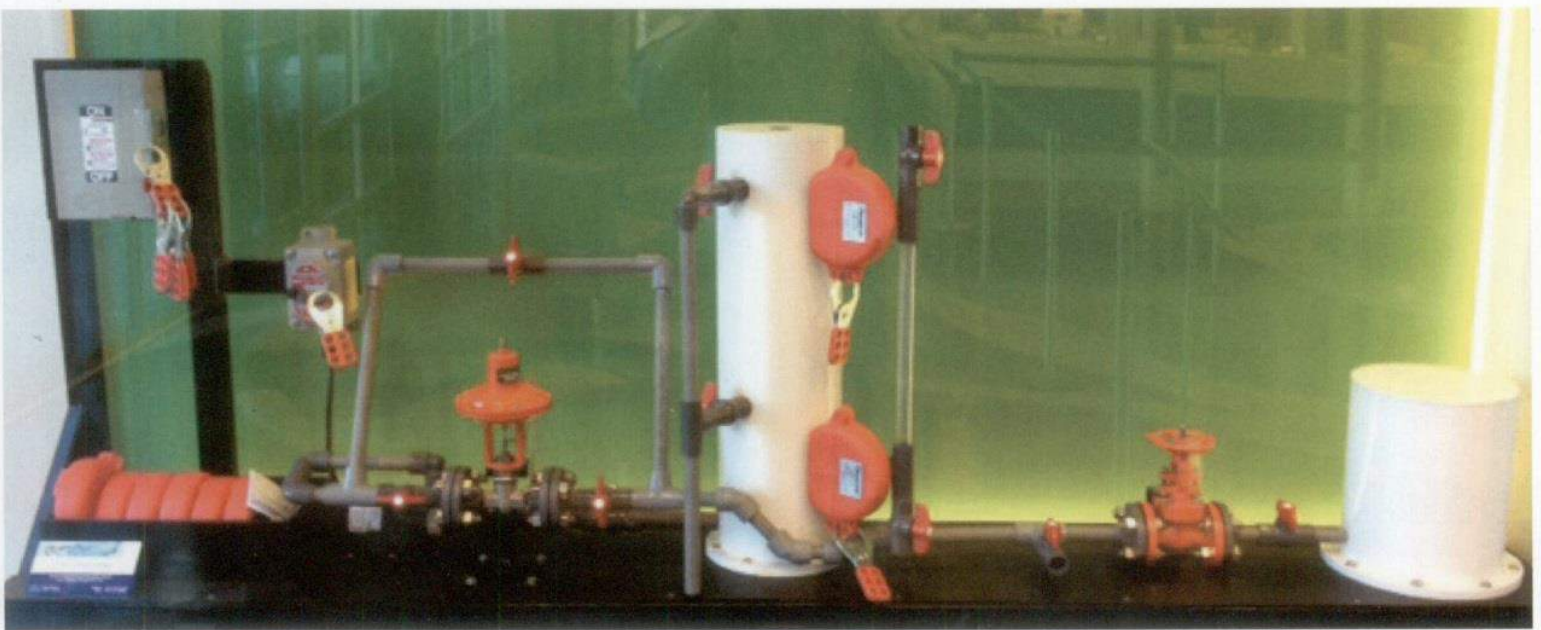


...THE GEARS  
OF TECHNOLOGY  
SERVICING THE  
WORLD.



**BAYPORT**  
Training & Technical Center

# Product Catalog



LOCK-OUT/TAG-OUT

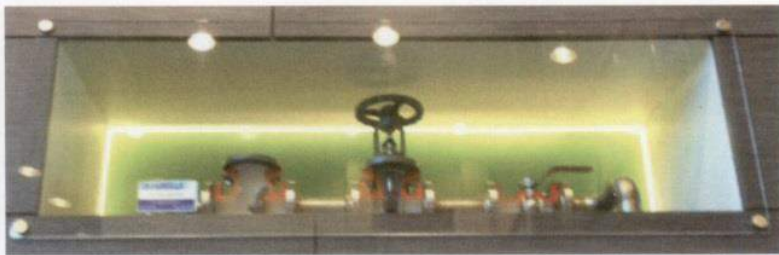


SAFETY VALVE



CONTROL VALVE CUT-AWAY

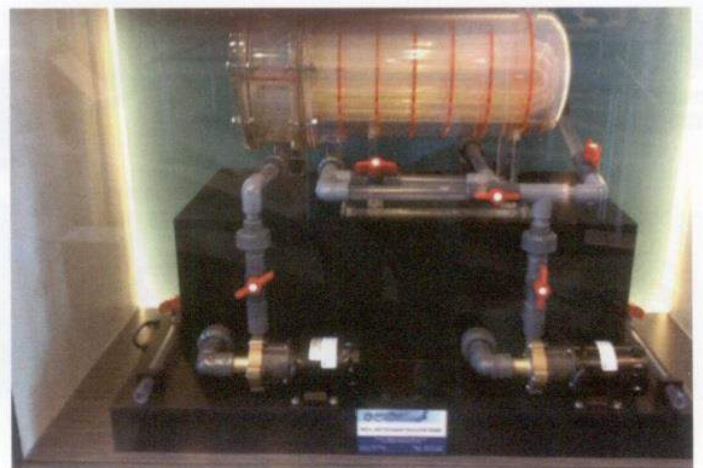
UNITS REQUESTED BY THE ALLIANCE SAFETY COUNCIL OF BATON ROUGE FOR DISPLAY IN THEIR NEW BUILDING.



