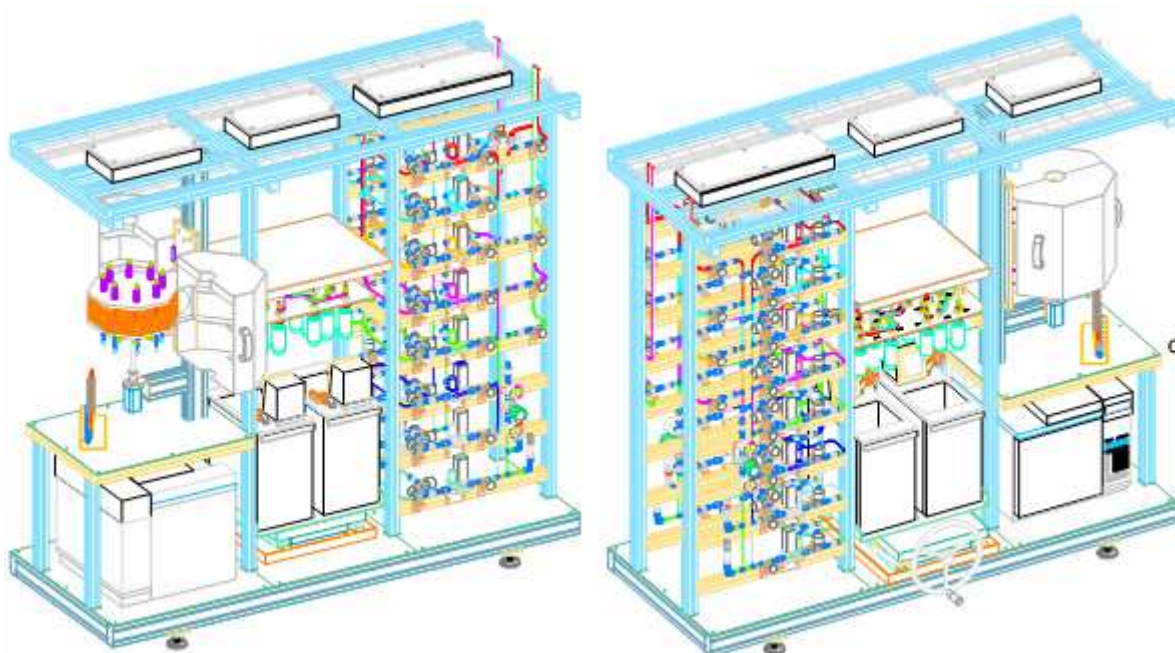


High Throughput Systems

Vinci-Technologies, currently involved in the in the field of catalysis and catalytic processes pilot plants development since 1965, recently develops solutions for high throughput Research & Development. Our high throughput units are all individually designed and constructed, in order to achieve automated catalyst preparation, catalyst screening, on and offline analytics.



The High Throughput Testing unit is a 8-reactor system devoted to model compounds reactions, up to C12 (max boiling point 150°C).

The 8 reactors are operated at the same temperature and same pressure, and can be fed with independent flowrates of gas reactants. The system is connected to a micro-GC for rapid on-line analysis. Micro-GC is not included in Vinci scope of supply.

The proposed 8-reactor system is fully automated for safe and reliable operation 24hr/24hr. Recipes are programmed in the control system to allow automatic tests: programmed heating ramps and on-line analysis, programmed reactants injection for identical life time.

- ▶ **Highly reliable, robust and functional design**
- ▶ **Accurate thermal control of all reactors**
- ▶ **Reactors designed for low or high pressure investigations**
- ▶ **Flow saturators system**
- ▶ **Fully automatic system for unattended operation 24/24h**



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OPERATING CONDITIONS

Maximum operating pressure.....2 bar abs
Maximum working temperature.....800°C
Reactor heated volume 1 ml
Material of reactorQuartz

SCOPE OF SUPPLY

The reactor system comes complete with the following components:

1. Feed injection module
2. Reactor/oven module
3. On-line analysis module
4. Electrical cabinet and interconnection cables
5. Control and data acquisition system
6. Safety devices
7. Documentation
8. Factory Acceptance Test
9. On site commissioning and Site Acceptance Test

TECHNICAL KEY POINTS

▼ Liquid feed injection

The liquid feed is a model compound, up to C12 (max. boiling point 150°C), it will be injected into the Air/CO gas using 2 saturators in series, heated at slightly different temperatures for an accurate control of the partial pressure.

