TINPENG

CHEMICAL ENGINEERING LAB EQUIPMENT

ZHUOZHOU TIANPENG INSTRUMENT MANUFACTURING CO., LTD.
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SINCE 2006

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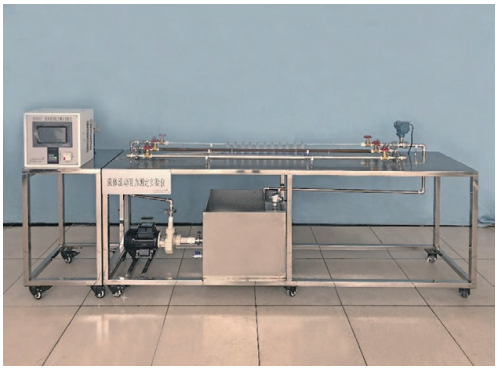
DYH001 FLUID FLOW RESISTANCE EXPERIMENT DEMONSTRATION

APPLICATION

- ◎ Learn how to measure the frictional resistance △ Pf of the straight pipe and the friction coefficient λ of the straight pipe;
- ◎ Master the relationship between the friction coefficient λ and the Reynolds number Re and its variation rule under different flow rates. Verify the relationship between λ and Re in laminar, transitional, and turbulent regions;
- ◎ Determine the local resistance coefficient of fluid flowing through the valve under turbulent flow conditions;
- ◎ Learn how to measure differential pressure with differential pressure sensor and how to measure flow with flow meter.
- ◎ Learn how to use the logarithmic coordinate system.



DYH001 II FLUID FLOW RESISTANCE ZEXPERIMENT DEMONSTRATION

APPLICATION

- ◎ Learn how to measure the frictional resistance △ Pf of the straight pipe and the friction coefficient λ of the straight pipe;
- ◎ Master the relationship between the friction coefficient λ and the Reynolds number Re and its variation rule under different flow rates. Verify the relationship between λ and Re in laminar, transitional, and turbulent regions;
- ◎ Determine the local resistance coefficient of fluid flowing through the valve under turbulent flow conditions;
- ◎ Learn how to measure differential pressure with differential pressure sensor and how to measure flow with flow meter.
- ◎ Learn how to use the logarithmic coordinate system.

DYH006 III CHEMICAL FLOW PROCESS EXPERIMENT DEMONSTRATION

- ◎ Learn how to measure the frictional resistance △ Pf of the straight pipe and the friction coefficient λ of the straight pipe;
- ◎ Master the relationship between the friction coefficient λ and the Reynolds number Re and its variation rule under different flow rates.
- ◎ Learn how to measure differential pressure with differential pressure sensor and flow meter to measure flow;
- ◎ Learn how to use the logarithmic coordinate system.
- ◎ Learn the structure and operation method of centrifugal pump, and understand the commonly used pressure measuring instruments.
- ◎ Master the measurement method and representation method of the characteristic curve of the centrifugal pump, and deepen the understanding of the performance of the centrifugal pump.
- ◎ Learn how to calibrate flowmeters.
- ◎ Learn the variation law of the flow coefficient C of the Venturi flowmeter with the Reynolds number Re, and the determination method of the flow coefficient C.
- ◎ Experiment of automatic control of centrifugal pump with constant pressure.
- ◎ Experiment of automatic control of Centrifugal Pump with constant flow.
- ◎ Measure the transition process of centrifugal pump outlet flow under the action of step disturbance in the control system of constant flow and constant pressure of centrifugal pump. Evaluate the control quality of the centrifugal pump constant flow control system by parameters such as maximum deviation, residual error, attenuation ratio, oscillation period and transition time.
- ◎ Master the function of proportional band P and integral time I parameters in the flow and constant pressure control system and the influence of quality indicators in the transition process.

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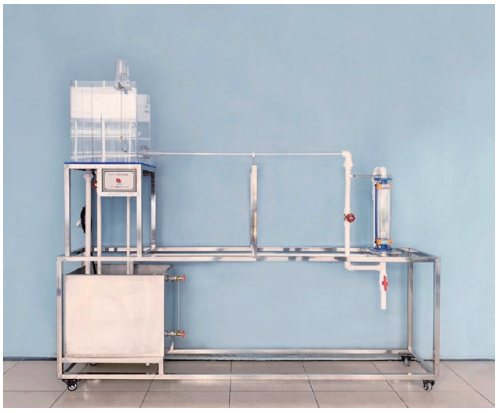

DYH018 REYNOLDS EXPERIMENT DEMONSTRATION

APPLICATION

- Understand the experimental methods for demonstrating streamlines in fluid flow.
- Observe two different flow regimes - laminar and turbulent - as the fluid flows through the tube.
- Determine the critical Reynolds number.
- Learn how to keep the liquid level constant.
- Learn the use of rotameters and flow regulation methods.

DYH076 CONSTANT PRESSURE FILTRATION CONSTANT DETERMINATION DEMONSTRATION

APPLICATION

- Understand the structure, filtration process and operation method of the plate and frame filter press, and master the basic principles and methods of filtration;
- Determine the filtration constants K, qe, τ e and compressibility index s, and show the effect of operating pressure on the filtration rate by changing the pressure;
- Learn how to measure the compressibility index s and material constant of filter cake;
- Observe the relationship between the final filtration rate and the washing rate;
- Can carry out washing process experiment;
- Learn to use the orthogonal test method to arrange experiments to minimize the experimental workload;
- Learn to scientifically analyze the experimental results of the orthogonal test method, analyze the importance of each factor, the trend of test indicators changing with each factor, and understand the method of determining suitable operating conditions.

DYH081 II DIGITAL CONSTANT PRESSURE VACUUM FILTRATION CONSTANT DETERMINATION DEMONSTRATION

APPLICATION

- Demonstrate the construction and operation of a vacuum filtration unit.
- Realize the effect of operating pressure on filtration rate, and verify various relationships, related formulas and basic theories in the filtration process.
- Demonstrate the method for determining the filter constants K, qe, τ e and the compressibility index s.
- Determine the constant pressure suction filtration constant under different conditions (vacuum degree, filtrate concentration, different slurry).