CUSTOM CUT-AWAY DISPLAY



ACRYLIC HEAT EXCHANGERS



HEAT EXCHANGER CIRCULATION TRAINER



# BAYPORT

Training & Technical Center

Bayport Training & Technical Center (BTTC), is a state-of-the-art facility, where we design and build training simulators and educational models in a wide variety of fields. Plant training, process technology education, industrial training, training tools, glass and acrylic training models, industrial model demonstrators, and industrial services within the technical disciplines and various processes.

Located in the heart of the refining and chemical processing center of the world along the U.S. Gulf Coast in La Porte, Texas, our building has fully equipped research, manufacturing and special production areas. We offer the most advanced proprietary training resources available anywhere such as: Glass and Acrylic Working Process Demonstrators, Cut-A-Way Valves, Pumps, Compressors and Electric Motors, Static Visual Models, Training Units, and Full Scale Custom Process Trainers.

We are committed to providing our clients innovated products, customized services, and advanced skills to fit your needs anywhere in the world. Call us at 281-471-1229 to discuss your training needs. From that moment forward, you will know you have a partner in advancing your training and educational programs.

## Mission Statement:

To continuously work to achieve and repeatedly prove BTTC's focus on existing and new technologies, quality and value in our products and services, through never ending diligence and dedication in providing unique tools, experienced personnel and contribution to our field of endeavor.

## Goals Statement:

To be recognized in the Global marketplace as the highest value partner that a client or association could hope to have. To be THE GEARS OF TECHNOLOGY SERVICING THE WORLD!

# STATIC MODELS



6020  
MULTI-PASS FLOATING HEAD



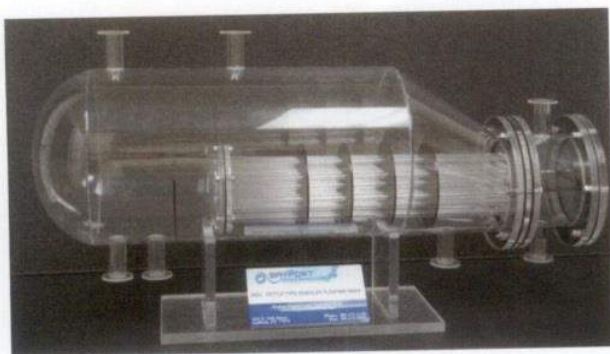
6023  
FIXED TUBE SHEET SINGLE PASS



6021  
FIXED TUBE SHEET MULTI-PASS



6024  
U-TUBE TYPE



6022  
KETTLE TYPE REBOILER, FLOATING  
HEAD W/REMOVABLE TUBE BUNDLE



6025  
VERTICAL THERMOSYPHON REBOILER

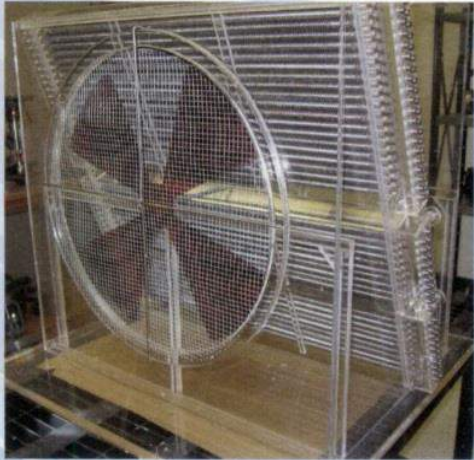
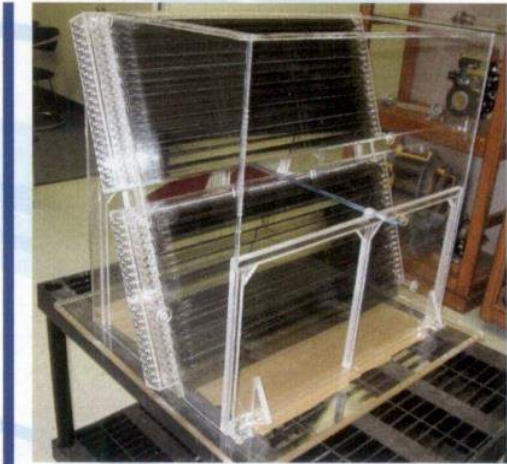


6030  
MULTI-PORT PLATE EXCHANGER

OPERATIONAL FEATURES OF THESE TRANSPARENT ACRYLIC TRAINING TOOLS ALLOW DISMANTLING IN YOUR CLASSROOM, SHOWING THE PARTICIPANT THE COMPONENT PARTS, HOW THEY ARE ASSEMBLED, HOW THEY LOOK AND GASKET POSITIONING. YOU CAN THEN REASSEMBLE THE HEAT EXCHANGER OR ALLOW THE PARTICIPANT TO COMPLETE THE TASK FOR TRAINING PURPOSES.