Each Air/CO gas line is plunging into a saturator (first stage) then a second saturator (second stage). Saturators are made of borosilicate bottles, volume 50 - 100 ml.

The first stage saturators are heated all together in a common thermostated bath able to control accurately the temperature between 0 and 150°C. The second stage saturators are heated all together in a second thermostated bath able to control accurately the temperature between 0 and 150°C.

▼ Reaction section : Vinci Technologies design

The 8 microreactors are a Vinci design, tubular-type with following specifications:

Maximum operating pressure 2 bar abs
Maximum operating temperature..... 800°C
Material of Construction..... Quartz (tube)
Material of Construction.....SS316 for fittings
Internal diameter5 mm
Heated length..... 50 mm
Heated volume..... 1 ml

Temperature of the reactor is continuously monitored using a central thermocouple type K, external diameter 1 mm. Pressure of the reactors is measured with 8 pressure sensors. The reactors are heated in a common oven, circular shape, made of a block of ceramics (1 heating zone). All the lines entering and exiting the reactors are heated in a common heating mantle (total: 2 heating mantles).

▼ On-line analysis

The reactors outlet lines are directed to a 8 positions multiport valve able to select only one of the streams and direct it to the micro-GC for on-line rapid analysis. Vinci provides the tubing and heat tracing from the multi-port valve to the micro GC, for a maximum length of 4 meters.

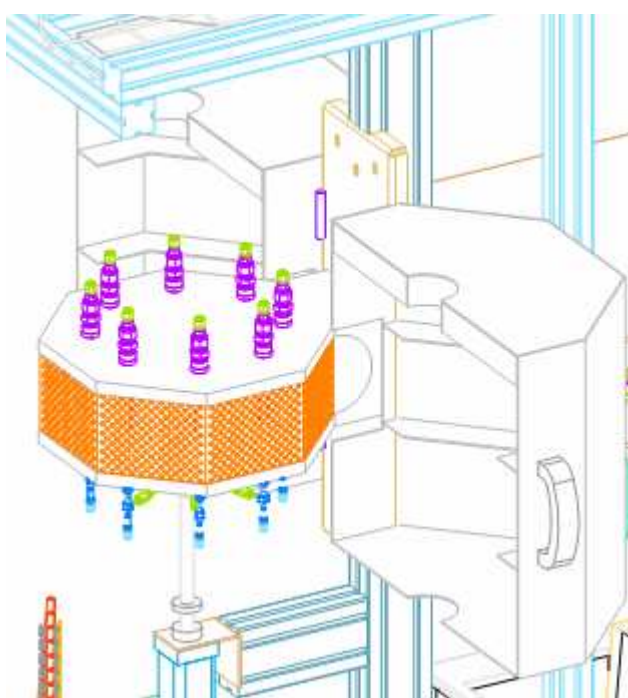
▼ Unit pressure control

The non-selected gas effluents are mixed and directed to the back pressure controller ensuring pressure control, then they are vented to exhaust.

▼ Electrical/Control cabinet

The unit offers a user-friendly, safe and reliable control, providing process parameter monitoring and real time display (Gas Flowrate, Pressure, Temperature ...), as well as process alarms and security switches.

FURNACE MODULE OVERVIEW



SPECIFICATIONS (indicative)

Catalyst capacity	1 ml each
Reactor	from 4 until 8
Max. operating pressure	5 barg
Max. operating temperature	800°C
Saturators	from 50 to 100ml @ 150°C
Two parts:	mechanical skid + control/electrical cabinet
Dimensions	Skid LxHx : 0.8m x 2.1m x 2m
	Cabinet LxHx : 0.8m x 0.8m x 1.8m
Design for general purpose area	
Supply	Power 50-60Hz
	Cooling water @ 25°C max

THE VINCI ADVANTAGE

Building upon 30 years of experience and innovation in pilot units, VINCI Technologies guarantees customer satisfaction.

▼ **We guarantee you a robust technical solution to handle catalyst studies regarding the mercury removal process in gaseous phase.**

▼ **We offer a turn-key installation, commissioning & start-up handled by experienced technical staff.**