connections between modules.
- Components, controls, and instruments by internationally known manufacturers
- Incorporates refrigerant delivery and suction pressure gauges and switches.

The trainer consists of two separate modules fitted on wheeled frame for experiments on water refrigerators (chillers). The first module includes the refrigerant circuit, with all instruments and safety devices while the second carries the chilled water circuit, including all the measurement facilities and the external load simulator to perform tests under different conditions of operation.

Operating with refrigerant R407C.

For the study of water chiller industrial applications Prodit has available a variety of options fully instrumented to allow for a better understanding of this type of refrigeration systems.

Options available:
- wide range of cooling capacity from 5000W up to 16000W or more
- various type of evaporators (heat exchangers) from plate type to Shell or Tube or others
- additional cooling tower available both of evaporative type or forced convection type
- industrial/commercial system with two compressors and chilling/heating functions for summer/winter operation
- fault simulation option
- computerized Data Acquisition and Processing

For further information please ask for the relevant Technical Description.

Experimental range
- efficiency of the refrigeration cycle
- condenser heat balance
- evaporator heat balance

Code: GR0300/000/063 SERIES
REFRIGERATION TRAINER WITH WATER COOLED CONDENSER

The unit consists of a frame with a back-board which carries the system components. Equipped with hermetic compressor with water condenser, forced air evaporator, H. & L. pressure gauges, H. & L. pressure switch, sight glass, service valves, expansion devices, temperature display, and unit controls.

Cod.: GR0300/000/129

DOMESTIC AIR CONDITIONER DEMONSTRATOR

The Domestic Air Conditioning Demonstrator is a fully functional system which includes a hermetic compressor with forced air condenser, a domestic evaporator, equipped with gauges, switch, temperature display, unit controls.

Code: Gr0300/000/121

DUAL SPLIT AIR CONDITIONING TRAINING UNIT

The unit is fully instrumented in order to allow students to measure all the working parameters of the didactic bench. This training unit consist of a castored frame which carries the indoor part of the unit comprising 2 evaporators, air filters and centrifugal fans fitted on the upper part of the frame while on the lower part of it is fitted the outdoor unit comprising the compressor and the air condenser. For maximum educational validity the unit is fitted with cycle reversing device in order to work for both conditioning or heat pump cycles.

Cod.: GR0300/000/066C

HEAT PUMP DEMONSTRATOR

The heat pump demonstrator has been designed to practise students with a simple heat pump system in order to allow an easy comprehension of the principle of operation. This unit consists of a pompact and sturdy bench-top frame which carries all the main real components involved in the cycle. Fully instrumented with needed instruments to get a monitoring of the cycle.

Experimental range:
- Understanding of phenomena involved in a heat pump unit
- Knowledge of main components of a heat pump
- Measurement of process pressures (high and low)
- Introduction to Mollier diagram

Cod.: GR0300/000/224A
TRAINING UNITS ON DOMESTIC REFRIGERATORS

Domestic Refrigerator Simulation Trainer consisting in a complete refrigeration circuit of a domestic refrigerator fitted on a wheeled frame.

All components of a domestic refrigerator are positioned in a clear wall cabinet as in an actual refrigerator. The whole refrigeration circuit is fully visible and all components evidenced.

The trainer lay-out includes a hermetic compressor, static condenser, filter drier, expansion capillary and plate evaporator.

Despite the simplicity of the circuit, the unit is fitted with complete instrumentation including:

- Low and high pressure gauges for compressor suction and delivery pressure
- Five digital temperature meters with probes fitted along side the circuit in the most significant points
- Mimic diagram (lay-out) fitted on the top of the unit to show the position of each component in the circuit, its name and its functions.

Options available:

- Domestic Refrigeration Simulation Trainer clear walls type, single evaporator and condenser, hermetic compressor
- Two cells option for positive and negative temperature
- Fault simulation option
- Computerized data acquisition and processing
- Panel option with refrigeration circuit laying on a front panel for easy comprehension of the circuit lay-out
- Additional Instruments Option for measurement of power, current and voltage.