TRAY-2  
ACRYLIC DISTILLATION TRAINING TRAYS

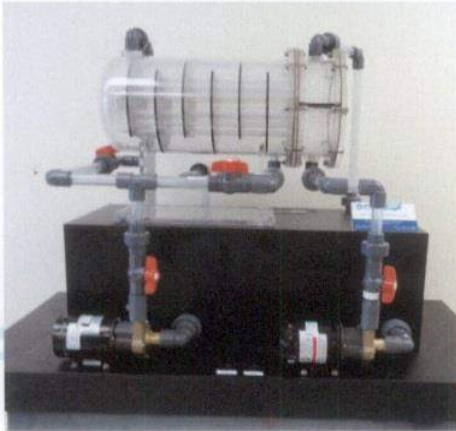


WE CAN ALSO BUILD CUSTOM ACRYLICS LIKE THE ABOVE CREATED FOR TEX-FIN



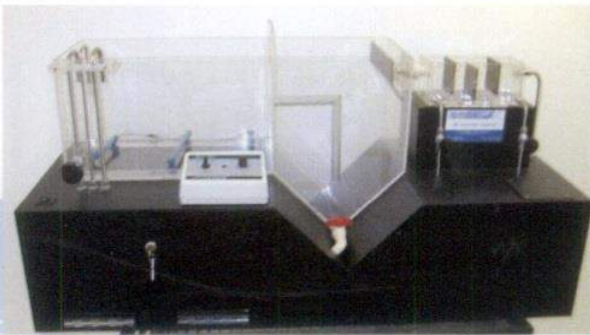
PRTM  
PLATFORMER REACTOR TRAINING MODEL

# ACRYLIC WORKING DEMONSTRATORS



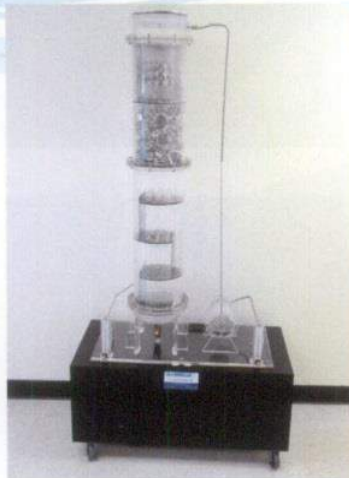
## HECT-2 U-TUBE CIRCULATION TRAINER WITH BACKWASH

This table top working model has two (2) circulation pumps and two (2) supply tanks for demonstration. Different colored water streams will be circulated through the shell side and through the tube side to simulate the working of a real heat exchanger.



## WWT WASTE WATER TRAINING UNIT

This unit is designed to provide maintenance and operations personnel associated with Waste Water Treatment Facilities a first hand look at the workings of and the various methods of modern waste water treatment.



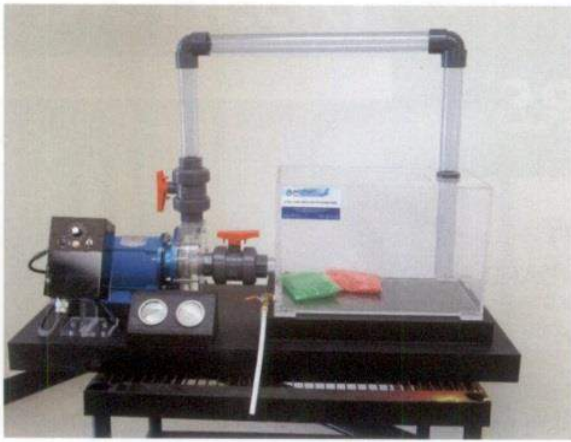
## DTT-5 ACRYLIC DISTILLATION TRAINING TOWER W/REBOILER & ROTO-METERS

This working model is an impressive and dynamic educational piece of equipment! It dramatically demonstrates the operation of a column using water and air. The model simulation is designed to show the basic process of distillation. Liquid traveling downward comes in contact with the vapors (gas bubbles) traveling upward, thus allowing the cooler liquid to condense any heavy compounds out of the lighter vapor stream.



## LUBE LUBRICATION TRAINING UNIT

The Lubrication trainer is an acrylic bearing housing showing three of the most common methods of using a static pool (reservoir) to lubricate bearings. The unit is equipped with a variable speed motor, which allows the shaft to run slowly and at operating speeds. This allows the student to observe the lubrication process as well as rotating equipment such as the shaft and coupling.

