

## **HYSYTECH srl**

HYSYTECH is an engineering company founded in 2003, specialized in the design, development and industrial implementation of new turn-key process technologies and equipment.

Our skills start from the know-how in chemical and process engineering, up to commissioning, monitoring and maintenance.

We operate mainly in the field of generation, treatment and recovery of industrial gases, organic liquids and energy, according to the best engineering practices, also through the implementation of our technologies.

We intercept innovation opportunities, developing them and transforming them into specific products and technologies with a high added value on the global market.

### **Vision**

Today, tomorrow and in the future ahead of us, more and more technology and knowledge (know-how) are the main competitive advantage to make new and better products, with high performance, sustainability and through more competitive processes.

### **Mission**

Building a wealth of experience, technological innovation and process, applying engineering to create a bridge between science and society, between technology and people, through the industrial implementation of products in everyday life.

### **Philosophy**

The process we offer to our customers is the same we follow in the internal development of our technologies, working with the same professionalism, experience and passion that our team puts into play in all the challenges it faces.

### **Filling the gap**

“Filling the gap” is our claim.

When you’re exploring a potential new project, it’s easy to underestimate the size of the gap between where you are now and where you want to be. We help you to fill this gap.

### **Staff**

Our staff has professional skills gained from direct experience in the field, in the execution of complex projects in the chemical industry and in process plants.

We follow each project with a dedicated multidisciplinary team, able to take care of all the design and execution aspects necessary to deliver a complete product.

This feature makes Hysytech a flexible and all-around resource, capable to provide high quality and competitive services.

### **Offer**

Our goal is to bring Hysytech customers to be market leaders for innovation and competitiveness, thanks to our offer in terms of products, special plants, services, technological developments.

## PRODUCTS

### **Biomethane**

Simple and complete plant to produce Biomethane from raw Biogas, without activated carbons pre-treatment and without drying chiller.

### **Bio-LNG**

Integrated Bio-LNG conditioning and liquefaction plant starting from Biomethane, without the use of nitrogen, even starting from small flow rates and with modular execution.

### **H2 Genio**

Hydrogen generation directly on site, simply starting from Natural Gas, even starting from small flow rates and up to industrial sizes.

## SPECIAL PLANTS

We design and build “turn-key” plants. Our expertise covers a wide range: laboratory plants, pilot plants, industrial scale facilities and special equipment.

### **Modular Units & Pilot Plants**

Design, turn-key construction and certification of plants for the development of innovative processes aimed at industrial implementation on a commercial scale.

### **Process plants**

Design, turn-key construction and certification of plants for the chemical process industry, also in modular construction with a high level of prefabrication.

### **Product Qualification Plants**

Design, turn-key construction and certification of product qualification plants to support the production processes, including automation for the execution of internal protocols or by certification bodies, including lot traceability.

### **Lab plants**

Design, turn-key construction and certification of lab plants for the characterization of innovative processes aimed at collecting accurate and precise experimental data.

### **Natural Gas Mixing and Reducing Stations**

Design, construction and certification of plants for the industrial use of Natural Gas. Executions on skid or in ISO containers, PED certifications from cat. I to IV, and ATEX groups from IIA to IIC.

## SERVICES

HYSYTECH is the strategic partner for the development of the most innovative technologies: we create customized solutions, without specific constraints to equipment or technologies, providing a complete service.

### Engineering

We provide basic engineering services, detailed and executive engineering, procurement, supervision and project management, according to international industry standards for the process industry.

### R&D

HYSYTECH is one of the most active Italian companies in research and development projects, in collaboration with major universities and national and international institutions and also provides specialized services to private companies.

### Consulting

Our experience converges in the technological development of production processes, in the optimization of energy production and recovery, in environmental treatments and in the exploitation of by-products.

### Maintenance and O&M

HYSYTECH provides remote monitoring, assistance and maintenance services, managing spare parts, minimizing intervention times and maximizing plant productivity.

## TECHNOLOGICAL DEVELOPMENTS

### Power-to-Gas e Methanation

Production of Biomethane and Renewable Gas from CO<sub>2</sub> e H<sub>2</sub>. The plants are available both on the basis of biological and single-stage catalytic methanation.

### Humic and fulvic acids

Plants for the extraction, purification and packaging of humic and fulvic acids from stabilized biological substrates.

### Green Chemistry & Building Blocks

Complete plants for the production of basic chemical compounds from biological origin, starting from extraction from stabilized biological substrates to synthesis and purification.

### Electrochemical Reactors

Design and construction of electrochemical plants and reactors used both for advanced hydrogen generation and for the electrochemical synthesis of renewable substances.

### Fluidized bed gasification

Fluidized bed gasification of waste and industrial by-products directly at the production site, generating gas to reduce consumption of methane, for the production of electricity or Biomethane.

### **Treatment of vegetable oils and animal fats for fuel use**

Complete plants for fuel production, without chemical modification, suitable for cogeneration, starting from vegetable oils or animal fats, with high acidity.

## **MAIN CUSTOMERS**

NorSun; Inspiralia; Rivoira; Gruppo Catanzaro; Garbo; Hexis; Fortek; Sotacarbo; Danieli; Air Liquide; Pentair; Egea; Novamont; Dipharma; Ecotricity; Edison; Liquigas; Asja; E.ON; Ansaldo; Avantium; Acea; Eurocoating; DBI; Volvo; IIT; Centro Ricerche Fiat; DTU; Energie Institut; Thyssenkrupp; Climeworks; Fondazione Edmund Mach; Fraunhofer; Thales Alenia Space; KIT; Politecnico di Torino; Johnson Matthey; Imperial College London; Iren; Pirelli; General Motors; DVGW; Enea; Krajete; AB; Azola; Radici Group; Conrad Industries; Latteria Montello; TerraX; Aqualia; i-TES.

## **OFFICES**

### **Registered & Head office**

Strada del Drosso, 33\18, Turin, Italy  
Opening hours 9-13 \ 14-18

### **R&D Labs and Workshop**

Corso Unione Sovietica, 612\26, Turin, Italy  
Opening hours 8-13 \ 14-17

## **STIRLING CRYOGENICS**

<https://www.stirlingcryogenics.eu/>

Stirling Cryogenics, cryogenic technology specialist, originally founded by technology giant Philips, is part of HYSYTECH group since 2018.

Stirling Cryogenics designs, builds and supplies cryogenic solutions based on the (reversed) Stirling thermodynamic cycle, with a long history, highly reliable record and high efficiency, with over 3,000 installations worldwide.

Our main products are stand-alone liquid Nitrogen production systems (StirLIN's), which produce liquid Nitrogen (LN2) on site and custom-made cryogenic cooling systems based on our Stirling Cryocoolers (Liquid Oxygen, Methane, Argon, Helium and CO2 besides Nitrogen).

Typical applications:

- Biotech (Cryo-storage: cell, tissue, insemination)
- Healthcare (on-site LOX)
- High Temperature Superconductors (HTS)
- MRI magnet cooling and Nuclear applications

- Space simulation chambers
- LNG/Bio-gas liquefaction, Boil-off recovery and Maritime
- Space Observatories

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