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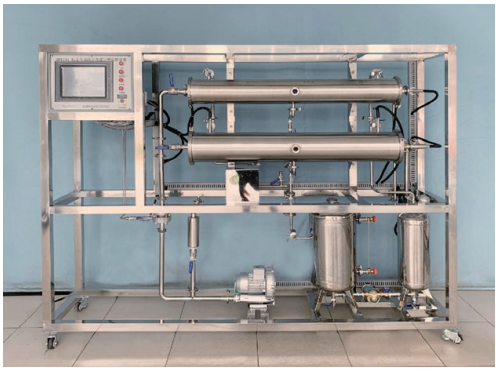

DYH141 CHEMICAL HEAT TRANSFER DEMONSTRATION

APPLICATION

- Through the experiment of the air-water vapor simple double pipe heat exchanger, learn the method of measuring the convective heat transfer coefficient, and deepen the understanding of its concept and influencing factors.
- Through the experiment of the air-water vapor enhanced double pipe heat exchanger with the spiral coil inserted in the tube side, learn the method of measuring the convective heat transfer coefficient, and deepen the understanding of its concept and influencing factors.
- Learn and apply the linear regression analysis method to determine the values of constants A and m in the correlation formula Nu=ARemPr4 for heat transfer tubes, and the values for B and m in the correlation formula NuO=BRemPr4 for enhanced tubes.
- Calculate the enhancement ratio Nu/Nu0 based on the calculated Nu and Nu0, compare the effect of enhancing heat transfer, and deepen the understanding of the basic theory and basic method of enhancing heat transfer.
- Calculate the total heat transfer coefficient k by changing the experimental data of the heat exchange area of the tubular heat exchanger to deepen the understanding of its concept and influencing factors.
- Learn the structure and operation methods of double pipe heat exchangers (smooth, enhanced) and tubular heat exchangers, and measure and compare the performance of different heat exchangers.
- Design experiments can be carried out according to the requirements of the design task.

DYH251 SIEVE TRAY COLUMN DISTILLATION DEMONSTRATION

APPLICATION

- Understand the basic structure of the tray column, the process of the distillation equipment and the function of each part, and observe the hydraulic conditions on the tray when the distillation column is working.
- Identify several operating states that occur in the distillation column and analyze the influence of these operating states on column performance.
- Learn the measurement method of the performance parameters of the distillation column and master its influencing factors.
- Determine the number of theoretical trays, total tray efficiency and single tray efficiency of the distillation column after stable operation under total reflux condition.
- Determine the number of theoretical trays, total tray efficiency and single tray efficiency of the distillation column after stable operation under a certain reflux ratio.
- Change the operating conditions to determine the stabilization time of the distillation column and the temperature distribution in the column.

DYH306 TUNNEL DRYER DEMONSTRATION

APPLICATION

- Understand the basic structure and working principle of laboratory drying equipment.
- Learn how to determine the drying curve (X- τ) and drying rate curve (U-X) of materials under constant drying conditions.
- Learn how to measure the moisture content of materials. Deepen the understanding of the concept of material critical moisture content Xc and its influencing factors.
- Learn the method of determining the convective heat transfer coefficient between the material and the air in the constant speed drying stage.
- Learn to use error analysis methods to estimate the error of experimental results.

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DYH516 BINARY SYSTEM VLE DATA MEASUREMENT DEMONSTRATION

APPLICATION

- Understand the structure and working principle of the VLE measuring device.
- Learn how to measure the VLE data of binary systems.
- Learn to solve for parameters in the activity coefficient equation and to correlate VLE data.

DYH586 TUBULAR REACTOR FLOW CHARACTERISTICS MEASUREMENT DEMONSTRATION

APPLICATION

- Familiar with the backmixing characteristics of the continuous homogeneous tubular circulation reactor.
- Measure the residence time distribution of the tubular reactor by the pulse method.
- Analyze and observe the flow characteristics of the continuous homogeneous tubular circulation reactor.
- Study the degree of backmixing under different cycle ratios, and calculate the model parameter n.

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Model	Name	Application
DYH001	Fluid Flow Resistance Experiment Demonstration	▸ Learn how to measure the frictional resistance △ Pf of the straight pipe and the friction coefficient λ of the straight pipe; ▸ Master the relationship between the friction coefficient λ and the Reynolds number Re and its variation rule under different flow rates. Verify the relationship between λ and Re in laminar, transitional, and turbulent regions; ▸ Determine the local resistance coefficient of fluid flowing through the valve under turbulent flow conditions; ▸ Learn how to measure differential pressure with differential pressure sensor and how to measure flow with flow meter. ▸ Learn how to use the logarithmic coordinate system.
DYH001 II	Digital Fluid Flow Resistance Experiment Demonstration	
DYH006	Chemical Flow Process Experiment Demonstration	▸ Learn how to measure the frictional resistance △ Pf of the straight pipe and the friction coefficient λ of the straight pipe; ▸ Master the relationship between the friction coefficient λ and the Reynolds number Re and its variation rule under different flow rates. ▸ Learn how to measure differential pressure with differential pressure sensor and flow meter to measure flow; ▸ Learn how to use the logarithmic coordinate system. ▸ Learn the structure and operation method of centrifugal pump, and understand the commonly used pressure measuring instruments. ▸ Master the measurement method and representation method of the characteristic curve of the centrifugal pump, and deepen the understanding of the performance of the centrifugal pump. ▸ Learn how to calibrate flowmeters. ▸ Learn the variation law of the flow coefficient C of the Venturi flowmeter with the Reynolds number Re, and the determination method of the flow coefficient C. ▸ Experiment of automatic control of centrifugal pump with constant pressure. ▸ Experiment of automatic control of Centrifugal Pump with constant flow. ▸ Measure the transition process of centrifugal pump outlet flow under the action of step disturbance in the control system of constant flow and constant pressure of centrifugal pump. Evaluate the control quality of the centrifugal pump constant flow control system by parameters such as maximum deviation, residual error, attenuation ratio, oscillation period and transition time. ▸ Master the function of proportional band P and integral time I parameters in the flow and constant pressure control system and the influence of quality indicators in the transition process.
DYH006 II	Digital Chemical Flow Process Experiment Demonstration	
DYH006 III	Digital Chemical Flow Process Experiment Demonstration	

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Model	Name	Application
DYH009	Flowmeter Performance Testing Demonstration	Master the use of various flowmeters through experiments, and measure the flow characteristic curves of various flowmeters. The following experiments can be carried out: ▸ Orifice flowmeter calibration experiment; ▸ Venturi flowmeter calibration experiment; ▸ Determine the relationship between the orifice flow coefficient and the Reynolds number of the orifice flowmeter and Venturi flowmeter; ▸ Application experiment of inverted U-tube differential pressure gauge.
DYH011	Characteristic Curve of Centrifugal Pump Measurement Demonstration	▸ Learn the structure and characteristics of centrifugal pumps, and be familiar with the working methods and operating procedures of centrifugal pumps. ▸ Familiar with various pipe fittings, valves, temperature, pressure, electric power, flow and other in-situ instruments and sensing or testing equipment, and master the measurement principle and use method of turbine flowmeter. ▸ Determine the pump characteristic curve between the pump head (H), shaft power (N), efficiency (η) and pump flow (Q) under the condition of constant speed. ▸ Measure the characteristic curve of the pipeline under a certain opening of the flow regulating valve. ▸ Change the rotational speed of the centrifugal pump to determine the pump characteristic curve between the pump head (H), shaft power (N), efficiency (η) and pump flow (Q). ▸ Master the method of multiple regression and regression (Q-η, Q-H, Q-N) relationship curve.
DYH011 II	Digital Characteristic Curve of Centrifugal Pump Measurement Demonstration	
DYH016	Fluid Streamline Demonstration	▸ This equipment is an intuitive teaching demonstration device. It is used to observe the motion law of fluid particles in the process of fluid flow, and to observe the phenomenon of fluid that occurs when the runner cross section changes suddenly and flows through solid objects; ▸ Show the changes of streamlines, the occurrence, development and death of vortices when fluid particles flow through solid objects; ▸ Venturi simulation, corner simulation, sudden expansion and contraction simulation, streamline body and orifice plate simulation, circular body and linear end body simulation, ball valve full-open simulation, with good experimental results.