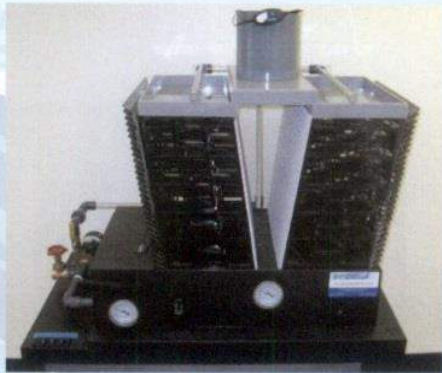


**PDTM-2  
PUMP DEMONSTRATION TRAINING MODEL**

This “see through” training model has many features that can be used to train operators on the mechanical workings of a centrifugal pump. By manipulating the flow with suction and discharge valves and adjusting RPM's this model can demonstrate cavitation and other pump and flow phenomena. Our Pump Demonstration Model is a very popular tool for a site and sound concept of these workings, which cannot be experienced in the field or with drawings or computer simulations.



**PDTM-2 C  
CUSTOM DUAL PUMP DEMONSTRATION MODEL**



**CT-2  
WORKING ACRYLIC COOLING TOWER  
(W/HEATER, GAUGES)**

Oil Refineries and Petrochemical plants use water to cool down the high temperatures that are generated by the particular process they use. This model is made of acrylic to allow full view of the water flow through the tower. This table top working model has an induction fan, heater, circulation pump, mist maker and tank.



**CDT  
ACRYLIC CENTRIFUGE  
DEMONSTRATION UNIT**



**FRT  
FLOATING ROOF TANK**



**VT  
ACRYLIC VACUUM TRAINER**

# MECHANICAL & MAINTENANCE TRAINERS



**SMMT**  
**STANDARD MULTIPLE MECHANICAL TRAINER**

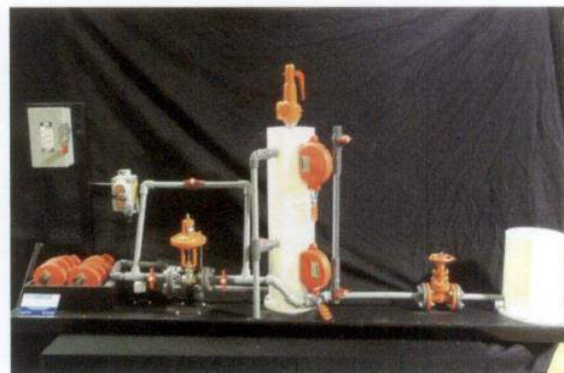
This mechanical trainer unit is designed to provide maintenance and operations personnel hands-on exposure to a variety of common mechanical situations inherent to industrial processes, and allows personnel to progress through the full range of required skills using one comprehensive training unit. Development of skills associated with vertical and various horizontal 'shaft alignment', 'gear drives', 'belt drives', 'chain drives', 'pump maintenance', and 'lock-out/tag-out' can be achieved through full employment of this unit



**MT**  
**MAINTENANCE TRAINER**



**FGT**  
**FLANGE AND GASKET TRAINER**



**LOTO**  
**LOCK OUT TAG OUT**

NOT PICTURED: ITB - IMPELLER TRAINING BOARD



# DISTILLATION UNITS



## DTU-1 GLASS DISTILLATION TRAINING UNIT WITH CU

This actual working glass distillation unit is our full size model. The DTU-1 is state of the art in teaching process distillation, incorporating a stripper column as well as the main column and includes a custom chilled water unit.

The pressure system, temperature readouts and controls, pump switch panel and flow controls are centrally located for ease of operation and safety.



## DTU-2 PORTABLE GLASS DISTILLATION TRAINING UNIT WITH CU



The Process Operator Training Unit (DTU-2) was conceived and designed to give the operator of fractionation and distillation equipment a visual concept of what goes on inside those metal towers or columns that dominate the landscape in a petroleum refinery or petrochemical plant.

There are no automatic controls so that whatever happens on this unit is dependent on what the operator does, or does not do. The glass fractionating column allows the operator to see the results of his actions very quickly. Consists of the following equipment; Main Column, Pumps (4), Overhead Condensers, Heat Exchangers, Cooling System, Reboiler, Temperature Gauges and piping to actually perform distillation on a small scale model. This unit comes with carrying case which acts as a stand for the unit.

This unit has been a staple in the process training industry worldwide for many years and is currently our most widely used production item. With it's hands on learning experience it is hugely popular in basic process classes in industry and education.