Experimental range

- determination of the refrigeration capacity of the plant
- compressor motor electric power measurement
- pressure/temperature relationship between suction and delivery
- diagnosis of the system and malfunctions
- study of the components in a typical cooling system for domestic use
- measurement of relevant temperatures
- thermodynamic Cyclic process on a p-h state diagram
- fault finding (blocked filter, blocked evaporator)
- determination of the C.O.P. of the system
- energy balance
- assembly and disassembly of the unit
- filling of the refrigeration unit and leak detection

For further information please ask for the relevant Technical Description.
CHILLING/HEATING TRAINING SYSTEMS WITH COOLING TOWER FOR COMMERCIAL AND INDUSTRIAL AIR CONDITIONING

Features:
- Fully instrumented with digital read-out of temperature
- Reproduces characteristics of large plant operation
- Incorporates refrigerant delivery and suction pressure gauges and switches
- Cooling tower for condenser water cooling

Air/water chilling training unit for commercial and industrial air conditioning composed by:
- Water chiller with water/water heat exchanger
- Evaporative cooling tower to cool the condenser water
- Water/air room convector to heat or refresh the ambient air
- The system includes a rotary type hermetic compressor, plate type evaporator and condenser, complete set of components for the refrigeration cycle.
- The evaporative cooling tower is complete with fan, tower packing materials, circulating pump.
- The thermal load consists of a water/air room convector.

Available options:
- Forced air cooling tower instead of the evaporative type
- Reversing cycle chilling unit for summer/winter operation
- Fault simulation
- Computerized data acquisition and processing

For further information please ask for the relevant Technical Description.

Experimental range
- capacity of the condenser (measurement of the heating effect)
- capacity of the evaporator (measurement of the cooling effect)
- overall heat balance of the unit
- flow measurement of the cycle components
- pressure measurement of the cycle components
- temperature measurement of the cycle components
- heat balance of the cooling tower
- cooling capacity of the cooling tower
- influence of air humidity on evaporative cooling tower capacity - psychrometry

Code: GR0300/000/098 SERIES
AUTOMOBILE AIR CONDITIONER TRAINING UNIT

The GR0300/000/009 training units allow students to become familiar with Car Air Conditioning systems fundamentals.

Complete Car AC plant fitted on sturdy steel wheeled frame operated by electrical motor in order to run it as on the car allowing study and practice on car air conditioning plants.

Passenger compartment and thermal load simulation room provided with transparent walls in order to allow the student to see any component of the system. Equipped with control board and outdoor/recirculation air circulation device to control the ambient temperature with reality.

Options available:

- Single or three-phase power supply
- Variable speed, trunnion mounted drive motor for torque, speed, power and energy balance determination.
- Car air conditioner do-it-yourself assembly kit. All components of a car air conditioner shipped with all necessary assembly drawings and instructions together with cables fastening and other parts.

Ask for relevant K1800/K06/SERIES catalogue.

For further information please ask for the relevant Technical Description.

Experimental range

- investigation on refrigeration cycle variations for different thermal load and compressor revolution speed
- practice on effects of malfunctions such as: overcharge of refrigerant
- practice on effects of malfunctions such as: undercharge of refrigerant
- practice on effects of malfunctions such as: coil restriction
- practice on effects of malfunctions such as: loose expansion valve bulb
- determination of compressor shaft torque curves
- determination of compressor power curves
- compressor power curve against condensing pressure

Code: GR0300/000/009
REVERSE-CYCLE REFRIGERATION TRAINER

The unit consists of a frame with a back-board which carries the system components. Equipped with hermetic compressor with forced air condenser, forced air evaporator, H. L. pressure gauges, reversing valve, H. L. pressure switch, sight glass, service valves, expansion devices, temperature display, and unit controls.

Code: GR0300/000/118

INDUSTRIAL REFRIGERATION TRAINER - WITH REVERSE CYCLE FACILITIES

Designed to enable students to learn operating and servicing techniques of larger systems. The system is equipped with water cooled condenser, water cooled evaporator, reversing valve, expansion device, H. & L. pressure gauges, H. & L. pressure switch, sight glass, service valves, temperature display, flow meters on water lines and unit controls.

Code: GR0300/000/120
ABSORPTION REFRIGERATION UNIT

- It works with triple energy supply: gas, 220 V AC, or 12 V DC
- Tilting system for levelling importance demonstration.
- Thermal load and instruments for energy balance det.
- Circuit lay-out fitted on the unit for easy circuit understanding

This unit enables the demonstration and the study of the absorption type refrigeration cycle under different operating conditions.

