

Pilot Plants
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Research & industrialization of processes

ergonomics
creativity

solutions
quality

technology

confidentiality

innovation

You keep control over innovation, SPIE implements your ideas

Your requirements

- **model** your complex chemistry processes
- Confirm their **feasibility** or **industrialization**
- **optimize** reaction parameters
- gather data in preparation for upscaling.



SPIE provides confidential pilot plant construction services

- fully automated and safe
- precise and reliable
- rugged and ergonomic
- designed to rapidly determine key parameters.



Processes

- Multi-Reactor catalyst Testing unit (**MRT**) - Continuous Stirred Tank Reactors (CSTR) - Batch or Plug Flow Tubular Reactors (PFTR)
- **Fischer Tropsch**
- **GTL** (Gas to Liquid)
- **CTL** (Coal to Liquid)
- **BTL** (Biomass to Liquid)
- Bioethanol from lignocellulosic biomass
- Methanol to olefins (**MTO**)
- Hydrodesulfurization (**HDS**)

SPIE designs pilot plants to study

- catalyst **performance** (activity, selectivity, stability, response to inhibitors, poisons, pollutants, etc.)
- reaction kinetic parameters
- product **development**
- process variables (pressure, temperature, gas velocities, heat transfer, etc.)



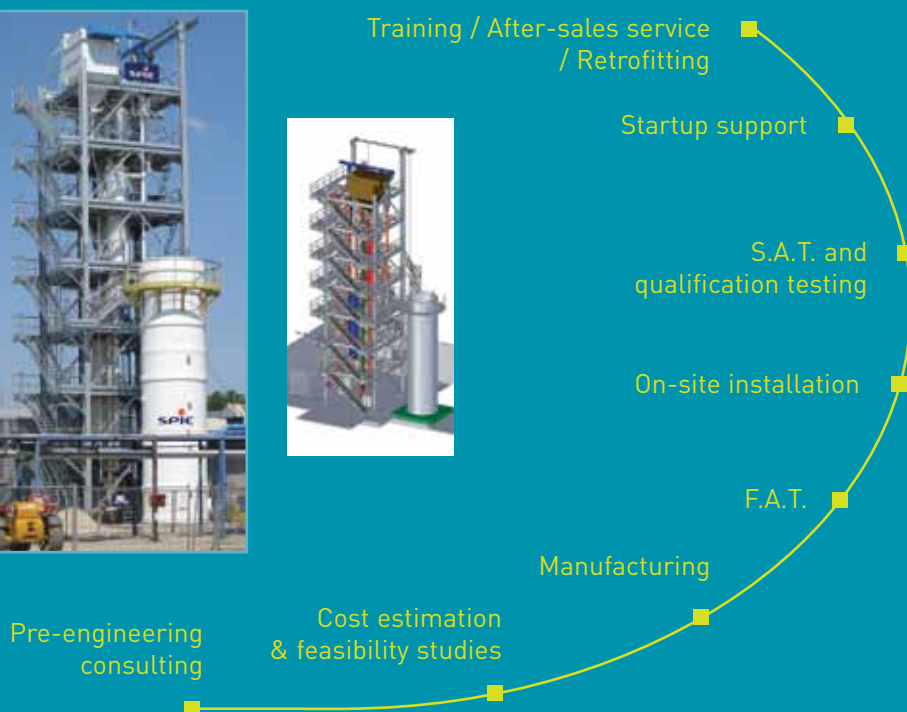
From the design stage to operational maintenance of your pilot plants.

In-depth process knowledge is the key to optimisation or to industrialization ...

Our dedicated team works closely with you, discussing and developing the best solutions for your requirements.



Our comprehensive offer



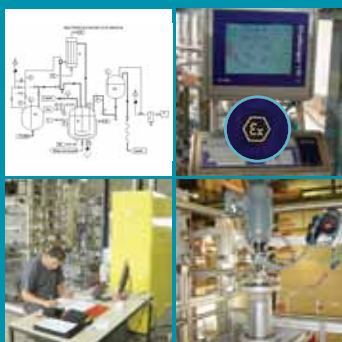
Acknowledged expertise

- Civil engineering, structural steelwork
- Boilermaking
- Glassware
- Pipe systems & welding
- Industrial heating, insulation and cooling
- Instrumentation & electrical systems
- Automation & supervision.

Specialized infrastructure

- Design offices
- 600 m² workshops
- Automation facility
- Inspection and testing facilities.

SPIE designs and builds pilot plants, demonstration or modular industrial plants and lab scale systems.



Automated monitoring systems track your process parameters (F, L, P, T) **in real time** as well as managing alarms and safety actions.

Reaction data acquisition, processing and optimization are prerequisites for **reliable extrapolation** and **process operation**.

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Supporting development



Everyone should have the chance to benefit from the progress constantly being made to our living conditions, so that we can exchange and communicate, live and travel safely, work efficiently, master new technologies and power sources and enjoy their benefits. As the European leader in electrical & mechanical engineering and HVAC services, energy and communication

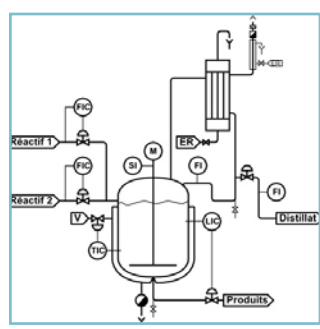
systems, SPIE enhances the quality of life by helping local and regional authorities and companies design, operate and maintain facilities that are more energy-efficient and environmentally friendly.

SPIE provides advanced technical services and solutions to meet the current and future challenges of both local and international customers.

The performance enhancers

SPIE is one of Europe's leading providers of technical services for industry, supporting customers at every stage of their development.

SPIE's deserved reputation as a first-rate partner is built on the Group's experience, in-depth understanding of manufacturing techniques and processes, and its ability to offer a range of customized services covering everything from plant design to operational maintenance.



SPIE SA
Sales € 3,75 billion
28,500 employees
400 locations in 31 countries

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