

# **QVF** **Teaching System**

**REFLECTING THE  
MODERN TREND IN  
CHEMICAL  
TECHNOLOGY  
EDUCATION**

**IT IS TRULY**

*Today's system for  
tomorrow's engineers*



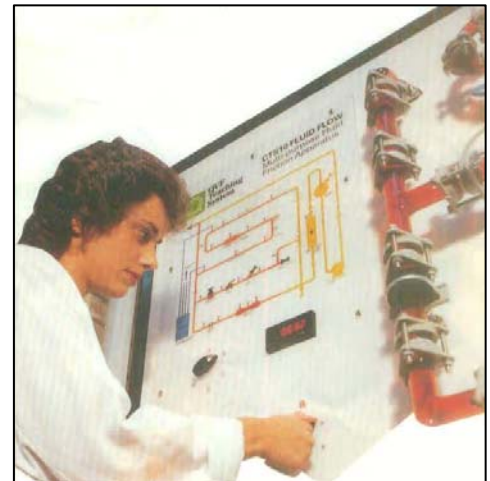
Modern chemical plant is becoming increasingly sophisticated and complex. Often computer controlled, the operation of the plant is usually remote through specific measurement and control systems. Indeed, in many cases the plant operator never sees the actual processes involved. Nevertheless, a clear understanding of the principles involved in chemical process operations is vital for anyone working in the chemical industry. To this end, the QVF Teaching System is aimed at providing a clear and comprehensive view of different stages which may be used in building the complete plant.

## The System In Concept

For over 45 years now, QVF Process Systems has been supplying Teaching Systems to educational establishments throughout the world. Using borosilicate glass process plant and pipeline components as the basis for their construction, the system has proved extremely popular with universities, technical schools, colleges of further education and polytechnics in every continent where their success in training engineers and plant operators alike has been unprecedented.

Although the design and contents of the actual units has remained pretty much the same, the QVF Teaching System of today – as the name implies – really is a complete system and not just a piece of pilot scale hardware. It's a new concept. It's today's system for tomorrow's engineers and in terms of educational support, it's truly outstanding.

Eleven QVF Teaching Systems modules are currently available from QVF Process Systems, UK. They cover the majority of the unit operations from distillation through to evaporation and absorption. Each system is complete in every respect. From a small scale process plant to tutor's and student's manuals, each QVF System provides everything necessary to enable the lecturer to teach and the student to understand the principles of chemical engineering and chemical plant operation, safely, easily and effectively.



## The System Ingenious

In every respect the QVF Teaching System is ingenious. Just take a look at its many advantages.....

**Proven** during 45 years in educational establishments worldwide.

**Custom Designed** by chemical technology lecturers for chemical technology lecturers and their students.

**Complete** in every sense of the word; complete teaching manuals; complete process plant. There's nothing more to buy and no development time to programme.

**Versatile** to cater for plant technician through to undergraduate level with various equipment options to suit.

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**Cost Effective** we've done all the work *meaning no development costs*; competitive *meaning low capital costs*; small scale, common chemical systems *meaning low running costs*.

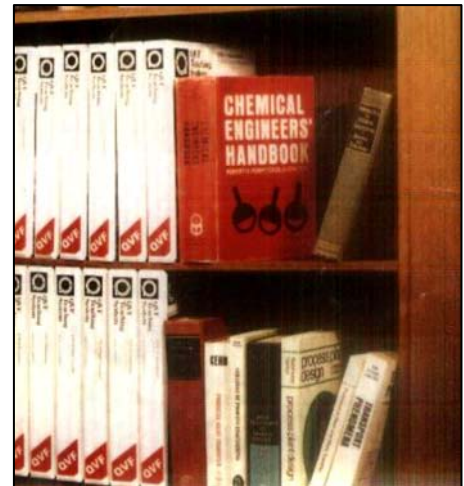
Safe design, safe operation, safe chemicals, safe for your students to use.

**Long Life** built exclusively from corrosion-resistant materials for a lifetime of trouble free service.

**Fully Visible** because all process parts are constructed from QVF borosilicate glass. Flow patterns, changes and other phenomena can be closely observed and noted. Nothing is hidden.

**Easily Operated** from a full-size instrument/control panel incorporating a large mimic diagram.

**Modular Construction** permitting easy modification to suit changing requirements such as pilot plant or research work.



## The System In theory

With each of the eleven QVF Teaching System modules, a comprehensive set of teaching manuals is supplied containing basic theory, experiments, questions and a data analysis.