Available options:
- Standard unit, table top type, with only the transparent body demonstrative triple-absorption unit
- Option of a second absorption system industrial type for actual determination of operation parameters
- Computerized Data Acquisition and Processing

For further information please ask for the relevant Technical Description.

Experimental range:
- comprehensive study of absorption refrigeration cycle
- principle of operation of an absorption refrigeration system with HV electric heater
- principle of operation of an absorption refrigeration system with LV electric heater
- principle of operation of an absorption refrigeration system with gas heater
- familiarisation with the components of an absorption refrigeration system
- demonstration of the absorption refrigeration process
- temperature measurement at relevant points of the system

Code: GR0300/000/135 SERIES
SINGLE-PHASE COMPRESSOR TRAINER

The Single-phase Compressor Trainer provides students with the opportunity of investigating and testing the connections of a single-phase compressor using various wiring configurations, such as capacitor start, capacitor run, as well as PSC (permanent split capacitor) system.

Suction and discharge pressure can be varied in order to realize realistic operating conditions.

The various components are put into the system with patch cords into plug-in jacks.

The unit consists of a table-top frame which carries a back panel on which the circuitual components, while the hermetic compressor is placed onto the frame base board.

The Trainer includes:

- 1-Ph power supply safety with differential switch and key
- compressor disconnect-switch
- hermetic compressor
- compressor overload (thermal relay)
- compressor current relay (RSIR - CSIR)
- compressor start capacitor with bleeder resistor
- compressor run capacitor module
- thermostat switch
- low pressure (suction) switch with differential
- high pressure (delivery) switch with differential
- signalling lamp
- fuse holder with spare fuses
- high pressure gauge
- low pressure gauge
- suction pressure shut-off valve
- delivery pressure shut-off valve

Code: GR0300/000/114F
AIR CONDITIONER AND HEAT PUMP CONTROLS TRAINER

The Air Conditioner and Heat Pump Controls Trainer gives students the opportunity to practice on how to operate, test and check the electrical controls of plant that includes a heat pump:

The Unit consists of a console where the actual components of air conditioning installations are fitted. The trainer simulates a system which controls a room cooling and heating.

The control components are ones in actual use and students learn to identify the various components by appearance and function and practice continuity and functionality test experience.

The Trainer has the electrical circuit diagram printed on the front panel, it allows to introduce faults to be identified from the students in order to gain experience.

The Trainer allows to operate on the following components:

- defrost timer and control device
- thermostat for temperature control
- hygrostat and humidifier for humidity control
- compressor start relay
- compressor motor overload
- capacitor for the compressor starting
- reversing solenoid valve
- HP and LP pressure switches
- thermostatic heat control for the heater operation
- thermal cut-out device for the heater circuit
- capacitor for the fan starting
- simulated two speed fan unit
- power contactors and relays

Code: GR0300/000/114H
EVAPORATIVE COOLING TOWERS

This unit has been designed to fully investigate around evaporative type cooling tower and relevant process as they are used in industry and Refrigeration-Air-Conditioning Plants.

The unit consists of a sturdy wheeled steel frame which carries:

- variable speed centrifugal circulation pump, boiler for water heating, variable speed centrifugal fan for air stream drafting, transparent cooling tower with interchangeable packing (filling) materials, backwater tank together with instruments for experiment performing such as flowmeter, digital temperature meters with 8 probes, psychrometric taps evaporated water determination device, adjustable slope manometer for air flow determination with calibrated orifice.

Experimental range:

For the different packing materials it is possible to:

- Study on heat transmission between air and water
- Mass transfer balance determination
- Energy transfer balance determination
- Plotting of the curves Cp at constant pressure against temperature
- Plotting of the curves Cv at constant volume against temperature
- Plotting of the curves mass enthalpy against mass entropy
- Plotting of the curve "tower characteristics" (KaV/L) against L/G ratio as linear or log-log curves
- Plotting of the curves enthalpy against water temperature
- Plotting of the curves internal energy against water temperature

Available options:

- Film and splash type filling (packing) materials
- Computerized data acquisition and processing

For further information please ask for the relevant Technical Description.