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Model	Name	Application
DYH018	Reynolds Experiment Demonstration	▸ Understand the experimental methods for demonstrating streamlines in fluid flow. ▸ Observe two different flow regimes - laminar and turbulent - as the fluid flows through the tube. ▸ Determine the critical Reynolds number. ▸ Learn how to keep the liquid level constant. ▸ Learn the use of rotameters and flow regulation methods.
DYH021	Bernoulli Equation Experiment Demonstration	▸ Observe the changes of dynamic, static and potential heads with pipe diameter, position and flow rate, and verify the continuity equation and Bernoulli equation. ▸ Quantitatively investigate the relationship between fluid velocity and pipe diameter when the fluid flows through the shrinking and expanding pipe sections. ▸ Quantitatively investigate the relationship between fluid resistance and flow when the fluid flows through the straight pipe section. ▸ Qualitatively observe the pressure loss of fluid flowing through throttling parts and elbows.
DYH030	Flowmeter Calibration Experiment Demonstration	▸ Learn the structure, working principle and main features of turbine flowmeters, orifice flowmeters, Venturi flowmeters and rotameters. ▸ Learn how to calibrate flowmeters. ▸ Learn the change law of the flow coefficient C of the throttle flow meter with the Reynolds number Re, and the determination method of the flow coefficient C. ▸ Learn how to choose a coordinate system wisely. Learn to calibrate flow using standard flowmeter methods. ▸ Determine the flow calibration curve of the throttle flow meter (orifice plate, Venturi). ▸ Determine and compare the relationship between the Reynolds number Re and the flow coefficient C of the throttle flow meter. ▸ Determine the flow calibration curve of the rotameter.
DYH030 II	Digital Flowmeter Calibration Experiment Demonstration	
DYH031	Pressure Measurement Demonstration	▸ Learn the principles and methods of measuring fluid pressure and differential pressure with U-tubes; ▸ Learn the principle and method of measuring fluid pressure difference with double-column differential pressure gauge; ▸ Learn the difference and connection between absolute pressure, gauge pressure and vacuum; ▸ Learn the difference and connection between fluid column height, pressure head and pressure.

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Model	Name	Application
DYH036	Centrifugal Pump Demonstration (double pump)	▸ Learn the structure and characteristics of centrifugal pumps, and be familiar with the operation of centrifugal pumps; understand and be familiar with the working methods and operating procedures of centrifugal pumps; ▸ Can carry out single pump, double pump series and parallel operation; ▸ Familiar with various pipe fittings and valves that make up the pipeline, understand temperature, pressure, electric power, flow and other local display instruments and sensing detection equipment, master the measurement principle and use method of turbine flowmeter; ▸ Determine the pump characteristic curve between the pump head (H), shaft power (N), efficiency (η) and pump flow (Q) under the condition of constant speed; ▸ Measure the characteristic curve of the pipeline under a certain opening of the flow regulating valve; ▸ Can carry out double pump series, parallel performance testing and pipeline characteristic measurement; ▸ Change the centrifugal pump speed to determine the pump head (H), shaft power (N) and efficiency (η) and the pump flow rate (Q) between the pump characteristic curve; ▸ Master the method of multiple regression, regression (H-Q, η-Q, N-Q) relationship curve.
DYH036 II	Centrifugal Pump Demonstration (double pump)	
DYH039	Filter Flow Calibration Demonstration	▸ Learn the basics of filtering. ▸ Master the calculation of filtration constant K and equivalent filtrate volume qe under constant pressure. ▸ Observe the relationship between the final filtration rate and the wash rate. ▸ Flowmeter calibration experimental data measurement.
DYH041	Plate Filter	▸ Determination of filtration constant, with three processes: filtration, washing, drying; ▸ The disc plate filter, the face plate, the face plate and the trough are all made of 304 stainless steel, the inner diameter of the plate frame is 150mm, and the frame thickness is 15mm; ▸ The disc plate filter, the disc, the plate and the container are all made of 304 stainless steel, the inner diameter of the plate frame is 150mm, and the frame thickness is 15mm; ▸ 24L container (material 304), two 0-0.25 MPa precision pressure gauges; ▸ Air compressor: DC220V, 0.75kW, volume 0.1m3; ▸ Stainless steel feed pump: DC220V, 0.4kW, flow 31m3; ▸ 304 stainless steel pipes and fittings, 1/4" safety valve, copper gate valve; ▸ Equipped with casters and fasteners.

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Model	Name	Application
DYH061	Solid Fluidization Demonstration	▸ This experiment is an operational experiment, to learn and master the method of continuous fluidized drying of wet materials and the estimation method of material, heat balance and volumetric convective heat transfer coefficient (αv) in drying operation; ▸ Verify that one of the obvious advantages of fluidized drying is the good convective heat transfer between gas and solid (αv is large); ▸ Can qualitatively observe the static pressure distribution in the radial direction in the cyclone separator and the negative pressure at the ash outlet at the bottom of the separator; guide students to understand the necessity of good sealing of the ash outlet and the dust collection chamber; ▸ Learn and master the meaning and calculation method of heat balance and material balance of materials under constant drying conditions; ▸ Determine the thermal efficiency η and heat loss of the fluidized bed dryer.
DYH066	Heterogeneous Separation Experiment Demonstration	▸ Demonstrate the movement route of dust-laden gas, solid dust particles and gas when the dust-laden gas passes through the gravity settling chamber and cyclone separator. First give students an intuitive and vivid impression, and then guide them to explain theoretically, so as to correctly understand and describe the working principle of the cyclone separator; ▸ Qualitatively observe the static pressure distribution in the radial direction in the cyclone separator and the negative pressure at the ash outlet at the bottom of the separator, and guide students to understand the necessity of good sealing of the ash outlet and the dust collection chamber; ▸ Qualitatively observe the change trend of the separation effect and flow resistance of the separator with the inlet gas velocity, and guide students to think about how to determine the appropriate gas velocity. ▸ The device can be used to prepare the dust-laden gas for experiments, observe the phenomenon of solids being inhaled from the venturi tube during separation, and deepen students' understanding of the energy conversion problem in the fluid flow process.

