Case Study

Vision system for hazardous areas

Working in partnership with a technology consultancy to develop a hazardous area machine vision system

Background

There are many off the shelf solutions for inspection cameras to be installed in hazardous areas which are widely used across sectors such as oil and gas, petrochemical and pharmaceutical. For the majority of these systems, the protection method is generally based on using an explosion proof / flameproof enclosure. However, in some cases, the form factor or other aspects of the system need a different approach, using an alternative protection method.

In this case, the technology consultancy had already determined that their client's vision system and associated components were best protected by a bespoke purged & pressurized enclosure, so they approached Expo for assistance with the design and manufacture of such a system.

Project Brief

Develop a compact, certifiable purged and pressurized enclosure solution for a multi-lens vision system and other components that was suitable for installation on a moving rail system above the process to be monitored.

Challenges

The compact enclosure size meant there was only a limited external surface area for the mounting of the purge system and interface unit.

Custom mounting arrangements were required both internally for the vision system, and externally for the whole enclosure

The client had limited experience of hazardous area requirements

Challenging lead time

Outcome

After several iterations, an enclosure design was agreed that met the requirements of the vision system, as well as the necessary purge and pressurization hardware.

The enclosure included a full width laminated glass panel on the lower face for the downward facing camera.

Ethernet connectivity was enabled by an intrinsically safe coupling system

The Expo system was shipped to the client for installation of the vision system, testing & certification for Class I Div 2

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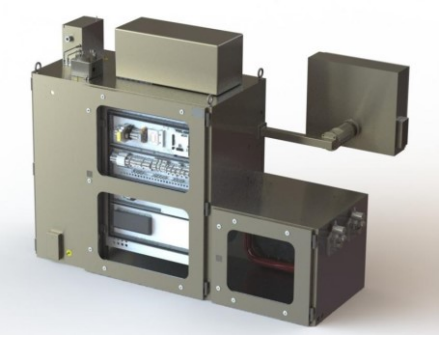
Expo Products and Services

Custom Enclosure Service



With Expo's fully custom process, a dedicated engineer will work with you to develop exactly what you need and agree on a detailed budget and project timeline with milestones. As this is a highly flexible service, we can adapt the plan if your project requirements change.

Click here for more information.

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 Nl/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 Nl/min, the systems are suitable for large enclosures up to 5.4m³ volume.

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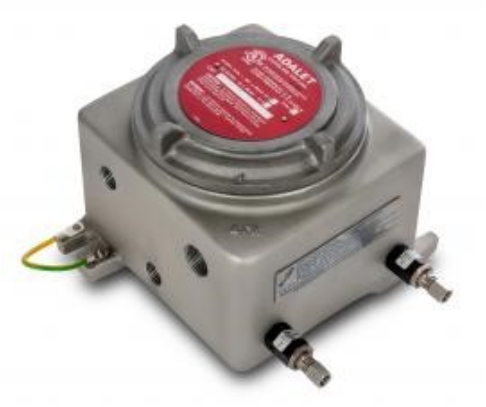
MiniPurge interface unit (MIU)

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.

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.

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