

# ILUDEST - High performance through system and know-how

Distillation on laboratory or pilot scale more and more requires great flexibility and high quality. Widely differing demands have to be taken into account:

- Integration into existing processes
- Efficiency and precision
- Simple scale-up
- Expansion capabilities for the future

Distillation is a highly specialized separating technology that requires extensive experience and competent advice

## **DE** *Iludest - The specialists with know-how*

We have specialized in the fascinating area of distillation. Due to a multitude of applications we are familiar with all problems that can be resolved by distillation, be it in research, development or production: We know the discerning demands expected in chemistry, pharmacy, biochemistry and environmental technology.

## **DE** *Iludest - The economically dimensioned system for every application*

Be it for the experimental stage in the laboratory, the pilot stage or on a process scale - ILUDEST supplies distillation plants tailored to the given application, and for throughput rates ranging from a few ml to 100 l/h. Simple operation with PC and modern measuring and controlling electronics give us the lead in the development of distillation plants.

### **Application and operation of ILUDEST plants** *Product range*

Our distillation plants are designed for extremely flexible service. The following lists a few of many examples:

- **Chemical industry:**  
Laboratories, pilot tests, production and training.
- **Petrochemical industry:**  
Quality assessment of crude oil and its products.
- **Metal-working industry:**  
Reprocessing of solvents
- **Chemical and biological institutes:**  
Laboratory studies, production and cleaning of chemicals.
- **Universities, technical colleges and vocational schools:**  
Studies, training and research
- **Food industry, pharmaceutical industry:**  
For instance: aromatics
- **Environmental technology:**  
Recycling of chlorinated hydrocarbons

We have established ourselves as problem solvers in the following areas:

- Distillation plants for the laboratory, pilot plant and production
- From the Vigreux column right up to the bubble cap tray column, from the packed column to the column with structured packing, with or without vacuum jacket.
- Distillation plants according to ASTM (e.g. 1160 and 2892)
- Thin-film evaporators
- Short-part evaporators
- Other apparatus in the fields of distillation and extraction upon request.

ILUDEST's application experience is extensive

### **ILUDEST - with high-tech modules tailor-made distillation**

- Experience, particularly in the field of distillation, is imperative to avoid mistakes, save time, invest economically, minimize follow-up costs, and guarantee a high quality.

Consequently, if you have a distillation problem you should consult us as experienced specialists. Consider the kind of solution we suggest as this will help you to avoid unprofitable investments.

We are pleased to place our experience at your disposal.

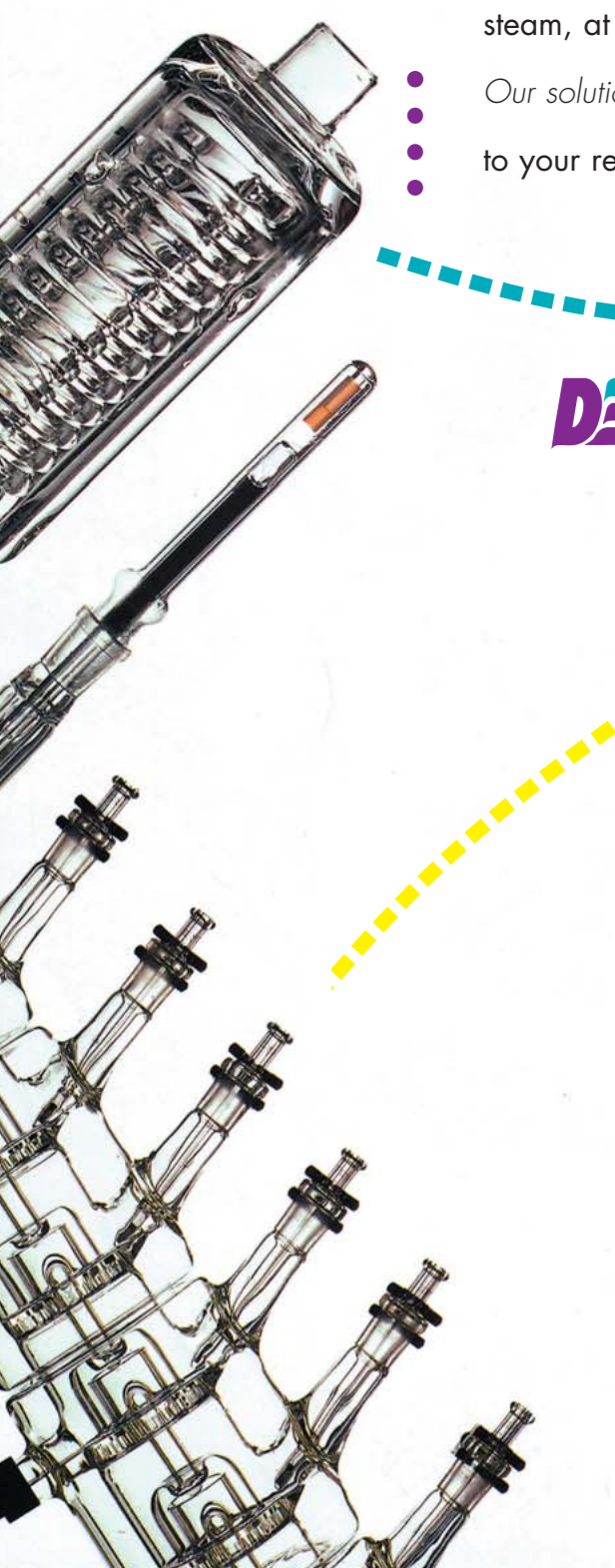
- **Process Plants for Laboratory- and Pilot Plant scale**  
Manually controlled or completely automated / computerized