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Model	Name	Application
DYH076	Constant Pressure Filtration Constant Determination Demonstration(Plate and frame filtering)	▸ Understand the structure, filtration process and operation method of the plate and frame filter press, and master the basic principles and methods of filtration; ▸ Determine the filtration constants K, qe, τe and compressibility index s, and show the effect of operating pressure on the filtration rate by changing the pressure; ▸ Learn how to measure the compressibility index s and material constant of filter cake; ▸ Observe the relationship between the final filtration rate and the washing rate; ▸ Can carry out washing process experiment; ▸ Learn to use the orthogonal test method to arrange experiments to minimize the experimental workload; ▸ Learn to scientifically analyze the experimental results of the orthogonal test method, analyze the importance of each factor, the trend of test indicators changing with each factor, and understand the method of determining suitable operating conditions.
DYH076 II	Digital Constant Pressure Filtration Constant Determination Demonstration(Plate and frame filtering)	
DYH081	Constant Pressure Vacuum Filtration Constant Determination Demonstration	▸ Demonstrate the construction and operation of a vacuum filtration unit. ▸ Realize the effect of operating pressure on filtration rate, and verify various relationships, related formulas and basic theories in the filtration process. ▸ Demonstrate the method for determining the filter constants K, qe, τe and the compressibility index s. ▸ Determine the constant pressure suction filtration constant under different conditions (vacuum degree, filtrate concentration, different slurry).
DYH081 II	Digital Constant Pressure Vacuum Filtration Constant Determination Demonstration	
DYH111	Air-Water Vapor Convective Heat Transfer Coefficient Measurement Demonstration	The heat transfer coefficient K of a heat exchanger is an important indicator of the quality of heat transfer, but the quality of a heat exchanger does not simply depend on the characteristics of its structure, and the state of fluid flow during operation also directly affects its performance. We carefully selected two fluids, gas and liquid, to highlight the influence of the different flow states of the two fluids on the heat transfer coefficient K during the operation. ▸ Determine the heat transfer coefficient K. ▸ Determine the relationship between α and Re in the tube. ▸ 3. Implement operational analysis of heat transfer process.
DYH111 II	Air-Water Vapor Convective Heat Transfer Coefficient Measurement Demonstration	

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Model	Name	Application
DYH121	Gas-Gas Tubular Heat Exchanger Demonstration	▸ Learn the structure and process of the tubular heat exchanger, and master the experimental method for determining the heat supply coefficient. ▸ Compare the process and effect of the countercurrent and cocurrent heat transfer experiments of the shell and tubular heat exchanger. ▸ Learn about the factors that affect the convective heat transfer coefficient and ways to enhance heat transfer. Shows the effect of changes in fluid flow rate on the main thermal resistance side on the overall heat transfer rate.
DYH121 II	Digital Gas-Gas Tubular Heat Exchanger Demonstration	
DYH126	Liquid-Liquid Tubular Heat Exchanger Demonstration	▸ Learn about liquid-liquid tubular heat exchanger units.
DYH126 II	Digital Liquid-Liquid Tubular Heat Exchanger Demonstration	
DYH128	Liquid-Liquid Double Pipe Heat Exchanger Demonstration	▸ Learn about liquid-liquid double pipe heat exchanger units.
DYH129	Liquid-Liquid Plate Heat Exchanger Demonstration	▸ Learn about plate heat exchanger structure. ▸ Master the process and effect of heat exchange experiments of plate heat exchangers. ▸ Master the principles and methods of thermal resistance temperature measurement.
DYH129 II	Digital Liquid-Liquid Plate Heat Exchanger Demonstration	
DYH130	Liquid-Liquid Heat Exchange Demonstration	▸ Learn the method of measuring the convective heat transfer coefficient of tubes, deepen the understanding of its concept and influencing factors, and apply the linear regression method to determine the values of the constants A and m in the correlation formula. ▸ Learn how to measure the tube heat transfer coefficient Ko.
DYH130 II	Digital Liquid-Liquid Heat Exchange Demonstration	
DYH132	Double-Pipe Heat Exchange Demonstration	▸ Through the experimental study of the air-water vapor simple double-pipe heat exchanger, learn the method of determining the convective heat transfer coefficient, and deepen the understanding of its concept and influencing factors. And apply the linear regression analysis method to determine the values of the constants A and m in the correlation Nu=ARemPr0.4; ▸ Through the experimental study of the air-water vapor enhanced double-pipe heat exchanger with the spiral coil inserted in the tube side, determine the values of constants B and m in the quasi-correlation formula Nu=BRem and the enhanced ratio Nu/Nu0. Learn the basic theory and basic methods of enhanced heat transfer; ▸ Obtain the total heat transfer coefficient Ko of the simple double pipe heat exchanger and the enhanced double pipe heat exchanger; ▸ Learn to use the thermocouple thermometer.

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Model	Name	Application
DYH135	Determination of heat transfer coefficient of air-water convection under forced turbulence	▸ Determination of the heat transfer coefficient of air-water convection under forced turbulence.
DYH136	Determination of air-water vapor logarithmic heat transfer coefficient under forced turbulence	▸ Determination of air-water vapor logarithmic heat transfer coefficient under forced turbulence
DYH138	Air-Water Vapor Heat Transfer Coefficient Determination Demonstration	▸ Learn the partition heat transfer element and master the experimental method for the determination of heat supply coefficient; ▸ Learn the experimental data processing method for the determination of the heat transfer coefficient of straight pipe convection; ▸ Understand the factors affecting the convective heat transfer coefficient and ways to enhance heat transfer; ▸ Master the principles and methods of thermal resistance temperature measurement; ▸ Familiar with automatic collection of experimental data.
DYH138 II	Digital Air-Water Vapor Heat Transfer Coefficient Determination Demonstration	
DYH141	Chemical Heat Transfer Demonstration	▸ Through the experiment of the air-water vapor simple double pipe heat exchanger, learn the method of measuring the convective heat transfer coefficient, and deepen the understanding of its concept and influencing factors. ▸ Through the experiment of the air-water vapor enhanced double pipe heat exchanger with the spiral coil inserted in the tube side, learn the method of measuring the convective heat transfer coefficient, and deepen the understanding of its concept and influencing factors. ▸ Learn and apply the linear regression analysis method to determine the values of constants A and m in the correlation formula Nu=ARemPr4 for heat transfer tubes, and the values for B and m in the correlation formula NuO=BRemPr4 for enhanced tubes. ▸ Calculate the enhancement ratio Nu/Nu0 based on the calculated Nu and Nu0, compare the effect of enhancing heat transfer, and deepen the understanding of the basic theory and basic method of enhancing heat transfer. ▸ Calculate the total heat transfer coefficient k by changing the experimental data of the heat exchange area of the tubular heat exchanger to deepen the understanding of its concept and influencing factors. ▸ Learn the structure and operation methods of double pipe heat exchangers (smooth, enhanced) and tubular heat exchangers, and measure and compare the performance of different heat exchangers. ▸ Design experiments can be carried out according to the requirements of the design task.
DYH141 II	Digital Chemical Heat Transfer Demonstration	