*The College of the Mainland uses the Glass Distillation Unit (DTU-2) in a variety of courses. The DTU-2 is used to teach students everything from how to draw P&IDs to the actual operation of a distillation column. The unit is extremely flexible and forgiving. You can demonstrate different flooding scenarios and have it recover in just a few minutes. The students comprehension of distillation principals is greatly improved by seeing the color graduation of the components across the column. The DTU is so heavily utilized by our instructors, that it generally undergoes a mini overhaul once a year just to keep it in top shape. We consider this equipment to be invaluable to our students and instructors in the Process Technology area.*

Jerry Duncan, Assistant professor  
Co Chair Process Technology  
College of the Mainland  
Texas City, Texas

Mike Cobb, Assistant professor  
Co Chair Process Technology  
College of the Mainland  
Texas City, Texas

# PROCESS TRAINER UNIT



## CPT CUSTOM PROCESS TRAINER

The Custom Process Trainers are “hands on” training units for process operators and maintenance technicians. The units are built to duplicate “real world” operating equipment and consists of separate functions all integrated into a compact, effective training unit in order to train personnel in the process industry in a safe manner.

(A) Pumps – There are two ANSI process pumps mounted in parallel on the trainer.

(B) Tanks & Piping – The trainer is equipped with two tanks and associated interconnecting piping. All tanks and piping are stainless steel to minimize corrosion.

(C) Level Control – The BTTC Process Trainer is equipped with a level control loop, which controls the level in the top receiver.

(D) Pressure Control – The unit is equipped with a pressure control loop.

(E) Flow Control – The trainer has an orifice flow control loop on it. The flow is controlled to the overhead tank.

(F) Temperature Control – A temperature control system/loop is provided with the trainer. The system consists of a side stream, which flows through a fixed wattage heater. For safety reasons, the heating unit is equipped with a high temperature shutdown and an over pressure relief valve.

(G) PLC – The Programmable Logic Controller (PLC) is wireless and comes with a touch screen that allows the instructor the ability to program different functions from any area of the room. It is integrated to all the control loop functions of the trainer. As received, it is programmed to operate the system, as well as provide cascading abilities between various loops. If desired, it can also be equipped and programmed to provide supervisory interlock functions.

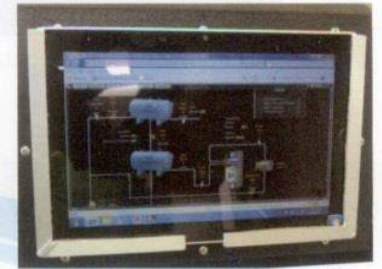
The Process Trainers are capable of a minimum of 38 specific training and educational functions with an endless number of potential variables for trouble shooting scenarios on piping, valves, flanges, flow, level, pressure, electrical, instrument, pneumatics, It is endless what can be taught on this all around trainer.

### ADD-ONS:

PHT - PH TRAINING MODULE

DIS - DE-IONIZATION TRAINING MODULE

DST - DE-SALINATION



## CFLCD CUSTOM FLOW LEVEL CASCADE DEMONSTRATOR

The Custom FLCD unit was designed to demonstrate various fluid flow properties, and to allow hands-on training relative to the design and control of those processes common to industry.

The unit consists of the following main components:

- Multiple loop programmable controller
- Fluid pump
- Orifice assembly
- Transmitters
- Control valves
- Fluid storage and flow tanks
- Heater Assembly with Cooler
- Pressure gauges and components
- Operates on 120 Volt 60 cycle
- Mounted on Cabinet base on Casters
- Approximate Dimensions; 48"L X 32"W X 60"H.



## PTFD PRESSURE, TEMPERATURE, FLOW DEMONSTRATOR

# PROCESS UNITS



## FDST FLASH DRUM SEPARATOR TRAINER

Many industrial processes deal with separation of volatile gasses dissolved in a liquid. Separation and recovery of the components is normally achieved using a flash drum. BTTC has designed our FDST to allow visual observance and physical control of the 'flash drum' process during the separation of water saturated with carbon dioxide. The dedicated control panel operates flow, pressure, and temperature measurement devices required to achieve the separation process within operating parameters.



## HTDU HEAT TRANSFER DEMONSTRATION UNIT

Controlling heat levels of fluids through industrial process operations is a very common requirement which has resulted in various heat exchanger configurations unique to specific applications. BTTC has designed the Heat Transfer Demonstrator with a view to showing differences in efficiency depending on exchanger design, material of construction, flow direction or pattern, and flow velocities. The HTDU is a self contained unit complete with flow and temperature indicators and controllers.

### EQUIPMENT SPECIFICATIONS:

- Entire unit mounted on metal structure with casters
- Two pumps for hot and cold fluid
- Manifolder with valving to accommodate reverse flows
- Water heater with storage tank
- Refrigerant type water chiller with storage tank
- Flow meters and controllers on both phases
- Digital thermometers on inlet and discharge of flows
- Four various heat exchangers

### NOT PICTURED:

GLPT - GAS LIFT PROCESS TRAINER

PFDU - PLATE AND FRAME DEMONSTRATION UNIT

EPTU - ETHANOL PROCESS TRAINING UNIT

# PROCESS UNITS



## FCCU GLASS MODEL FLUID CATALYTIC CRACKING UNIT

The model consists of a reactor, regenerator, standpipes, risers and air blower which forms the catalyst circulation system. The catalyst flow is controlled by the valves on the reactor and regenerator standpipes. Circulation fluidizing of the catalyst is achieved by injecting air into the air inlet of the regenerator, steam inlet of the stripper and the feed inlet to the reactor riser, and is controlled by three individual needle valves. Evaluations of start up, operation and shut down procedures in FCCU units can be invaluable to industry and educators. Demonstrations of catastrophic events may be safely simulated.



