

## Uses :

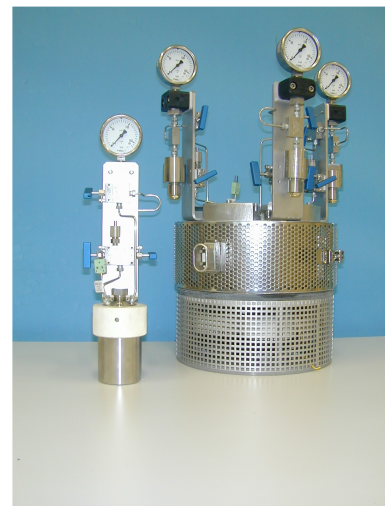
For 15 years, Top Industrie has been developing systems for parallel chemistry which can be used to study the kinetics of a reaction taking place under pressure. They are used in the fields of fine chemistry, catalysis, pharmaceuticals and petrochemistry. Our products are flexible: allowing pressure, temperature, flow rate and gas composition and catalyst selectivity, they allow these parameters to be set globally or alternatively in each different chamber. Because of their modularity our systems also allow for screening at product level.

They are largely automatic, and computer-controlled.

TOP INDUSTRIE's sole objective is to create equipment that suits your needs without being excessively complex and difficult to use.

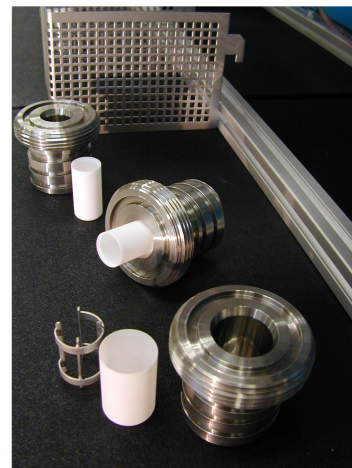
## A COMPACT SYSTEM :

- 4 fast-shutting Top 45 reactors
- Heating through global or individual band heaters
- Volume : 35 to 100ml
- Pressure : 0 to 250 bar
- Temperature : 20 to 250° C
- Material : 1.4404 (316L) ,Alloys , Titanium....
- Gas : H<sub>2</sub>, CO, O<sub>2</sub>, etc...
- Pressure measured by manometer or other pressure gauges.
- Temperature can be measured and adjusted for whole system or just certain parts.
- Magnetic stirrer.



## PARALLEL CHEMISTRY AND CONTROL SYSTEM :

- From 2 to 8 reactors.
- Volume : 15ml to 1L  
Different cell volumes may be used in one system.
- Pressure : 0 to 250 bar
- Temperature : -20° to 250° C
- Pressure and temperature regulation, stirring with parallel, partial or globally independent kinetics.
- Can be used for : Hydrogenation, carbonylation, oxydation, hydrocarbon synthesis, Fischer-Tropsch process
- Material : 1.4404 (316L), Hastelloy, Inconel , Titanium, PTFE insert ...
- Manual or bolted closure.
- Gas mixing.
- Gas consumption can be measured for one or more gases.
- Heating and cooling can be controlled using heating bands and vortex system, or by a thermostatically controlled bath.
- Controlled gas, liquid and powder injection.
- Sampling or microsampling system.
- Controlled purging with flow rate measurement.
- Controlled independent stirring with gas effect.



