



A Yokogawa Commitment to Industry

**vigilance**<sup>™</sup>

## **SUCCESS STORY**

# **Producing High Purity Hydrogen by CENTUM CS 1000 Cosmo Engineering Co.**

**Location:** Shizuoka, Japan

**Order Date:** April 2000

**Completion:** November 2000

**Industry:** Chemical

Cosmo Engineering Co. is a leading provider of comprehensive engineering solutions to industry. The company has considerable knowledge and experience of process control technologies, particularly in the petroleum and chemical plants sectors. Its engineers also have many years of experience working with hydrogenator technology, and they continue to develop their capabilities in this area. The company provides a complete service spanning from project planning and design/project management to plant maintenance after a plant enters operation, and this ability to provide a total engineering solution has been well appreciated by many customers.

### **Project Requirements**

There are many factories which use high purity hydrogen in the production of precision products. These factories require hydrogen that is 99.999% pure. As hydrogen is a highly flammable gas, the manufacturing control system must be highly reliable and stable. At the same time, such a system is required by the manufacturing plant to be both compact and efficient. Cosmo Engineering Co. selected the CENTUM CS 1000 for its client because of its reliability, redundancy, small size, high-functionality, and open control system architecture.

### **Summary of the Process**

One of the methods for producing hydrogen is methanol resolution. It is a highly efficient process that resolves methanol (MeOH) with deionized water (PW) and refines it into highly pure hydrogen. Pressure swing adsorption (PSA) is used to adsorb or desorb impurities through an adsorbent by changing the pressure during the refining process. This produces 99.999% pure hydrogen.

### **Benefit from selecting the CENTUM CS 1000**

One important benefit of the CENTUM CS 1000 was its ability to control a load based on changes in demand. This is important in hydrogen producing plants, where hydrogen is often used as an energy source and where the control system must be able to adjust flexibly to changes in supply and load. Another benefit of the CENTUM CS 1000 is the increased reliability of operations that comes from its control of the feedback, automatic startup and emergency shutdown operations of the plant. In addition, this system enables the collection of much more data and the close monitoring of operations using local and network solutions. Finally, the ability with this system for one person to control plant operations from a remote location makes operation much more efficient..

**From the Customer (Mr.Tsuchiya, Project Division, Cosmo Engineering Co.)**

"The CENTUM CS 1000 had a good online maintenance function and it was very useful for coordinating the plant commissioning process.. The CENTUM CS 1000 could automatically determine and initiate corrective actions, which accelerated the commissioning process and enabled us to put the plant into operation sooner. Based on the results of this project, we are considering the use of the CENTUM CS 1000 in our next plant. We also plan to establish a method for sharing expertise and using it to make engineering packages for use in other plants."

---

**System:** CENTUM CS 1000  
**Total I/O:** Analog Input - 50, Operation Output - 20, Contact I/O-100  
**System Configuration:** 1x HIS with operation keyboard, 2x PFC (redundant control station)