

Dai Tec Co., Ltd.



Track record of achievements in the semiconductor and pharmaceutical sectors with welding technologies for special materials including titanium and Hastelloy: A focus on clean energy projects

Category Electrical Systems > Hydrogen Storage Alloy Tanks



Providing special materials welding, manufacture of sanitary piping, welding, and unit assembly

Dai Tec is involved in a diverse array of businesses, including the manufacture of sanitary piping for pharmaceutical, food, and cosmetics plants with stringent safety and hygiene requirements, the assembly and installation works of related plants, and the manufacture of gas piping for semiconductors, vacuum piping, high-pressure piping, titanium components, hydrogen-related items, stainless steel, iron, aluminum, and general piping. Leveraging the artisanal craftsmanship, knowledge, experience, and state-of-the-art equipment the company has cultivated over the years, Dai Tec continues to take on advanced manufacturing challenges out of reach for other companies through its integrated approach to business, from sales, releasing diagrams, machining, welding, and inspection to delivery, installation, and maintenance.

- Track record showing abundant experience with prefabricated piping (patent no. 7130253), from sanitary piping to double pipes
- Industry-academia collaboration: Shielding gas with added air, developed in collaboration with Ehime University (joint patent no. 7301296)
- Blasting machines: Max. work size 1,200mm x 1,200mm x 600mm in height
- Buffing: Flexible support for stainless steel products from #100 to #600 finishes on interior and exterior surfaces



From the Nasu Denki-Tekko Co., Ltd. website

Hydrogen-Absorbing Alloy Tanks

With the spread and expansion of the movement to realize a carbon neutral society, output controls have occurred due to the instability of the electrical system for renewable energy, resulting in large amounts of surplus power. To take advantage of this surplus power, Nasu Denki-Tekko Co., Ltd. has developed a nano iron titanium hydrogen-absorbing alloy and has developed and commercialized a tank (MH tank) made with the alloy. Dai Tec is responsible for manufacturing the cylindrical body of the MH tank. **The hydrogen-absorbing alloy tank can safely and compactly store 8 m³ of hydrogen gas, which is more than the storage capacity of commercially available hydrogen cylinders (7m³), at a low pressure of 10 atm or less.** The tank is envisioned for use in the production and storage of hydrogen, using surplus electricity from renewable energy sources such as wind and solar power.

- Product name: Hydrogen-absorbing alloy tank (MH tank) and air-temperature hydrogen-absorbing alloy system (MH-QUON), incorporating multiple tanks depending on the hydrogen storage volume

*QUON and MH TANK are products of Nasu Denki-Tekko Co., Ltd.

- Basic performance: Diameter 165 mm, height 1,500 mm, weight 125 kg, pressure 10 atm, internal volume 27.5 L, hydrogen flow rate: 8 L/min for absorption, 8 L/min for release

Adoption Record

Exhibiting hydrogen delivery systems at events



Together with Nasu Denki-Tekko Co., Ltd., Mitsubishi Kakoki Kaisha, Ltd., and Nippon Filcon Co., Ltd., the company has been jointly presenting proof-of-concept demonstrations of hydrogen-absorbing alloy delivery systems in various locations, leveraging hydrogen-absorbing alloy tank technologies. In order to more widely familiarize the public with the systems, the companies actively participate in events such as craft beer fairs, where they exhibit hydrogen-absorbing alloy systems and supply electricity.

Welding and assembly of piping for semiconductor manufacturing plants



The supply of high-purity gases, which are indispensable for equipment used in semiconductor manufacturing processes, represent a lifeline for the manufacture of semiconductors and other IT equipment. Dai Tec is equipped with a dust-proof clean room (shown in photo at left) to maintain thorough control of particle generation in manufacturing processes. The company provides high-purity gas piping that offers high degrees of safety and reliability.

Main Equipment and Machinery

- Various factories (cutting, welding, processing, welding, cleaning, overhead cranes): 4 locations in Saijo City, 1 location in Tochigi Prefecture
- Cleanroom-equipped factories: 3 locations in Saijo City
- Various warehouses and work areas: 5 locations in Saijo City
- Tig welding machines, CS welding machines, PolySood automatic welding machines, positioners
- Automatic welding machines for tubes, tube cutters, He leak detectors
- Band saws, metal saws
- NC benders, blast machines
- Drilling machines, general lathes, stone benchmarks
- Ultrasonic cleaning machines, burn removal machines, turning rollers

Company Information

Business: Metal processing industry
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