

Sanitized Zone

Helping a packaging OEM upgrade their systems for hand sanitizer filling



Overview

Driven by the spread of the Coronavirus, there has been a huge growth in the manufacture of antibacterial hand sanitizers. One manufacturer reports monthly production pre-Covid of 70,000 units growing to more than 100 million over the course of 2020.

Formulations vary widely, however, the most effective sanitizing products are based on alcohol, usually isopropyl or ethyl alcohol. Typically, the alcohol content is between 60 and 95% and blended with an aqueous dispersion of carbomers to provide the gelling effect. As the product is highly flammable, processing plants are likely to be classified as hazardous areas.

Project Brief

Our OEM customer needed Expo's knowhow to provide a number of hazardous area compliant control systems based around their standard industrial control components for their liquid filling, labelling, and conveying systems which were to be used within a hand sanitizer production facility.

Challenges

Based on the flammability of the hand sanitizer, the packaging lines would be installed in a facility classified as Class I Div. 1 - the most onerous category. The starting point for our project were a number of standard general-purpose industrial control systems suitable for use in safe areas, although their HMI's were Class I Div. 2 certified. The end-user wanted to continue to use the HMI's, due familiarity with their operation, so they would need upgrading to Class I Div. 1

Solution

After reviewing the design, Expo's solution comprised the following components which would be installed by the end-user on their existing control stations to give the required level of protection:

MiniPurge Type X system - used to purge and pressurize electronics enclosures, which allowed the customer to continue to utilize their general-purpose area electronics within the hazardous area.

Operator Interface Adapter – this solution allowed the customer to continue to use their familiar membrane-keyed HMI as part of the purged enclosure.

MiniPurge Interface Unit - used to isolate the power to the control enclosure in the event of a pressure loss to meet the Class I Div.1 hazardous area requirements.

Expo Products and Services

MiniPurge Type X

IECEX, ATEX & UL certified purge and pressurization systems for Zone 1, Class I Div 1 applications



Features

- Global approvals
- Purge flow capacity up to 900 NI/min
- Leakage Compensation or Continuous Flow
- Stainless steel enclosure construction

Expo's Minipurge type X range provides a full purge and pressurization solution for electrical enclosures and other equipment installed in Zone 1 or Class I Div 1 hazardous environments. With a range of flow capacities up to 900 NI/min, the systems are suitable for large enclosures up to 5.4m³ volume.

[Click here](#) for more information.

MiniPurge interface unit (MIU)

IECEX, ATEX & INMETRO Ex d certified solutions for enclosure power and signal isolation.



Features

- Global Ex d approvals
- Isolates low power signals and up to 32 A power
- Compatible with MiniPurge & SmartPurge II
- Aluminium construction

Expo's Interface Units provide switching of power and signals to the pressurized enclosure, using a control signal from the purge system. This capability is required for enclosures installed in Zone 1/21 or Class I/II Div 1 hazardous locations.

[Click here](#) for more information.

Operator Interface Adaptor

Allows standard uncertified operator panels to be used in hazardous areas



Features

- Mounts into the wall of a standard Ex p (Purged & Pressurized) enclosure
- Increases the classification on non-certified operator interfaces to Class I&II Div.1&2
- ATEX & IECEx Zones 1 & 2, 21 & 22

The Expo Technologies Operator Interface Adaptor is used to allow regular operator interfaces to be used in hazardous locations.

It is used with Expo Technologies purging systems and suitable pressurized enclosures. The Adapter increases the classification of operator interfaces from non-classified to Class I, II, Div. 1, 2, Group A through G; IECEx/ATEX Zone 1, 2 (21 or 22) IIC, when used with an approved Purge and Pressurization system.

[Click here](#) for more information.