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DYH146	Heat Transfer Film Coefficient Determination Demonstration	▸ Learn the methodology for the study of partition heat transfer elements and the determination of heat transfer coefficients. ▸ Learn how to process experimental data for heat coefficient determination. ▸ Learn about factors affecting heat transfer coefficients and ways to enhance heat transfer coefficients.
DYH176	Single-tube Climbing Film Evaporation Experiment Demonstration	▸ Observe the different flow conditions (bubble, plug, churning, annular and mist flow, etc.) of water when it flows and heats in the tube; ▸ Analyze the generation mechanism and conditions of bubble, plug, churning, annular and mist flow; ▸ Analyze and compare the convective heat transfer effect and mechanism under various flow conditions; ▸ 4. It can carry out the combined evaporation operation of climbing film and falling film.
DYH215	Packed Absorption Column Experiment (NH3 System) Packed Tower Separation Efficiency Measurement Demonstration	▸ Learn the basic process and equipment structure of packed absorption column and practice operation; ▸ Learn the hydrodynamic properties of packed columns; ▸ Learn how to measure the mass transfer capacity and mass transfer efficiency of packed absorption columns; ▸ Master the measurement method of the total volume absorption coefficient with ΔX as the driving force; ▸ Learn the use of fans, etc., and master the use of gas chromatographs and six-way valves.
DYH216	Packed Absorption Column Experiment (CO2 System)	▸ Learn the basic process and equipment structure of packed absorption column and practice operation; ▸ Learn the hydrodynamic properties of packed columns; ▸ Learn how to measure the mass transfer capacity and mass transfer efficiency of packed absorption columns; ▸ Master the measurement method of the total volume absorption coefficient with ΔX as the driving force;
DYH216 II	Digital Packed Absorption Column Experiment (CO2 System)	
DYH231	Gas-Liquid Separation Experiment Demonstration	▸ Learn the structure, process and operation of gas-liquid separation device; ▸ Observe the hydrodynamic behavior of the gas-liquid separation device.

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Model	Name	Application
DYH236	Gas Absorption - Fluid Resistance Experiment Demonstration	▸ Observe the hydrodynamic behavior of the packed absorption tower and determine the relationship between the packing layer drop and the superficial gas velocity in the dry and wet packing states; ▸ Determine the total mass transfer coefficient Kya to understand its influencing factors. ▸ Straight pipe resistance and resistance coefficient determination; ▸ Determination of local resistance and resistance coefficient.
DYH251	Sieve Tray Column Distillation	▸ Understand the basic structure of the tray column, the process of the distillation equipment and the function of each part, and observe the hydraulic conditions on the tray when the distillation column is working. ▸ Identify several operating states that occur in the distillation column and analyze the influence of these operating states on column performance. ▸ Learn the measurement method of the performance parameters of the distillation column and master its influencing factors.
DYH251 II	Digital Sieve Tray Column Distillation Demonstration	▸ Determine the number of theoretical trays, total tray efficiency and single tray efficiency of the distillation column after stable operation under total reflux condition. ▸ Determine the number of theoretical trays, total tray efficiency and single tray efficiency of the distillation column after stable operation under a certain reflux ratio. ▸ Change the operating conditions to determine the stabilization time of the distillation column and the temperature distribution in the column.
DYH256	Packed Column Distillation Column Experiment Demonstration	▸ Learn the basic structure of the packed distillation column and its auxiliary equipment, and master the basic operation methods of the distillation process. ▸ Learn how to judge the stability of the system, and master the experimental methods for measuring the concentration of the column top and column bottom solution. ▸ Master the adjustment method of reflux ratio, and study the effect of reflux ratio on separation efficiency of distillation column.
DYH256 II	Digital Packed Column Distillation Column Experiment Demonstration	

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Model	Name	Application
DYH266	Tray Column Demonstration Tray Column Fluid Mechanics Demonstration	▸ Learn the basic structure of the tray column, and observe the hydraulic conditions on the tray when the tray column is working; ▸ Identify several operating states that occur in the tray column, and analyze the impact of these operating states on the performance of the column; ▸ Determine the hydraulic properties of different types of tray columns (sieve tray, valve, bubble cap, tongue) and understand their characteristics.
DYH271	Rotating Disc Extraction Column Experiment Demonstration	▸ Learn the basic structure, operation method and extraction process of the rotating disc extraction column; ▸ Observe the light and heavy two-phase flow conditions in the extraction column when the rotation speed changes, understand the main influencing factors of the extraction operation, and study the influence of the extraction operation conditions (rotation speed) on the extraction process; ▸ Master the experimental determination methods of the number of mass transfer units per meter of extraction height, the height of mass transfer units and the extraction rate; ▸ Learn the method of chemical titration to determine the concentration of raw material, extract and raffinate; ▸ Determine under the same two-phase flow rate, the number of mass transfer units, the height of mass transfer units and the total mass transfer coefficient of the extraction column at different speeds.
DYH271 II	Digital Rotating Disc Extraction Column Experiment Demonstration	
DYH276	Vibrating Sieve Tray Extraction Column	▸ Learn the construction and application of the experimental device for extraction of vibrating sieve trays. ▸ Determination of extraction efficiency. ▸ Master the relationship between vibration frequency and extraction efficiency.
DYH276 II	Digit Vibrating Sieve Tray Extraction Column	
DYH301	Fluidized Bed Drying Experiment Demonstration	▸ Learn and master the method of continuous fluidized drying of wet materials and the estimation method of material, heat balance and volume convection heat transfer coefficient (αv) in drying operation. ▸ It is proved that one of the obvious advantages of fluidized drying is the good effect of gas-solid convective heat transfer. ▸ Master the experimental analysis methods to obtain the drying rate curve according to the experimental drying curve and the drying rate, critical moisture content and equilibrium moisture content in the constant speed stage. ▸ Learn and master the heat balance of materials under constant drying conditions, the meaning and calculation method of material balance. ▸ Determine the thermal efficiency η and heat loss of the fluidized bed dryer.
DYH301 II	Digital Fluidized Bed Drying Experiment Demonstration	