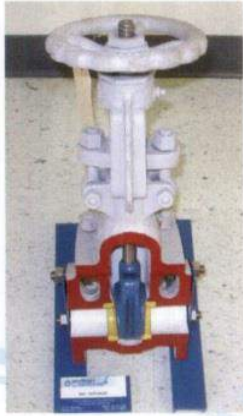
## 3PS WORKING ACRYLIC 3 PHASE SEPERATOR

BTTC has designed and built the Three Phase Separator to simulate process specific phenomena associated with the separation of gasses and fluids typically found in a crude oil production stream. This process trainer is a self contained unit which continuously mixes air, water, and a hydrocarbon based fluid which then flows into a series of 'see through' vessels where gravity separation takes place. The liquid components are returned to individual storage tanks prior to reblending, and the air is discharged to atmosphere.



## CODTM CRUDE OIL DESALTER TRAINING MODEL

# CUT AWAY VALVES



5001  
GATE VALVE



5002  
GLOBE VALVE



5003  
SWING-CHECK VALVE



5008  
SAFETY VALVE



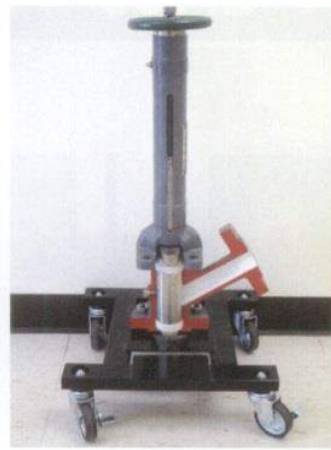
5009  
CONTROL VALVE



5013  
TWIN SEAL PLUG VALVE



5021  
3-WAY VALVE



5025  
SAMPLING VALVE



CCD  
CUSTOM CUT-AWAY DISPLAY

This equipment is cut-a-way so you can see and identify the internal components. The Cut-Away Valves may be taken apart and reassembled for training purposes.

These pictures of cut-away models are representative of our products. The actual equipment, size and color scheme may vary with each piece according to availability and customer preference.

NOT PICTURED:

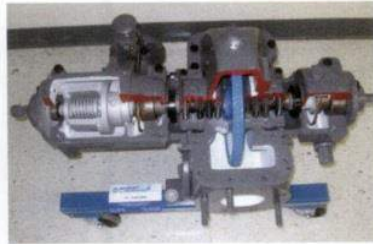
- 5004 BALL-CHECK VALVE
- 5005 PLUG VALVE
- 5006 BALL VALVE
- 5007 LIFT-CHECK VALVE
- 5010 SPRING-CHECK VALVE
- 5011 NEEDLE VALVE
- 5012 NON RISING STEM VALVE
- 5014 DIAPHRAGM VALVE
- 5015 PRESSURE RELIEF VALVE
- 5016 ANGLE VALVE
- 5017 GAUGE COCK VALVE
- 5018 CONTROL VALVE (3-WAY)

- 5019 WAFER TYPE CHECK VALVE
- 5020 BUTTERFLY VALVE
- 5022 ANGLE GLOBE VALVE
- 5023 DIAPHRAGM VALVE (SAUNDERS TYPE)
- 5024 FLUSH BOTTOMS TANK VALVE
- 5026 SOLENOID VALVE
- 5027 IN-LINE CHECK VALVE
- 5028 MOTOR OPERATED VALVE
- 5029 ORBIT VALVE
- 5030 VALVE CUT-AWAY ASSORTMENT, DOWNSIZED
- 5031 WELDED BODY VALVE
- 5040 AIR OPERATED BALL VALVE

# SPLIT CASE CUT AWAY



9001  
CENTRIFUGAL SINGLE STAGE  
W/MECHANICAL SEAL



9101  
STEAM TURBINE



9017  
CENTRIFUGAL PUMP SKID



9202  
RECIPROCATING COMPRESSOR



9302  
THREE PHASE ELECTRIC MOTOR

This equipment is either cut-away or has a horizontally split case so you can see the internal components. They may be taken apart and reassembled for training purposes. Models shown are representative of typical production items. Actual equipment may vary according to manufacturer and design or customer specifications. Please call for us for any custom requirements.

