

Your Challenge. Our Competence.  
The Solutions.



### Success-Story

## Linde Kryotechnik delivered largest hydrogen liquefaction system in Japan to Iwatani International Corporation (Iwatani)

Given the growing market for liquid hydrogen in Japan it was hardly surprising that an innovative gas company like Iwatani IC had demand for a large hydrogen facility.

Linde Kryotechnik is very proud to have been awarded with the contract for the liquefaction system. The plant is now the largest hydrogen liquefaction facility in Japan.



### Overview

Iwatani is one of the leading Japanese gas companies. It was founded in 1930 and operates globally, with 67 international offices based around the world, from China to Australia.

In 2004, Linde Kryotechnik was awarded a contract for two hydrogen liquefaction systems by Iwatani IC.

The project was finished in 2006, when both systems successfully went into operation, liquefying pure hydrogen originating from LNG. The liquid hydrogen is stored in two 300 m<sup>3</sup> insulated tanks and filled via five filling stations into road trailers for distribution to the customers.

### The Challenge

With hardly two years between the awarding of the contract and the guaranteed delivery date, Linde Kryotechnik had to stick to a tight schedule in order to fulfill its responsibilities.

In addition, the Japanese codes and standards for design, manufacture, installation and testing had to be closely adhered, making constant communication and a thorough knowledge of the Japanese market indispensable.

### Our Competence

Linde Kryotechnik has a long time experience for the design and manufacture of liquid hydrogen systems with customers all over the world. Capacities of Linde Kryotechnik hydrogen liquefiers range from 150 l/h to 20,000 l/h.



## The Solution

The key to success was the close collaboration between Iwatani IC and Linde Kryotechnik: From day one, client and supplier worked hand-in-hand throughout the project, guaranteeing its successful progression.

The project started with a thorough study period in order to ensure smooth development. This period was also used to specify and order the necessary long lead items, a step which helped to save time during later stages.

To further optimize the process, various components of the system, like LH<sub>2</sub> Tanks, cold boxes, turbines etc. were thoroughly tested in our workshops prior to delivery.

Obviously, the collaboration between Iwatani IC and Linde Kryotechnik extended to site preparations and commissioning works, which were carefully planned and carried out in cooperation.

Finally, the two independent liquefaction systems and filling stations were installed, commissioned and turned over to our customer for industrial use within 5 months after the arrival of the LH<sub>2</sub> Tanks.

Plant description:	Hydrogen liquefaction plant
Capacity:	2x 3,000 l/h LH <sub>2</sub>
Scope of supply:	2 x Liquefaction Cold Box -Systems 2 x 300m <sup>3</sup> LH <sub>2</sub> Tanks Vacuum Jacketed Distribution Lines 5 x Filling Stations Installation Design / Inspection Support Start- up and Acceptance Test



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