Code: GR0305/000/098 SERIES
BOILING AND CONDENSING HEAT TRANSFER APPARATUS

This apparatus has been developed in order to allow students to perform experiments on heat transfer from a solid surface to the surrounding liquid under various conditions of convection and nucleate boiling. Digital display of temperature of the liquid of the heating element surface, and of the cooling element surface.

For further information please ask for the relevant Technical Description.
Heating power is measured with V/Ammeter, water flowmeter for cooling flow rate determination.

Experimental range:
- study of heat transfer from a solid surface to the surrounding liquid under various conditions
- effect of film/nucleate boiling on heat transfer
- variation of Nusselt number with temperature
- visual observation of convection current, film boiling and nucleate boiling
- visual observation of film condensation and drop condensation

Code: GR0305/000/148 SERIES

DYNAMIC BEHAVIOUR OF A PLATE HEAT EXCHANGER

Top bench demonstration unit, it consists of a plate heat exchanger with transparent end plates.

Plate heat exchanger are high efficiency exchangers because of their construction that produce high turbulence in the flow paths. Plate exchangers are very diffused in industries.

The two fluids are differently coloured and pumped in the two circuits in such a way that turbulent flow generation and dynamic behaviour of the exchanger can be shown and efficiency become evident.

For further information please ask for the relevant Technical Description.

Code: GR0305/000/011 SERIES
CENTRIFUGAL FAN DEMONSTRATION UNIT

Centrifugal fan demonstration unit is suitable to clearly understand centrifugal fan performances and operation principles. The centrifugal fans are used when high delivery pressures are needed. It is fully instrumented with all instruments needed and is assembled with transparent volute cover that allow to see inside. The fan motor is powered via the Power Measurement Unit (OP03UN/000/100A optional accessory, available on request). The unit is suitable to be connected to a PC (not included) by means of a separate interface Data Logging and Monitoring Interface System (GR0322/PUN/001 not included but available on request)

The OP03UN/000/001A and GR0322/PUN/001 are essential for unit operation and didactical utility.

Experimental range:
Demonstration of fan Laws, analysis of fan characteristics curves and performances.

Code: GR0302/000/101A

AXIAL FAN DEMONSTRATION UNIT

The Axial fan demonstration unit is suitable to clearly understand axial fan performances and operation principles. The centrifugal fans are used when high delivery flow with low pressures are needed. It is fully instrumented with all instruments needed and is assembled with transparent volute cover that allow to see inside. The fan motor is powered via the Power Measurement Unit (OP03UN/000/100A optional accessory, available on request). The unit is suitable to be connected to a PC (not included) by means of a separate interface Data Logging and Monitoring Interface System (GR0322/PUN/001 not included but available on request)

The OP03UN/000/001A and GR0322/PUN/001 are essential for unit operation and didactical utility.

Experimental range:
Demonstration of fan Laws, analysis of fan characteristics curves and performances.

Code: GR0302/000/102A
The centrifugal fans are very diffused for air conditioning, industrial, and civil installations. These test units allow for basic investigation in fluid mechanics by means of air.

The system includes: centrifugal variable speed fan with speed control drive, digital display of speed and electric parameters, torque measurement facilities, straight long pipe-section with air flow and pressure metering devices of different interchangeable type. Air damper for flow control.

Experimental range

It is possible to carry out the following experiments:

- Characteristic curve of a centrifugal fan (head against flow for different fan speed)
- Measurement of air flow value with a Venturimeter or damper
- Comparison of methods of measuring flow value
- The influence of revolution speed on fan output characteristics
- Determination of the total efficiency of the system
- Low pressure measuring procedure
- Determination of the fan driving torque

Detailed technical description available on request.

Available options:

- Shaft torque reading with load cell
- Different size of the centrifugal fan
- Axial fans test option
- Variety of contraction devices for flow rate determination such as Venturi, Orifice, and Nozzle type
- Additional group of instrument for physical conditions of the air determination allowing the measurement of barometric pressure, hygrometric value and air temperature in view to calculate the actual air specific weight, etc.

For further information please ask for the relevant Technical Description.

Code: GR0302/000016 SERIES
This unit has been designed to allow students to investigate about the principles of ventilation in civil, industrial, and commercial buildings, practising experimental works in order to reach the conditions of balanced distribution.

The system includes a variety of different diameter ducts, bends, tee, joints, damper and diffusers to be assembled by students and connected to the variable speed electro-fan supplied.