**TOP INDUSTRIE**

High Pressure Engineering

80 rue Marinoni 77013 VAUX LE PENIL CEDEX FRANCE

T : +33 (0) 1 64 10 45 50 F : +33 (0) 1 64 37 62 08

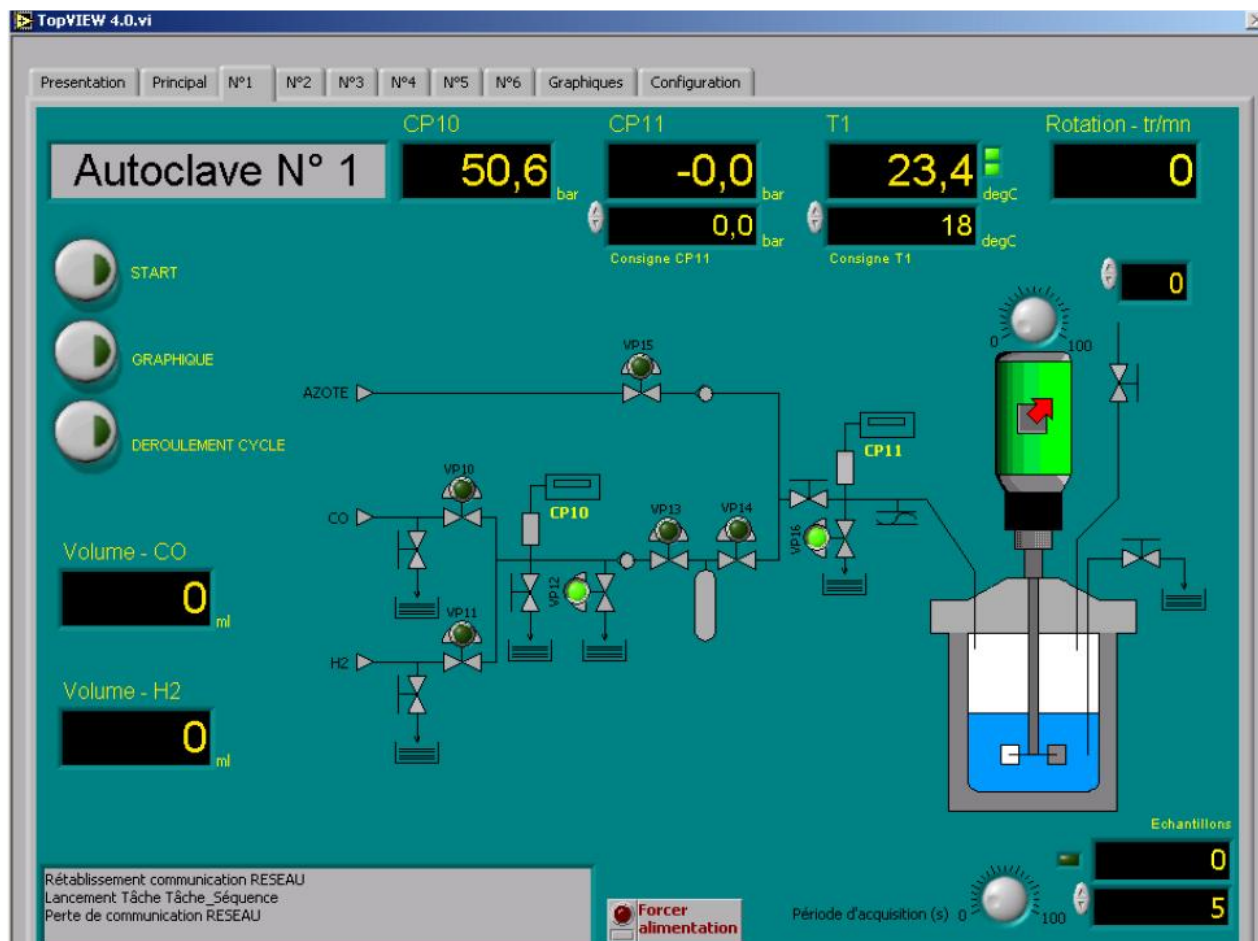
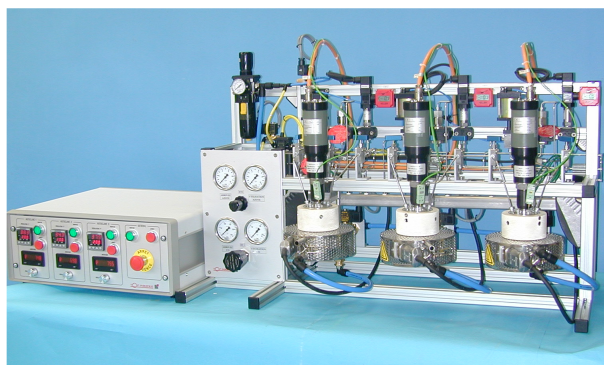
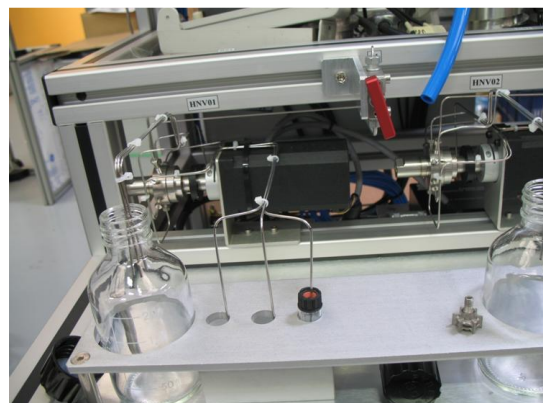
[info@top-industrie.fr](mailto:info@top-industrie.fr)

[www.top-industrie.com](http://www.top-industrie.com)

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## CONTROL SUSTEM :

- Control systems developed in conjunction with Labview include tools for synoptic and kinetic analysis.
- Each reactor can be controlled manually or automatically.
- Each parameter can be controlled: Pressure, temperature, stir speed, flow rate of one or more gases, ratio of gases in mixture...
- Gas consumption and flow rate during purges can be controlled.
- Program library available. Alternatively, the user can create simple and personalised programs.
- Security: Admin and user accounts can be set up and controlled.
- Files are saved automatically and can be exported to Excel.



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