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Distillation tailor-made

t: 1:27:27  
T: 80.1°C



- *Your problem:* You have to distil, be it 100 ml per day or 100 l per hour:
- Solvents, aromatics, acids, chlorinated hydrocarbons, petroleum fractions or simply water. Continuous or batchwise, heteroazeotropic or with carrier steam, at 40°C or 350°C, at normal pressure or 10<sup>3</sup> mbar.
- *Our solution:* Distillation plants not only made of glass. We match the plant to your requirements. Your problem determines the components: ■



**Iludest - Distillation tailored to your requirements**  
Our future-orientated concept:

**High efficient**

Through judicious selection of the appropriate components we achieve best standards of efficiency at high throughput rates.

**Operator friendly**

Simple and convenient operation of the plant with the highest possible safety standards through the use of hightech electronic measuring and controlling modules.

**Operation safe**

Temperatures, pressure, filling levels and cooling water are monitored. We can supply explosion-proof plants or equip plants with safety screens and fire protection troughs.

**Economical**

This modern distillation range is noted for its diversity and effectiveness: Distillation components designed as modules for combination and variation according to existing needs. The automatic, unmanned operation of ILUDEST plants spares the user unnecessary expenses.

**Adaptable**

We will match the modular system to your specific problem, irrespective of whether you are working with solvents, aromatics, acids, chlorinated hydrocarbons, petroleum fractions or simply water.

