



REVOLUTIONIZING CHEMICAL SYNTHESIS FOR MODERN LABORATORIES

The **H-Cube® Advance** is the next evolution in chemical synthesis, building on the proven success of our first H-Cube®, the R&D Top 100 winner unit, and the well-known H-Cube® Pro. Designed for modern laboratories, this push-button synthesis platform offers **advanced features**, a sleek and **user-friendly interface**, and **enhanced functionality** to simplify synthetic chemistry workflows in a safe manner.



WHY CHOOSE THE H-CUBE® ADVANCE?

The **H-Cube®** Advance retains the core benefits of the original H-Cube® Pro while introducing several key upgrades for **improved efficiency**, **precision**, and **versatility**.

VARIOUS SYNTHETIC APPLICATIONS

The **external gas inlet** enables the use of **other gases than hydrogen** for **pressurized** and **heated homogenous reactions** – The H-Cube[®] Advance is more than just a hydrogenation device, as it can cover most applications in a laboratory.

WIDELY APPLICABLE GASES:



*And many other gases connected through the Mass Flow Controller: External Hydrogen, Air, Argon, Ethylene, Ethane, Methane, Helium, Nitrous oxide, Nitrogen Monoxide





The H-Cube® Advance is ideal for a wide range of reactions, including:



HOW IT WORKS

The **H-Cube®** Advance simplifies synthetic applications and catalyst screening with a streamlined process:

The **reactant solution** is introduced using a **high-pressure pump**.

- 2. In-situ hydrogen is generated on demand and mixed with the reactant. The external gas inlet enables a wide range of applications including gases other than hydrogen.
- **3.** The pre-heated mixture is passed through a **disposable CatCart**[®] preloaded with a **solid catalyst**.

4. The reaction occurs in the **solid-phase catalyst**, and the product is collected in a flask.

5. In most cases, only **solvent evaporation** is needed for work-up.

INNOVATIVE FEATURES



Built-in Mass Flow Controller: Ensures precise gas control, whether 99.9% pure insitu hydrogen or other external gases for reproducible, scalable synthesis.

External Gas Inlet: Allows the introduction of additional gases like oxygen, nitrogen, carbon oxides, and many others.

Improved Optimization and Characterization: Choose between precision automation or hands-on operation.

The Benefits of Automation: Enables easier application process screening and quicker parameter optimization.

Next-Generation Water Electrolysis Cell: Efficient single-cell operation for consistent on-demand hydrogen production, which provides longer cell life and lower maintenance costs.

Upgraded Mixer Module: Improves **reaction efficiency** and **control**.

COMPATIBILITIES

Real-time Analysis: Ability to collect and analyze application data with 3rd party analysis solutions.

THS ReAction[®] Software, Future AI Integration: Integrate seamlessly into automated modular reactor systems for full control and data management, with an optimized fleet setup and future upgrades featuring AI capabilities (existing users will have the right to a free update).

Other Products you can Connect: THS System Controller®, Autosampler, Phoenix Flow Reactor, Gas Module

OPTIONAL HASTELLOY VERSION

Extend your chemical space and improve your chemical reactions with the H-Cube® Advance Hastelloy! The whole liquid path is made from Hastelloy C, enabling applications with corrosive reagents.



Applicable corrosive reagents:

- Mineral acids and bases
- Strong oxidizers (such as ferric and cupric chlorides)
- Nitric, formic and acetic acids, acetic anhydride
- Wet chlorine
- Sea water and brine solutions
- Hypochlorite and chlorine dioxide solutions

TECHNICAL SPECIFICATIONS

Liquid Flow Rate Range	0.001 - 10 mL/min
Internal Hydrogen Flow Rate	1 – 70 NmL/min
Gas Compatibility	Internal H2 or external custom gases
Pressure Range	Atmospheric to 100 bar (1450 PSI)
Temperature Range	0 - 150°C (32 - 302°F)
Dimensions	330 x 320 x 330 mm (w/o display)
Display Size	11.6"
Weight	18 kg
Power Requirements	110 – 240 V AC, 50/60 Hz, 500 W

DISCOVER MORE

The H-Cube[®] Advance is your gateway to safer, faster, and more efficient synthetic applications. Upgrade your laboratory today!





For more details, visit our website: <u>www.thalesnano.com</u>

Follow us on social media!