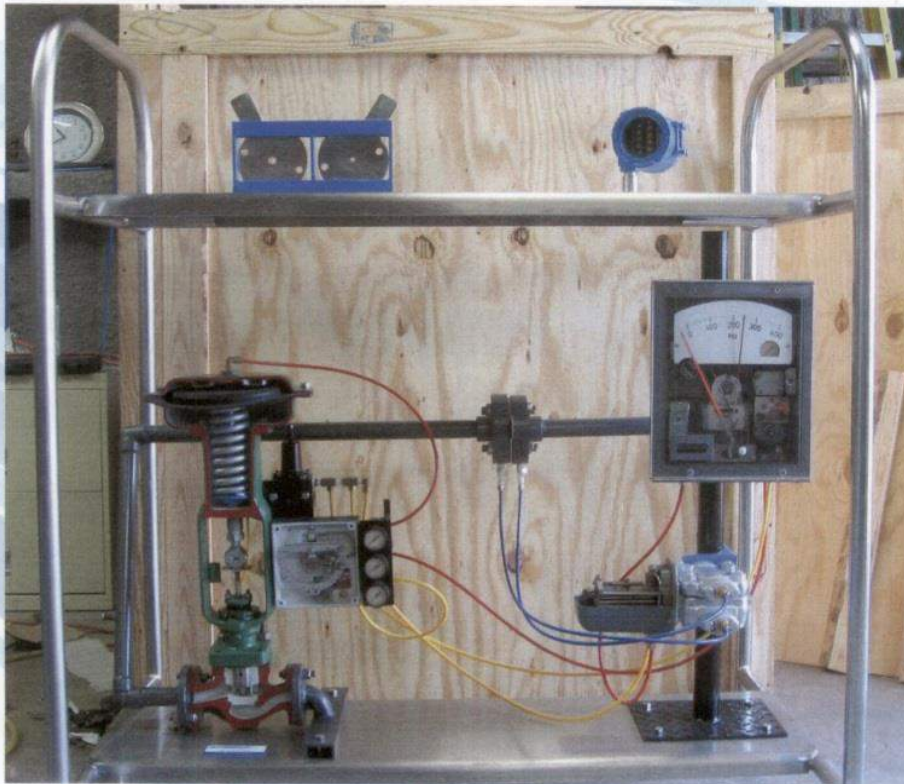
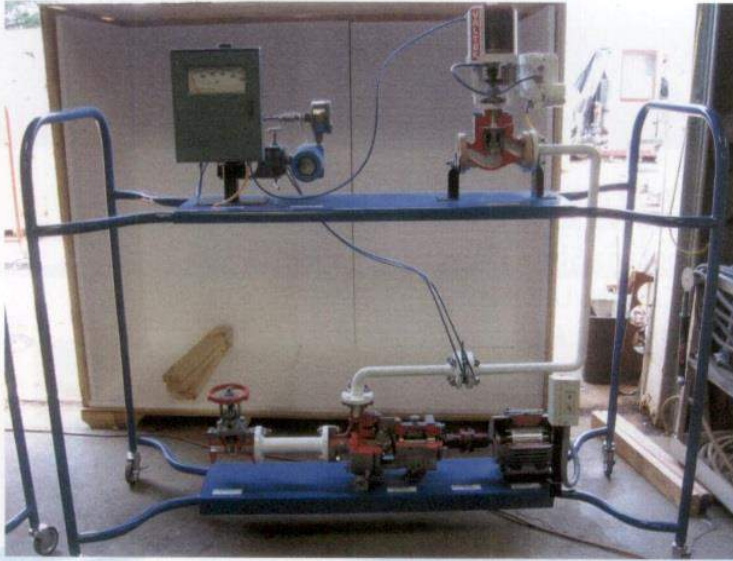
## NOT PICTURED:

9002 MULTI-STAGE CENTRIFUGAL PUMP  
9003 STEAM RECIPROCATING PUMP  
9004 ROTARY GEAR PUMP  
9005 ROTARY SLIDING VANE PUMP  
9006 MULTI-SCREW PUMP  
9007 ROTARY VANE PUMP  
9008 TURBINE PUMP  
9009 ROTARY VANE BLOWER  
9010 SLIDING VANE AIR PUMP  
9011 HORIZONTAL SPLIT CASE CENTRIFUGAL  
9012 TWO STAGE SUBMERSIBLE PUMP  
9013 POSITIVE DISPLACEMENT PUMP  
9014 PISTON PUMP  
9015 DIAPHRAGM PUMP  
9016 MAGNETIC FLOW METER  
9018 HYDRAULIC DIAPHRAGM PUMP  
9020 FOXBORO 43 AP CONTROLLER  
9021 DP CELL TRANSMITTER

9023 ORIFICE ASSEMBLY  
9024 ELECTRONIC PRESSURE TRANSMITTER  
9203 SCREW COMPRESSOR  
9204 LUBRICATED GEAR REDUCER  
9301 SINGLE PHASE ELECTRIC MOTOR  
9305 4 STROKE DIESEL ENGINE  
9400 MULTI STAGE STEAM PUMP  
9401 LOBE BLOWER  
9403 VACUUM EJECTOR  
9501 PNEUMATIC CAGE DISPLACER  
9601 INVERTED BUCKET STEAM TRAP  
9602 THERMOSTATIC FLOAT STEAM TRAP  
9701 BOURDON TUBE GAUGE  
9702 BELLOWS GAUGE  
9703 DIAPHRAGM GAUGE  
9801 Y-TYPE STRAINER  
9802 DUAL BASKET STRAINER