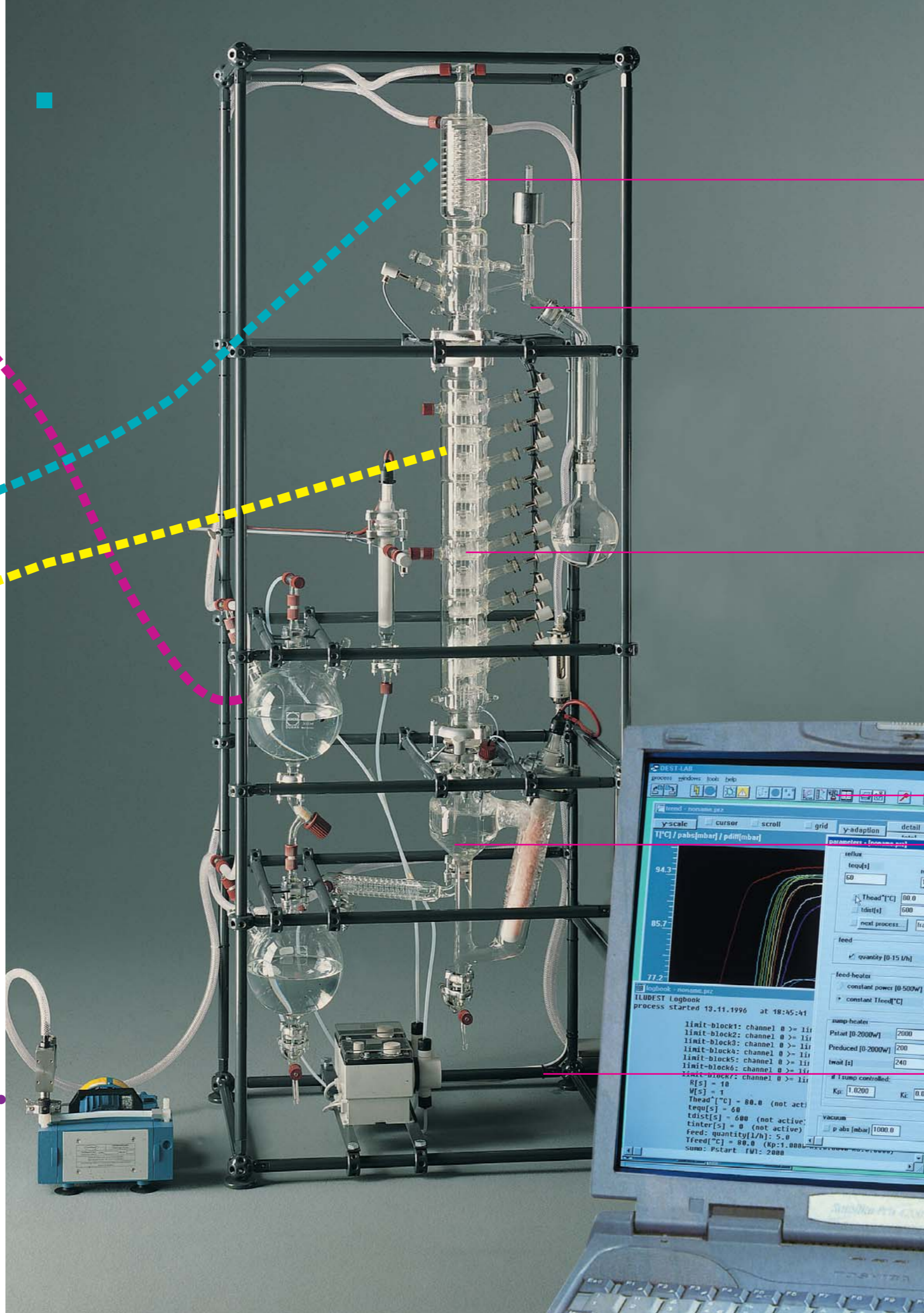
**Complete solutions as turn-key jobs**

- From a round bottom flask with distilling link to the fully automatic, computer controlled pilot plant
- Continuous or batchwise operation
- Modular construction
- Customized configuration - your problem defines the components used

**Material**

We place special emphasis on the highest possible quality in selecting the components and modules.

• • • • •  
**We are in a position to offer automatic distillation plants for unmanned operation at an outstanding price/performance ratio.**



**The condenser**

Liebig or Davis condensers for small quantities. Spiral condensers or tube heat exchangers for medium to high throughput rates.

**Product withdrawal**

Distillate withdrawal by ratio or rate control. Sump withdrawal by pump or siphon.

**The separation column**

Sieve tray and bubble cap tray columns for mineral acids, intensely polar and weakly wetting mixtures. Packed columns and columns with structured packings for high separating rates at normal pressure and under vacuum, with packing materials consisting of glass, ceramic, stainless steel or special materials. Column diameters from 15 to 400 mm. With throughput rates ranging from a few ml to more than 100 l/h. With or without vacuum jacket.

**The reboiler**

Round bottom flask or circulating evaporator. Directly heated by quartz-glass- or metallic heating rods. Indirectly heated by thermal oil in a jacket or oil bath, by steam or heating mantle. Thin-film or short-path evaporator for temperature sensitive or high boiling products.

**The periphery**

Our plants are complete: With stand, assembling accessories, cables and tubing. With vacuum control and metering pumps, thermostats and water chillers or without, whatever you like.

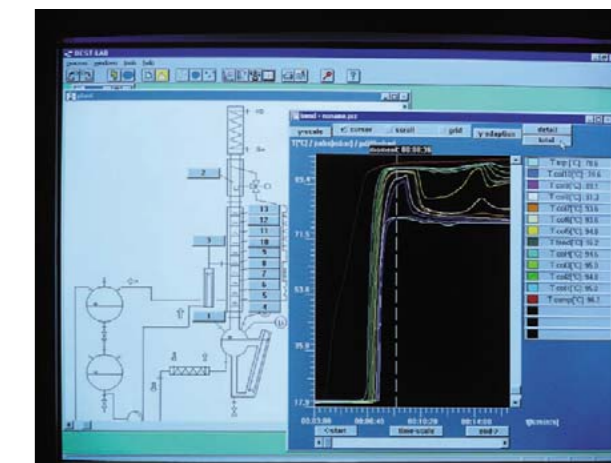
**Measurement and control**

By power controller and thermometer. Or by a fully computerized control system via keyboard and mouse, colour graphics on the screen and printer.

| Zeit<br>h:min | Kopf<br>T °C | Sumpf<br>T °C | Zulauf<br>T °C |
|---------------|--------------|---------------|----------------|
| 2:00          | 80.1         | 96.4          | 75.0           |
| 2:05          | 80.1         | 96.6          | 74.8           |
| 2:10          | 80.0         | 96.5          | 75.0           |
| 2:15          | 80.0         | 96.4          | 75.0           |
| 2:20          | 80.0         | 96.4          | 74.8           |
| 2:25          | 80.1         | 96.5          | 75.1           |
| 2:30          | 80.0         | 96.5          | 75.1           |
| 2:35          | 80.1         | 96.5          | 75.0           |
| 2:40          | 80.1         | 96.6          | 75.1           |
| 2:45          | 80.1         | 96.6          | 74.9           |
| 2:50          | 80.0         | 96.7          | 75.0           |
| 2:55          | 80.0         | 96.5          | 75.0           |
| 3:00          | 80.1         | 96.5          | 75.2           |
| 3:05          | 80.1         | 96.6          | 74.8           |
| 3:10          | 80.1         | 96.5          | 75.0           |



Our hardware and software guarantees the simplest possible operation with optimal presentation of the process variables, and at the same time the printer produces the complete documentation of your distillations.



Menu-assisted operation. The advantage of such a control concept is obvious, both with an unvarying pattern of work day after day or constantly changing jobs.

Flußschema einer kontinuierlich arbeitenden Anlage

