

## Ensuring safety for H2 dispensing systems

Working with a manufacturer of forecourt dispensing systems to develop a certified hydrogen dispenser



### Overview

A hydrogen filling station typically consists of multiple building blocks - the H<sub>2</sub> source (pipeline, on-site electrolyser, or compressed storage), a multi-stage compression system (for 350 or 700 bar dispense), hydrogen coolers (reduces the gas temperature to -40°C prior to filling the vehicle), and the part that the driver will see - the dispensing system. That dispenser typically contains the metering & control systems for the final stages of the dispensing process, as well as the information display for the driver.

### Project Brief

Because of the relatively low risk of a hydrogen leak, the dispensing system was required to have Zone 2 protection. A purged and pressurized (Ex p) solution was seen as the simplest method to ensure safety and obtain the necessary product certification for the customer's target market. A solution was required that was fully automatic and would not require intervention, other than during planned inspections and maintenance.

### Challenges

Identify a suitable purge controller with a small footprint, requiring minimal intervention, and having the right certification for the various target markets.

Ensure the system internals were suitable for purging in terms of component ventilation in line with standard 60079-2

### Outcome

Expo's engineers worked with the client and selected the SmartPurge II as the most suitable system - while suitable for Zone 1 areas, the SPII had the right physical characteristics and level of automation. It also has a wide range of flow rates, meaning that it can be used across physically different sized dispensing systems without needing to select a larger system.

Expo's consultancy team worked with the client's Notified Body to deliver the required certification.

## Expo Products and Services

### SmartPurge II

IECEX, ATEX & FM certified intelligent purge & pressurization system



#### Features

- Global approvals
- Purge flow capacity up to 540 NI/min
- Can be configured as Type X, Y or Z purge
- Leakage Compensation or Continuous Flow
- Stainless steel enclosure construction

The SmartPurge II (SP2) is a highly flexible electronic purge and pressurization system suitable for a wide range of flow rates and duties. It can operate as either X, Y or Z purge, and in leakage compensation (LC) or continuous flow (CF) modes.

[Click here](#) for more information.

### Design and Consultancy services

Expo Technologies' team of consultants and certification engineers have the experience and knowledge to support our customers through the certification process for equipment to be used in Hazardous Areas.

From concept design through to maintenance, Expo Technologies works with you to reduce the risks and accelerate your entry into global markets.

[Click here](#) for more information.



### Certification consultancy

Our Certification Engineer works with the customer through a standard, well-proven process to make sure the design is compliant with the Expo's Schedule of Limitations (SoL), ensuring successful project completion. The SoL defines the scope of what can be certified under Expo's populated enclosure certificate and is broad enough to cover most applications.

[Click here](#) for more information.