The unit is fully instrumented to perform the following functions:

1. Measurement of pressure drop
2. Measurement of K factor
3. Determination of complete characteristics of the fan
4. Head losses in air filters
5. Correlations of air speed with air flow in various duct.
6. Plotting diagram of fans
7. Determination of head losses through air duct changing sections
8. Determination of pressure losses at distribution points and grating
9. Investigation about the optimum air speed value for each section of an air conditioning plant.

Available options:

- Extra ducts

For further information please ask for the relevant Technical Description.

Code: GR0302/000/025 SERIES
The unit has been designed to give students a low cost, simple and reliable apparatus for comprehensive tests on heat exchangers. It consists of a table top frame mounting up to four water/water heat exchangers of different type.

Complete circuit including: boiler for hotwater circulation pump, expansion tank, valves, two flowmeters for primary and secondary circuit, digital temperature meters in and out of every circuit, temperature controller.

The standard version includes following H.E.:
- Concentric double-pipe heat exchanger;
- Shell type cross flow heat exchanger;
- Coil type heat exchanger;
- Plate-type heat exchanger

Suggested experiments:
- Temperature reading by means of digital instruments
- Parallel and counter flow tests of the four heat exchangers available
- Calculation of the total exchange coefficient for the four types of heat exchangers
- Determination of the heat exchangers efficiency
- Calculation of the logarithmic average temperature difference that represents the effective temperature differential
- Plotting of the curves of the heat transferred $Q$ against various flow-rates of one of the two fluids, keeping constant the flow rate of the second fluid (and vice-versa) and under various inlet temperature differences of both fluids.
- Plotting of curves similar to the previous ones, but against the logarithmic average difference and verification of the difference compared with previous case
- Plotting of the curves showing the inlet and outlet temperatures of both fluids under conditions of parallel flow and counterflow for the different exchangers
- Drawing up of the test sheet and calculation of the different exchange parameters under various conditions
- Plotting of the curves related to head losses when crossing heat exchangers

Available options:
- Additional forced air/water heat exchanger to study heat transfer in radiators, condensers, evaporators etc.
- Computerized Data Acquisition and Processing

For further information please ask for the relevant Technical Description.
POWER SUPPLY UNIT WITH A.C. MOTORS SPEED CONTROL AND DATA LOGGING SYSTEM FOR PC

The Power Measurement & Supply Unit AC Motors Speed Control has been devised as basic module with controlled power supply for the various demonstration unit. It includes a device to measure the output power with link for PC (not included) data acquisition. It provides an output to control the speed of the equipment motor. The unit is equipped with data logging and monitoring interface system for PC (non included). Two additional sockets 220/240V single phase to supply other user. Total output current is up to 10A max.

Two stiff handles on sides provide a solid and safe hold. All panels and frames are corrosion resistant.

Experimental range:

- Power measurements while Demonstration unit are working
- Analog signal monitoring with PC (non including)
- Speed variation of motors

Code: OP03UN000/100A
Complementary Studies

- Refrigeration and Air Conditioning
- Surveying and Civil Engineering
- Automotive
- Drilling
- Hydraulics
- General Mechanics
- Industrial Process Control
- Mechatronics and Robotics
- Metallurgy
- Plumbing
- Thermodynamics
- Eletrotechnology
- Welding
- Agriculture and Food Technology
- Textile & Garments
- Material Testing
- Renewable Energies
- Sciences
Heating Plant Trainers

1

Double Pipe Water/Water Heat Exchanger Test Units

2

Multiple Exchangers Heat Transmission Test Unit

3

Table Top Multiple Heat-Exchanger Test Unit

4

Flat Plate and Focusing Solar Energy Collectors

5

Photovoltaic Cell Demonstration Board

6
Universal Benches for Electrical Installations up Skill on Residential or Industrial Plants

Workshop Bench for Electromechanics Assembling Jobs

Educational Modular System for Electrical Wiring Exercises

Motors for Electric Exercises Performing

Electrical Machines Modular System for Test on AC/DC Motors and Generators

Three-phase Motors Fault Simulators
Booth Station for Electric or Gas Welding

Workstation Oxy-gas and Arc Welding

Dual Work Station for Oxy-Acetylene Welding

Cabinet Station for Electric Welding