

Explosion-Protected Junction Box with Viewing Window for Quick and Easy Inspections

GRP Series Enclosure Enables Applications in Demanding and Harsh Environments

At a Glance

- Robust and durable enclosure for extreme weather conditions in harsh, potentially explosive sections
- Reduced time and costs for maintenance and inspection
- Direct view of the internally installed components without having to open the enclosure
- Different connections and cable entries according to customer specifications



The Application

The northwest coast of Australia is known for its oil and gas deposits. The raw materials available there are tapped using offshore production platforms and pumped ashore via pipelines. The process control systems used for this are not only exposed to extremely high temperatures, but also to the constant effects of salty sea air.

The customer, the global energy company based there, needed junction boxes with IECEx certification for the cabling of its platforms that could withstand the demanding environmental conditions in the long term.

As a result, a solution was sought to simplify the monthly testing of the entire cabling and significantly reduce the associated time and costs.

The Goal

When developing a solution that met the special requirements of the application, Pepperl+Fuchs not only had to fulfill the requirements for explosion protection, but also for extreme corrosion resistance. In addition, a way had to be found to carry out the required tests at regular intervals without great effort.

To check the cable connections, it was previously necessary to open each individual junction box and then close it again. This meant that the existing certification was no longer valid and it was time-consuming and costly to re-test and prove that the explosion protection still existed.



The Solution

In collaboration with the customer, Pepperl+Fuchs developed junction boxes specially designed for such applications, known as GR.CSW. They are made of glass fiber reinforced polyester (GRP), an extremely weather-resistant, durable, and cost-effective material. A special feature of the box is an integrated viewing window, which is fitted with a protective flap that is reliably closed with a spring. The boxes are IECEx-certified and are suitable for installations that have to meet all standard explosion protection requirements.

The energy company opted for Pepperl+Fuchs because it needed a partner that could work closely with on-site personnel to develop a solution that was precisely tailored to the demanding requirements and exceeded market expectations. This is additionally supported by the global sales and technical support teams. Pepperl+Fuchs enabled the customer to develop an IECEx-certified enclosure that significantly reduces future inspection costs thanks to its well thought-out, practical concept.

The Benefits

The viewing window offers a practical and simple solution that brings decisive cost and time benefits when inspecting the electrical system. Visual inspection of the condition of the electrical connections no longer requires the junction box to be opened. This eliminates the need for time-consuming recertification and the entire inspection process is completed in just a few minutes. The junction box is also extremely robust and can therefore withstand even the special operating conditions of petrochemical plant near the sea.

Technical Features

- Enclosure made of glass fiber reinforced polyester (GRP)
- Viewing window with removable or self-closing flap
- Installation in Zone 1, 2, 21, and 22
- Ex eb, Ex ia and Ex tb certified
- Temperature range $-40\text{ }^{\circ}\text{C}$... $+55\text{ }^{\circ}\text{C}$
- Protective function configuration of terminals and cable entries as well as type of cable gland depending on specification
- Degree of protection (IP66)
- Operating voltage 1000 V AC max.