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Model	Name	Application
DYH306	Tunnel Dryer Demonstration	▸ Understand the basic structure and working principle of laboratory drying equipment. ▸ Learn how to determine the drying curve (X-τ) and drying rate curve (U-X) of materials under constant drying conditions. ▸ Learn how to measure the moisture content of materials. Deepen the understanding of the concept of material critical moisture content Xc and its influencing factors. ▸ Learn the method of determining the convective heat transfer coefficient between the material and the air in the constant speed drying stage. ▸ Learn to use error analysis methods to estimate the error of experimental results.
DYH306 II	Tunnel Dryer Demonstration	
DYH326	Tank Reactor Demonstration	▸ Learn how a tank reactor works. ▸ Learn the operation process of the reactor. ▸ Learn how to control the temperature and pressure of the reactor.
DYH331	Stirrer Performance Testing Demonstration	▸ Learn how to measure the stirring power curve. ▸ Learn about the factors that affect stirring power and how to relate it. ▸ Using sodium carboxymethyl cellulose (CMC) aqueous solution to measure the liquid-liquid phase stirring power curve. ▸ Using CMC aqueous solution and air to measure the gas-liquid phase stirring power curve.
DYH391	Photocatalytic Reaction Experiment Demonstration	▸ Observe the flow state of industrial wastewater in the reactor, and measure the decolorization rate under no gas flow. ▸ Determination of catalyst types, changes in light source conditions, types and concentrations of organic matter in wastewater, and exploration of fluidized reaction operating process conditions and many other experimental contents.
DYH401	Special Distillation Experiment Demonstration	▸ Familiar with the equipment and procedures of the operation of the distillation unit. ▸ Learn how to measure the efficiency of distillation column, which is suitable for special distillations such as atmospheric, pressurized and vacuum distillation.
DYH401 II	Digital Special Distillation Experiment Demonstration	
DYH403	Reactive Distillation Experimental Demonstration (Continuous Distillation)	▸ Familiar with the equipment and procedures of the operation of the distillation unit. ▸ Master the principles and operations of reactive distillation. ▸ Learn how to measure the efficiency of distillation columns.
DYH403 II	Digital Reactive Distillation Experimental Demonstration (Continuous Distillation)	

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Model	Name	Application
DYH405	Extractive Distillation Experiment Demonstration	▸ Learn the basic principles and operations of extractive distillation; ▸ Can carry out the whole column material balance and process analysis of column operation; ▸ Understand the difference between extractive distillation and conventional distillation; ▸ Learn to analyze the composition of materials in the column; ▸ The temperature is controlled by the digital instrument display, and the heating power is adjustable.
DYH405 II	Digital Extractive Distillation Experiment Demonstration	
DYH407	Multifunctional Distillation Experiment Demonstration	▸ For the purification and separation of various organic substances. The device has two columns, one is a glass column body without side ports, and the other is a glass column body with five side ports, equipped with a pendulum-type reflux column head. It can realize both continuous operation and intermittent operation, and can adopt both phase-separated reflux and mixed-phase reflux. ▸ It can realize operations such as reactive distillation, extractive distillation, and general vacuum distillation. ▸ The device can complete operations with different reflux ratios, and the influence of reflux ratio on product distribution and separation efficiency is investigated.
DYH407 II	Digital Multifunctional Distillation Experiment Demonstration	
DYH409	Azeotropic Distillation Experiment Demonstration	▸ This device is used to separate azeotrope-forming systems. The azeotrope system is separated by adding an entrainer. ▸ Familiar with the structure of azeotropic distillation equipment and master the operation method of azeotropic distillation. ▸ It can do the material balance of the whole column for the azeotropic distillation process. ▸ The special column head design can adopt both phase-separated reflux and mixed-phase reflux. ▸ The temperature is controlled by the digital instrument display, and the heating power is adjustable.
DYH409 II	Digit Azeotropic Distillation Experiment Demonstration	
DYH421	Spray Drying Experiment Demonstration	▸ Learn the basic structure and working principle of the spray drying experimental device; ▸ Carry out the process calculation of spray drying through experiments.

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Model	Name	Application
DYH451	Hollow Fiber Ultrafiltration Membrane Separation Experiment Demonstration	▸ Membrane separation efficiency measurement; learn the separation process of membrane separation. ▸ Master the internal structure of the membrane component by dividing the membrane component. ▸ Measure the relationship between the removal rate of salt (solubility) and operating pressure.
DYH456	Ultrafiltration, Nanofiltration, Reverse Osmosis Membrane Separation Experiment Demonstration	▸ Master the principle and process and operation method of ultrafiltration membrane separation, reverse osmosis membrane separation by experimenting. ▸ Calculate the recovery rate and dehydration rate according to the flow of water inlet, thick water and water purification and salt content; study the main factors and its influence laws that affect the separation of reverse osmosis membranes.
DYH461	Ultrafiltration Membrane and Microfiltration Membrane Experiment Demonstration	▸ Learn the basic structure and process of membrane separation components. ▸ The microfiltration membrane and ultrafiltration membrane experiments can be performed separately. ▸ The separation membrane can be flushed.
DYH466	Reverse Osmosis Membrane Separation Experiment Demonstration	▸ Learn the structure of each processing unit of the reverse osmosis process. ▸ Learn the operation method and rinse method of the unit of the reverse osmosis process. ▸ Familiar with the role of various units and understand the changes in water quality and design parameters.
DYH468	Osmosis Membrane Evaporation Experiment Demonstration	▸ Understand the separation principle of the pervaporation. ▸ Master the operation method of pervaporation separation of ethanol water. ▸ Study the main factors and its influence laws that affect the pervaporation separation.
DYH471	Membrane Separation Method High Purity Water Preparation Demonstration	▸ Master the operation process of membrane separation to prepare high-purity water.
DYH476	Liquid Membrane Separation Experiment Demonstration	▸ Master the operation process of liquid membrane separation. ▸ Learn about two different liquid membrane mass transfer mechanisms. ▸ Use liquid membrane separation technology to remove pollutants from wastewater.

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Model	Name	Application
DYH481	Gas-liquid Absorption Phase Equilibrium Data Determination in Ammonia Water System	▸ Learn to use the static method to determine the phase equilibrium data of ammonia-water system, and master the basic skills of phase equilibrium experiment.
DYH491	Bubble Surface Area and Gas Content Determination in Bubble Column Reactor	▸ Learn the principle and method of measuring gas holdup by static pressure method. ▸ Master the operation method of gas-liquid bubble column reactor. ▸ Learn how to determine the gas-liquid specific surface area.
DYH501	Convective Heat Transfer Coefficient Determination of Solid Balls	▸ Determine the convective heat transfer coefficients between different environments and small steel balls, and compare the obtained results. ▸ Learn about the characteristics of unsteady heat conduction and the physical meaning of the Biot number (Bi). ▸ Familiar with the operating characteristics of fluidized and fixed beds.
DYH501 II	Digital Convective Heat Transfer Coefficient Determination of Solid Balls	
DYH506	Ternary Liquid-Liquid Equilibrium Data Determination Demonstration	▸ Familiar with the method of using a triangular phase diagram to represent the composition of a three-component system, and master the principle of using the cloud point method and the equilibrium still method to determine the liquid-liquid equilibrium data. ▸ Draw the liquid-liquid equilibrium phase diagram of the three-component system of cyclohexane-water-ethanol. ▸ It can measure the liquid-liquid equilibrium data of the ternary system, determine the activity coefficients of the liquid components and the parameters in the composition relationship, calculate the system equilibrium data, and draw a triangular phase diagram.
DYH511	Gas-Liquid Equilibrium Data Determination Demonstration	▸ Learn the structure and working principle of the gas-liquid equilibrium measuring device. ▸ Master the method for the determination of the vapor-liquid equilibrium data of binary systems. ▸ Learn to solve for parameters in the activity coefficient equation and to correlate gas-liquid equilibrium data.
DYH516	Binary System VLE Data Measurement Demonstration	▸ Understand the structure and working principle of the VLE measuring device. ▸ Learn how to measure the VLE data of binary systems. ▸ Learn to solve for parameters in the activity coefficient equation and to correlate VLE data.

