JEDAN PRIMER REŠENJA ZA KUĆIŠTA ZAŠTIĆENA NADPRITISKOM

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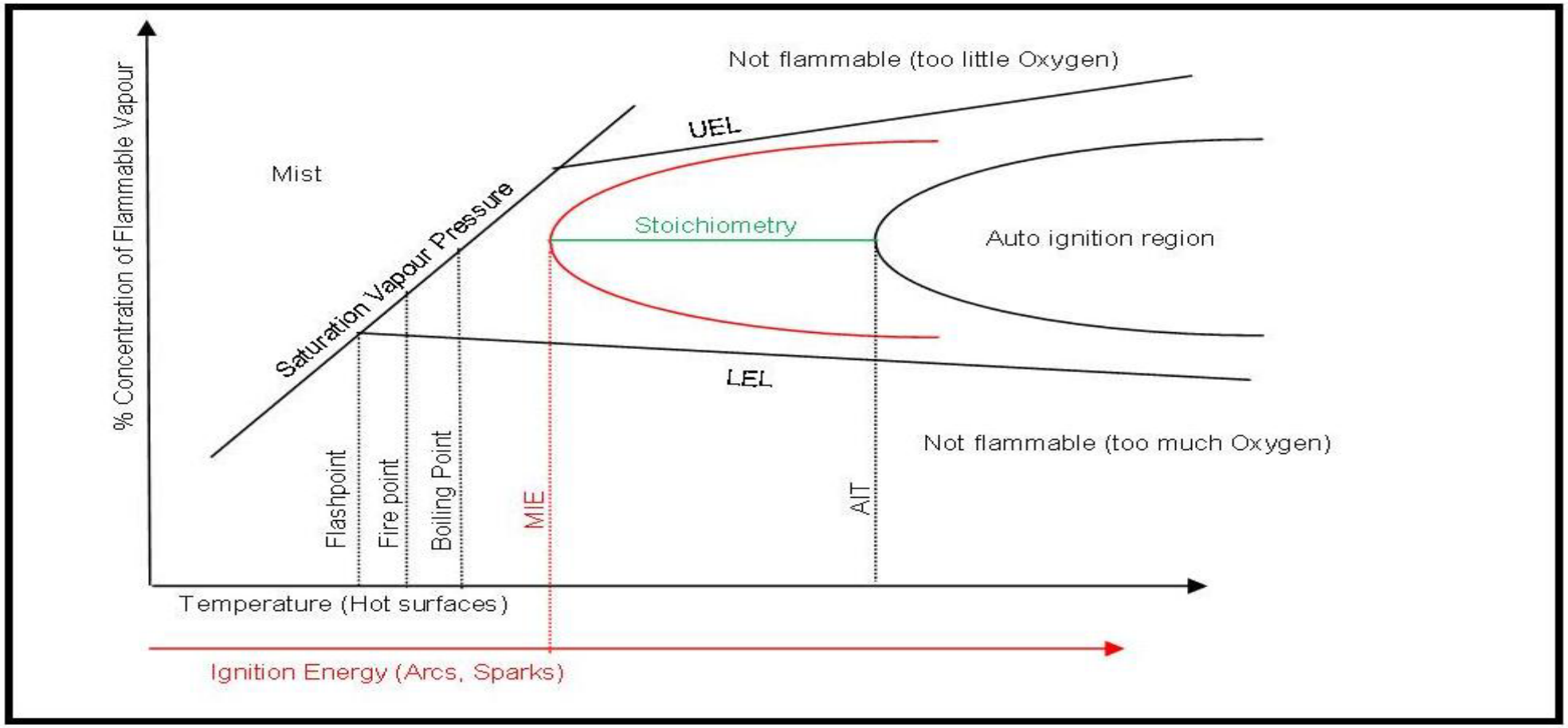
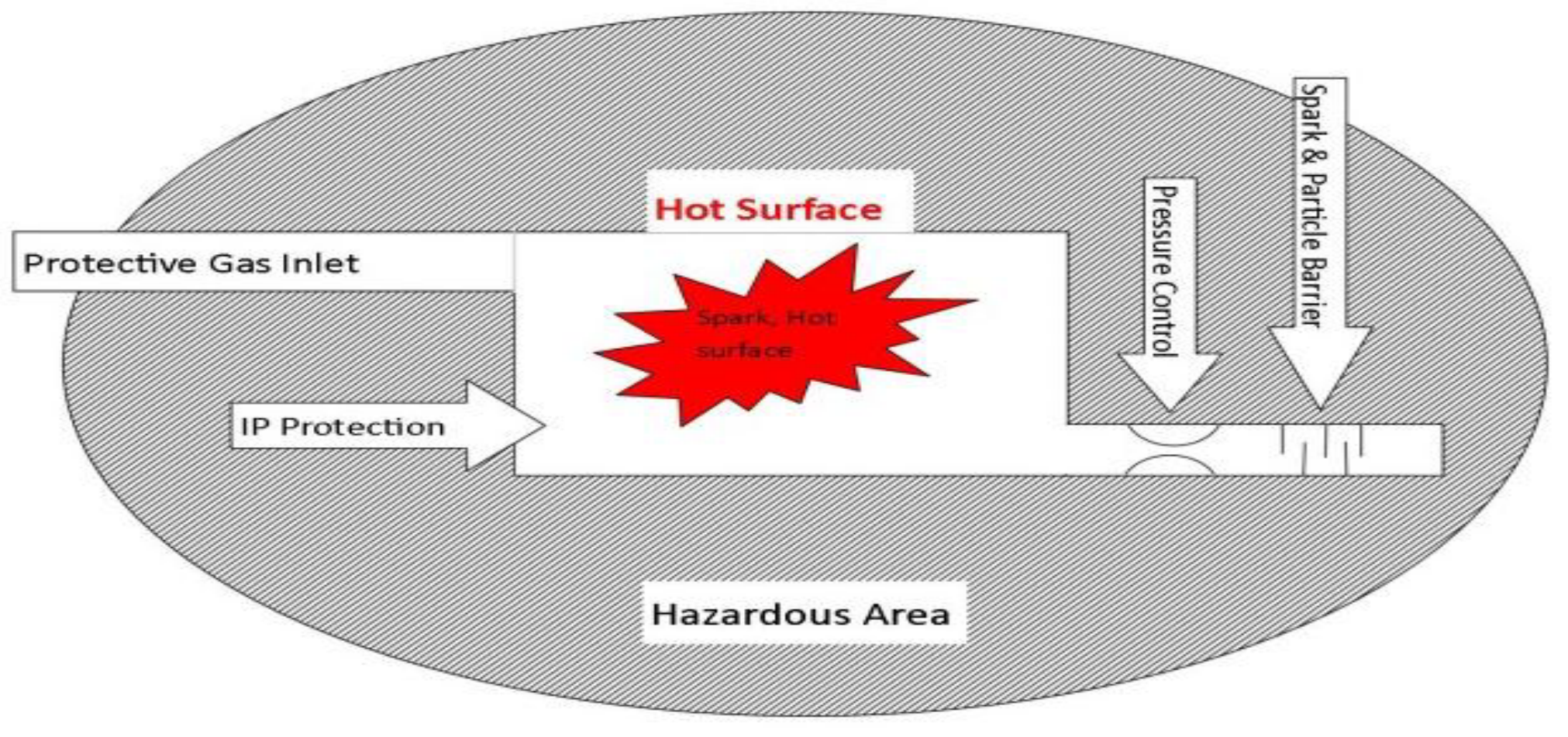
Uvod