### Tutor's Manual

*(one copy with each system)*

*The basis of a complete lecture series containing:*

- the relevant theory
- industrial applications
- details of how to set up the experiments
- safety precautions
- typical experimental results
- questions and tasks to test the student understanding
- model answers to questions

### Student Manuals

*(25 copies with each system)*

*A summary of the tutor's manual in a convenient A5 format, designed as a permanent revision aid for the student and used in conjunction with the experiment books.*

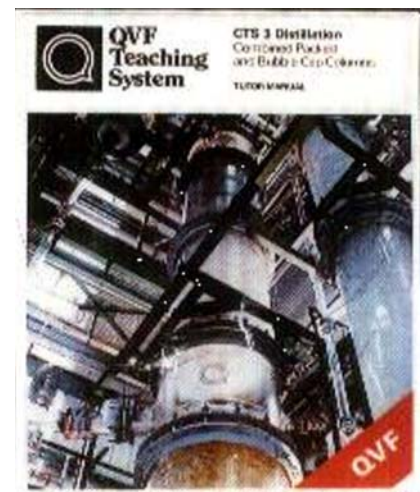
- theory summary
- importance of variables and their relevance to industrial applications
- general operating instructions
- safety precautions

### Experiment Books

*(25 copies for each system experiment)*

*Each system consist of several experiments and these complete books – containing log and calculation sheets and graph paper – are provided for each experiment.*

- defining of experimental objectives
- step-by-step, easy-to-follow experimental procedure
- safety precautions
- questions and tasks to assess student understanding and ability



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## Installation and Maintenance Manual

(One copy with each system)

A comprehensive manual containing:

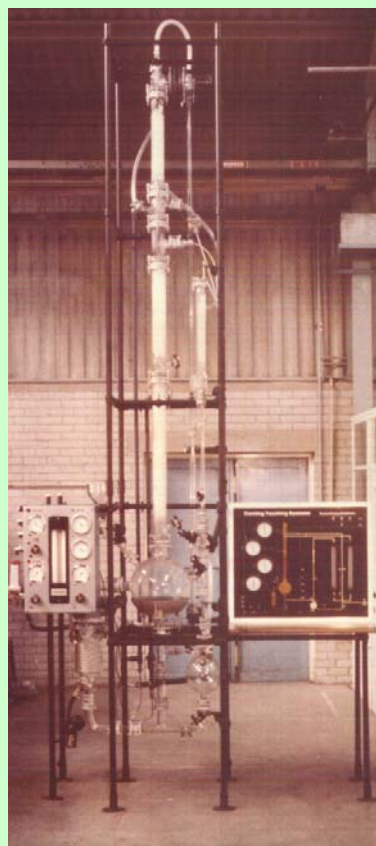
- step-by-step equipment installation instructions
- recommended maintenance procedures
- complete set of drawings
- specific maintenance instructions for pumps, valves, heat exchangers, etc.

## The System In practice

With the QVF Teaching System, seeing really is believing. It's also understanding, as every unit within the range is an authentic pilot scale version of a tried and tested production plant. Thus, a true industrial environment is simulated within the laboratory and weather your students are training to become engineers or pilot plant operators, the experience they will gain by working with the QVF Teaching System will be the experience greatly beneficial to their future in industry.

In practice the QVF Teaching System offers everything necessary to .....

- prove and demonstrate basic unit operation theory
- enable the student to see how process equipment operates
- provide training in chemical plant control
- carry out project and research work
- permit easy modification for future requirements



## The QVF Teaching System

CTS 1	<b>Distillation:</b> packed column
CTS 2	<b>Distillation:</b> bubble cap column
CTS 3	<b>Distillation:</b> combined packed and bubble cap columns
CTS 4	<b>Evaporation:</b> climbing film, natural and forced circulation evaporator
CTS 5	<b>Evaporation:</b> double effect evaporator
CTS 6	<b>Extraction:</b> solid-liquid extractor
CTS 7	<b>Extraction:</b> liquid-liquid pulse column
CTS 8	<b>Heat Transfer:</b> heat exchanger test rig
CTS 9	<b>Fluid Transport:</b> centrifugal pump test rig
CTS 10	<b>Fluid Flow:</b> multi-purpose fluid friction apparatus
CTS 11	<b>Absorption:</b> packed column absorbers
CTS 13	<b>Process Control:</b> three term temperature and flow control rig

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For further details, contact:

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