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Model	Name	Application
DYH518	Gas-Liquid Equilibrium Data Measurement in Absorption Process	▸ Determine the gas-liquid equilibrium data for the absorption process.
DYH521	Multifunction Reaction Experiment Demonstration	▸ Learn the composition and process of multifunctional catalytic reaction experimental device. ▸ Perform gas-solid-phase catalytic reactions, catalyst evaluation and process conditions selection, and macro dynamic experiments. ▸ Study on organic catalytic reactions such as hydrogenation, dehydrogenation, oxidation, hydrocarbonization, aromatization, ammonia and other organic catalytic reactions. ▸ Learn the basic structure and working principle of liquid phase tank reactor.
DYH521 II	Digital Multifunction Reaction Experiment Demonstration	
DYH526	Dual -Drive Stirrer Measure Gas-Liquid Transmission Coefficient Experiment Demonstration	▸ This device can be used to determine the gas -liquid coefficients of different objects.
DYH531	Liquid Film Mass Transfer Coefficient of Carbon Dioxide Absorption in Disc Column	▸ Master the determination method of liquid film mass transfer coefficient in gas-liquid absorption process. ▸ Learn the structure and operation of the disc column. ▸ According to the experimental data, obtain the relationship between the liquid film mass transfer coefficient and the liquid flow rate.
DYH541	Internal Circulation Non-Gradient Reaction Demonstration	▸ The device is suitable for hydrogenation, dehydrogenation, cracking, synthesis and other reaction processes. ▸ Determination of kinetics of ethanol dehydration to ethylene reaction, etc.
DYH541 II	Digital Internal Circulation Non-Gradient Reaction Demonstration	
DYH581	Computer-Controlled Tank Reactor Residence Time Distribution Measurement Experiment Demonstration (without computer)	▸ Learn the principle of residence time measurement and deepen the understanding of the concept of backmixing; ▸ Master the methods and calculations for determining the residence time distribution of materials in a reactor; ▸ It can complete the experimental data measurement of the multi-tank series back-mixing performance testing experiment.
DYH586	Tubular Reactor Flow Characteristics Measurement Demonstration	▸ Learn the backmixing characteristics of continuous homogeneous tubular circulation reactors; ▸ The residence time distribution of the tubular reactor was measured by the pulse method; ▸ Analyze and observe the flow characteristics of the continuous homogeneous tubular circulation reactor; ▸ Study the degree of backmixing under different cycle ratios, and calculate the model parameter n.
DYH586 II	Digital Tubular Reactor Flow Characteristics Measurement Demonstration	

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Model	Name	Application
DYH596	Carbon Monoxide Medium and Low Temperature Series Conversion Experiment Demonstration	The conversion of carbon monoxide to hydrogen and carbon dioxide is an important process in petrochemical and synthetic ammonia production. This experiment simulates the intermediate temperature-low temperature series conversion reaction process. Simultaneously measure the relative activities of the medium temperature conversion iron-based catalyst and the low temperature conversion copper-based catalyst by the DC flow method, to achieve the following device functions: ▸ Further understanding of heterogeneous catalytic reactions, preliminary contact process design; ▸ Master the experimental research method of gas-solid catalytic reaction kinetics and the evaluation method of catalyst activity; ▸ Obtain the rate constant kT and activation energy E of the up-conversion reaction of the two catalysts.
DYH596 II	Digital Carbon Monoxide Medium and Low Temperature Series Conversion Experiment Demonstration	
DYH606	Dehydrogenation of Ethylbenzene to Styrene Demonstration (without chromatographic column)	▸ Learn the process of preparing styrene in a fixed bed reactor with ethylbenzene raw material and iron oxide catalyst; ▸ Learn how to stabilize process operating conditions; ▸ Master the procedure and operation of this experiment.
DYH606 II	Digital Dehydrogenation of Ethylbenzene to Styrene Demonstration (without chromatographic column)	
DYH608	Ethylbenzene Dehydrogenation and Product Separation Process Demonstration	▸ Learn about the production of styrene in a fixed bed reactor from ethylbenzene feedstock, iron oxide catalyst. ▸ Learn how to stabilize process operating conditions. ▸ Master the procedure and operation of this experiment. ▸ Familiar with the equipment and procedures of the operation of the distillation unit.
DYH608 III	Computer-Controlled Ethylbenzene Dehydrogenation and Product Separation Process Demonstration	
DYH611	Oxidation of Toluene to Benzoic Acid Demonstration	▸ Familiar with the experimental equipment and process of toluene liquid phase oxidation to benzoic acid. ▸ Learn about the characteristics of gas-liquid reactors. ▸ Measure the concentration of benzoic acid, and mastered the reaction law of liquid phase oxidation of toluene.
DYH611 II	Digital Oxidation of Toluene to Benzoic Acid Demonstration	
DYH616	Catalytic Reactive Distillation Method to Produce Methylal Demonstration	▸ Reactive distillation is a complex process that obeys both the law of mass action and the law of phase equilibrium; ▸ Master the operation of reactive distillation; ▸ Can carry out the whole column material balance and process analysis of column operation; ▸ Learn the difference between reactive distillation and conventional distillation; ▸ Learn to analyze the composition of materials in the column.
DYH616 III	Computer-Controlled Catalytic Reactive Distillation Method to Produce Methylal Demonstration	