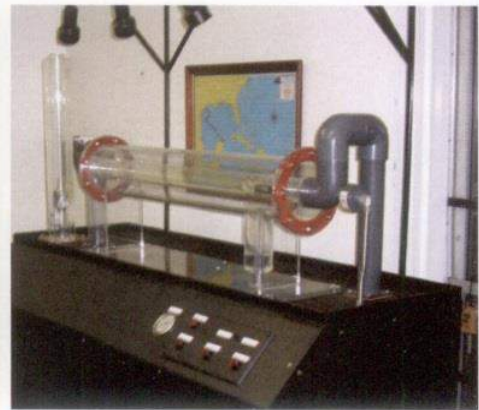


# RACK SYSTEMS



These cut-away racks add a unique and beneficial twist to standard cut-away training aids.

The component set up may vary according to customer needs, while the ideal objective is to place relative pieces in the most common positions or "real world" scenarios. We will mount cut-aways from our inventory or take shipment on equipment to be cut-away and mounted



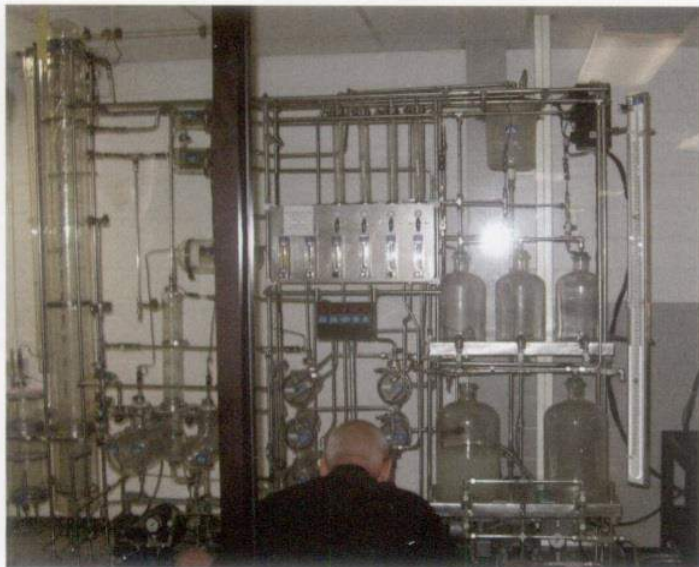
CUSTOM WORKING UNITS BUILT FOR NATCO/CAMERON FOR DISPLAY AT THE OFFSHORE TECHNOLOGY CONFERENCE



LOCK-OUT / TAG-OUT UNIT  
BUILT FOR CANADIAN ELECTRICITY PROVIDER  
ONTARIO POWER GENERATION



CUSTOMER PROCESS TRAINER BUILT FOR  
LAMAR STATE COLLEGE IN PORT ARTHUR



DTU-1  
BUILT FOR VALERO THEN DONATED BY THEM TO  
LAMAR INSTITUTE OF TECHNOLOGY

Listed below are a few of the many clients Bayport Training & Technical Center services.

## Colleges and Universities

Brazosport College  
College of the North Atlantic  
Dakota County Technical College  
Delaware Technical and Community College  
Fletcher Technical College  
Illinois Eastern Community College  
Indian River State College  
Ivy Tech Community College  
Joliet Junior College  
Lamar Institute of Technology  
Lamar State College - Port Arthur  
Lee College  
Los Angeles Trade Technical College

Mcneese State University  
Montana State University – Billings  
N.C. State University  
Northeast Alabama Community College  
Nunez Community College  
Pima Community College  
River Parishes Community College  
Seward County Community College  
Sowela Technical Community College  
South Central Louisiana Technical College  
University Alaska - Anchorage  
The Victoria College

## Regional and International Clients

Alliance Safety Council  
Anadarko Petroleum  
Atlab – UAE  
Atomic Energy of Canada LTD  
Baker-Hughes  
Cameron  
Chevron USA El Segundo  
Citgo  
Conoco/Phillips – UK  
Consumers Energy Co.  
Daniel Measurement and Control  
Dolphin Energy – Qatar  
Dow Chemical

Eurl Petrofac – Algeria  
Freeport-Mcmoron Copper & Gold  
Gemco Energy  
Global Bio-Medical Supply, Inc  
Husky Energy  
Kisco – UK  
Korea Atomic Energy Research Institute  
Lubrizol  
Navajo Refinery Co. LLC  
Ontario Power Generation  
Tengizchevroil – Kazakhstan  
Tex-Fin Inc.

FOR MORE INFORMATION, VISIT OUR WEBSITE

[WWW.BAYPORTTECHNICAL.COM](http://WWW.BAYPORTTECHNICAL.COM)



**TECH-LABS**

Houston, Texas

[www.tech-labs.com](http://www.tech-labs.com) | 1-800-445-1088