

Protecting analytical equipment pre-launch

Working with NASA to develop a rapid solution for pre-launch particle counting in a rocket payload bay



Image courtesy of NASA/Daniel Casper - <http://mediaarchive.ksc.nasa.gov/detail.cfm?mediaid=67644>

Overview

Satellites and other space payloads are built under clean room conditions. Once loaded onto the launch vehicle, it is still necessary to monitor the cleanliness in the payload bay, to ensure that the equipment remains free from particulate contamination that might cause malfunctions in critical parts of the system.

Project Brief

Design and build a portable protection system for a standard safe area particle counter that could be used on the launch pad, and area which was classified as a Class I Div 2 environment

Challenges

As this was installed close to the payload bay of the rocket and was to be removed just prior to launch, the solution needed to be lightweight.

Space is a premium on the launch pad, so the system needed a very small footprint

The particle counter and the sampling probe were working in real-time sampling inside the payload bay, and transmitting data back to the control area, hence the system required multiple interconnections, including power & ethernet.

The customer needed a comprehensive solution in short time to meet the programme schedule

Outcome

Collaboration between our channel partner, the customer and our engineering and certification departments yielded a design inside 7 days

The resulting small, lightweight purged & pressurized custom enclosure was also built in a very short time. Enclosure dimensions were 305x305x305mm (12"x12"x12") and it weighed less than 4.5kg (10lb)

Type Z purge and pressurization system was incorporated, providing simple and fast purging to the enclosure

The system was used at a live launch within 5 weeks from initial discussions with Expo

Expo Products and Services

Type Z Purge

IECEX, ATEX & UL certified purge and pressurization systems for Zone 2, Class I Div 2 applications



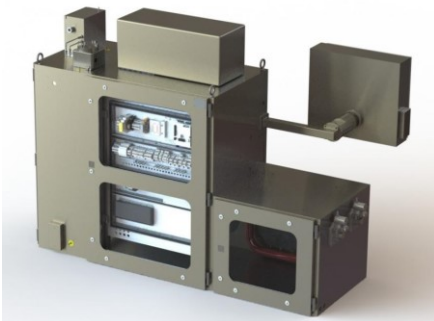
Features

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

Expo's Minipurge type Z range provides a full purge and pressurization solution for electrical enclosures and other equipment installed in Zone 2 or Class I Div 2 hazardous environments. Physically the same, Y purge systems are for use in Zone 1 / Class I Div 1 hazardous environments where the equipment to be protected already carries Zone 2 or Class I Div 2 certification.

[Click here](#) for more information.

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.

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.