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Model	Name	Application
DYH631	Backmixing Performance Testing of Single Tank and Three Tanks in Series(-Multi-tank series backmixing performance testing device)	▸ Learn the basic principles and experimental methods of residence time distribution determination through experiments. ▸ Master the calculation method of the statistical eigenvalues of the residence time distribution. ▸ Learn to describe the flow characteristics of experimental system using a series model of an ideal reactor.
DYH631 III	Backmixing Performance Testing of Single Tank and Three Tanks in Series(-Multi-tank series device)	
DYH641	Pressure Swing Adsorption Experiment Demonstration	▸ Understand adsorption theory, master the theoretical knowledge, and combine it with practice. ▸ Master the application of pressure swing adsorption in adsorption, understand pressure swing adsorption equipment, and learn the operation of the equipment. ▸ Grasp the relationship between pressure change, valve switching time change and adsorption capacity in PSA.
DYH641 II	Digital Pressure Swing Adsorption Experiment Demonstration	
DYH646	CO Medium and Low Temperature Series Conversion Reaction Experiment Demonstration (remote control)	▸ Learn about CO medium and low temperature series conversion reaction experiment.
DYH661	Chemical Reaction Engineering Comprehensive Experiment Demonstration	▸ It integrates tank series connection and tubular circulation, and adopts pulse and step method to comprehensively measure the residence time distribution; ▸ Understand the basic principle and experimental method of residence time distribution measurement through experiments; ▸ Master the calculation method of statistical eigenvalues of residence time distribution; ▸ Measure the residence time distribution of the tubular reactor by the pulse method.
DYH671	Catalyst Performance Evaluation System	▸ Catalyst performance evaluation; ▸ Learn how to stabilize process operating conditions; ▸ Master the procedure and operation of this experiment.
DYH673	Catalyst Internal Diffusion Effective Factor Measuring Device	▸ Learn about internal and external diffusion processes and their effects on reactions. ▸ Master the concept of the effective factor of diffusion in the catalyst and its measurement method. ▸ Learn about experimental determinations of intrinsic reaction kinetics. ▸ Understand the temperature distribution of the bed in a fixed bed reactor.
DYH673 II	Digital Catalyst Internal Diffusion Effective Factor Measuring Device	

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Model	Name	Application
DYH675	Ethanol Normal Pressure Catalytic Experiment Demonstration	▸ Catalytic experiments on ethanol at normal pressure. ▸ Learn the operation process and principle of ethanol normal pressure catalysis experiment.
DYH675 II	Digital Ethanol Normal Pressure Catalytic Experiment Demonstration	
DYH676	Fixed Bed Ethanol Dehydration Experiment Demonstration	▸ Learn the reaction process, reaction mechanism, and characteristics of ethanol dehydration experiments, and understand the influence of reaction conditions for different target products on positive and side reactions and the formation process. ▸ Learn the structure, principle and usage of gas-solid tubular catalytic reactor. Learn the normal operation and installation of the reactor, master the general method of catalyst evaluation and the research steps and methods to obtain suitable process conditions. ▸ Learn the use of dynamic control instruments, how to set temperature and heating current, and how to control bed temperature distribution.
DYH678	Ethanol Gas Phase Dehydration to Ethylene Experiment Demonstration	▸ Used in ethanol gas-phase catalytic dehydration experiments, which can be used to consolidate the knowledge about kinetics learned. Master the methods of obtaining reaction kinetic data. Learn the processing method of kinetic data, and find the corresponding parameter value according to the kinetic equation. Familiar with the characteristics of the reactor and other related equipment and the use of other related equipment.
DYH681	Ordinary Gas-Solid Phase Fixed Bed Catalytic Reaction Device	▸ For fixed bed teaching and measurement of process data. ▸ Catalyst selection and life test. ▸ It can be used for organic catalytic reactions such as hydrogenation, dehydrogenation, oxidation, alkylation, aromatization, and ammoniation.
DYH681 II	Digital Ordinary Gas-Solid Phase Fixed Bed Catalytic Reaction Device	
DYH683	Gas-Solid-Phase Fluidized Bed Catalytic Reaction Experiment Demonstration	▸ Learn the working principle and structure of the fluidized bed reactor; ▸ Organocatalytic reactions such as hydrogenation, dehydrogenation, oxidation, alkylation, aromatization, and ammoniation.
DYH683 II	Digital Gas-Solid-Phase Fluidized Bed Catalytic Reaction Experiment Demonstration	

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Model	Name	Application
DYH686	Drying and Heat Transfer Experiment Demonstration	▸ Drying, heat transfer
DYH686	Distillation and Pump Performance Experiment Demonstration	▸ Distillation, pump performance.
DYH686	Gas-Solid-Phase Fluidized Bed Catalytic Reaction Experiment Demonstration	▸ Learn the working principle and structure of the fluidized bed reactor; ▸ Organocatalytic reactions such as hydrogenation, dehydrogenation, oxidation, alkylation, aromatization, and ammoniation.
DYH691	Filtration and Flow Proofread Experiment Demonstration	▸ Filtration, flow
DYH696	Plate and Frame Filtrating-Tank Reactor Experiment Demonstration	▸ Plate and frame filtrating, tank reactor
DYH701	Gas-Liquid-Solid Fluidized Bed Reactor Performance Testing Demonstration	▸ Understand the basic characteristics of the gas-liquid-solid fluidized bed, master the operation methods of fluidized bed ▸ Understand the fluid characteristics of gas-liquid-solid fluidized bed, the relationship between fluidized speed and pressure drop.
DYH706	Second Virial Coefficient Determination Demonstration	▸ Learn the experimental principles and methods for determining the second virial coefficient in the laboratory.
DYH711	Crystallization Experiment Demonstration	▸ Potassium chloride is used as the crystallization medium to obtain crystal products by the cooling crystallization method. ▸ Master the method of improving the purity and yield of crystallization product through crystalline operation.
DYH751	Chemical Instrument Practical Training Device	▸ Cognition and operation experiment of detecting sensor actuator in modern industry automation system. ▸ Cognition and operation experiment of instruments in modern industry automation system. ▸ The components, cognition and operation experiment of simple control system in modern industry automation system. ▸ Knowledge and skills training and identification of instrument verification of enterprise instrument room. ▸ Understand and master the system and methods of modern control system by using the typical control hardware system and control software that supporting the chemical industry automation instrument training system and widely adopted by enterprise process automation.

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Model	Name	Application
DYH756	Distillation Practical Training Device	▸ Completely reflect the typical distillation separation process, and meet the practical training requirements of students who majored in chemical technology, chemical machinery and process control. Including distillation operating skills training, instrument operating skills training, and process control operating skills training. ▸ The practical training device enables the students to master the theoretical knowledge of distillation (the basic concepts and the basic calculation of the distillation, etc.), and complete the performance testing of the distillation process; ▸ Equipped with DCS access port, the device can be monitored by computer and configuration software; ▸ With simulation software, students can make simulation preview;
DYH761	Comprehensive Heat Transfer Practical Training Device	▸ The practical training device enables the students to master the theoretical knowledge of heat transfer(basic concepts of heat transfer, heat exchanger types and application of heat transfer in production, etc.), and complete the performance testing of the heat transfer process. ▸ Master the principles of typical equipment such as tubular heat exchangers, double pipe heat exchangers, plate heat exchangers, steam generators, fans, etc., as well as the display and control solutions of main parameters. ▸ Preset multiple fault points to train students to find and solve problems. ▸ Equipped with DCS access port, the device can be monitored by computer and configuration software; ▸ With simulation software, students can make simulation preview;

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