- *Standard SRPS EN 60079-2 [1] definiše kućišta zaštićena nadpritiskom („p“ zaštita) za upotrebu u zonama opasnosti od eksplozija (eksplozivne atmosfere). Kućišta zaštićena nadpritiskom omogućavaju korisnicima da u zoni opasnosti koriste opremu koja nije direktno predviđena za korištenje u istoj. Ovaj vid zaštite se može koristiti za zone opasnosti 1/21 i 2/22. Kućišta moraju biti odobrena od strane imenovanih tela u skladu sa pravilnikom o opremi i zaštitnim sistemima namenjenim za upotrebu u potencijalno eksplozivnim atmosterama i kao takva se mogu koristiti odmah po ugradnji. Nova rešenja omogućavaju značajnu uštedu u vidu skraćenja vremena potrebnog za „ispiranje“ kućišta pomoću gasa kojim se održava nadpritisak. Ovo se postiže savremenim kontrolnim jedinicama i pratećom opremom koja se ugrađuje u kućište.*

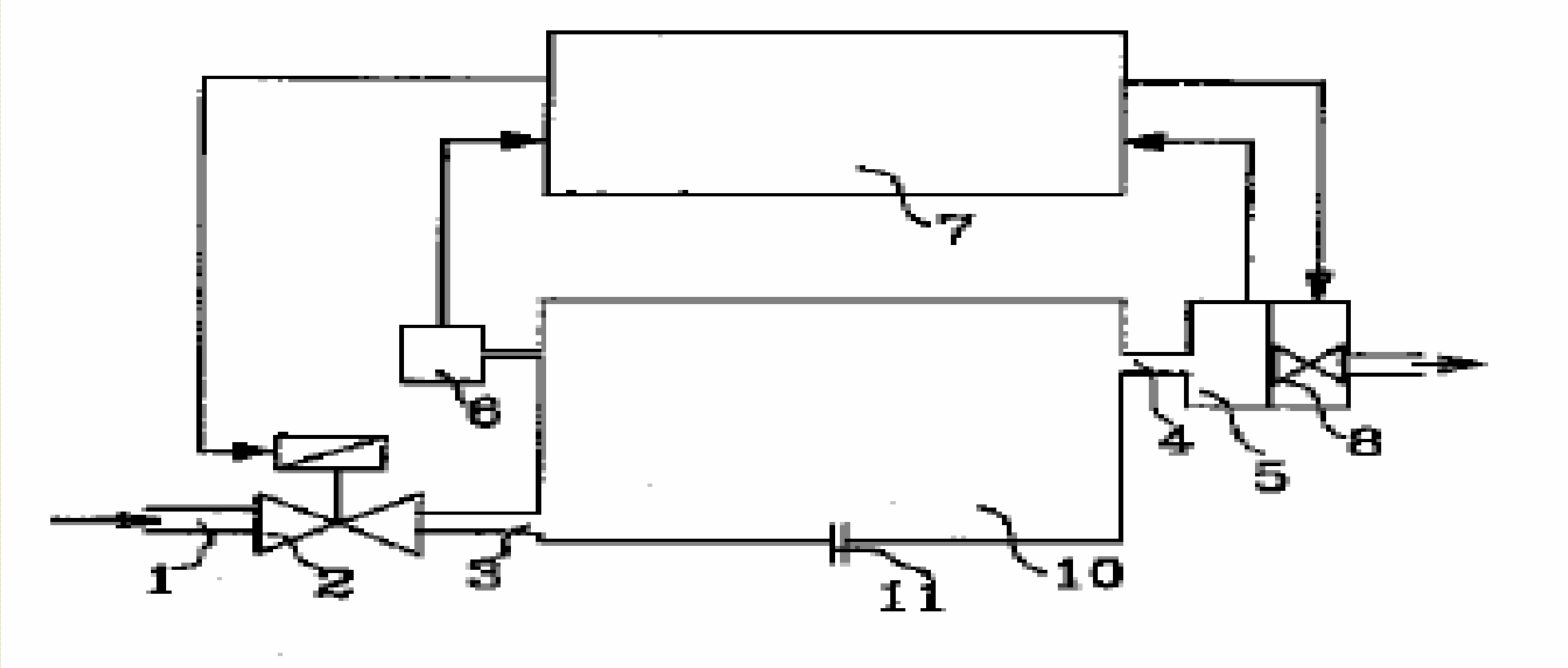
Stehiometriska smeša



Princip „p“ zaštite



Šema „p“ zaštite



Pressurisation

QUINT Ex®

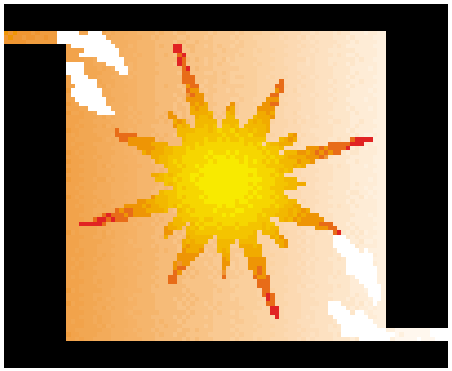
Pressurisation

In general

Preserve a non hazardous area by a non explosive Atmosphere with Pressuration according to ATEX 60079-2

Pressurisation

In general



- Adaptable
- Safe
- Easy handling
- Non Ex-equipment in hazardous area

Pressurisation

In general

- Requirements:
  Before operation ensure a non hazardous area
- In case of failure:
  Alarm (Zone 2) or Shutdown (Zone 1)

Pressurisation

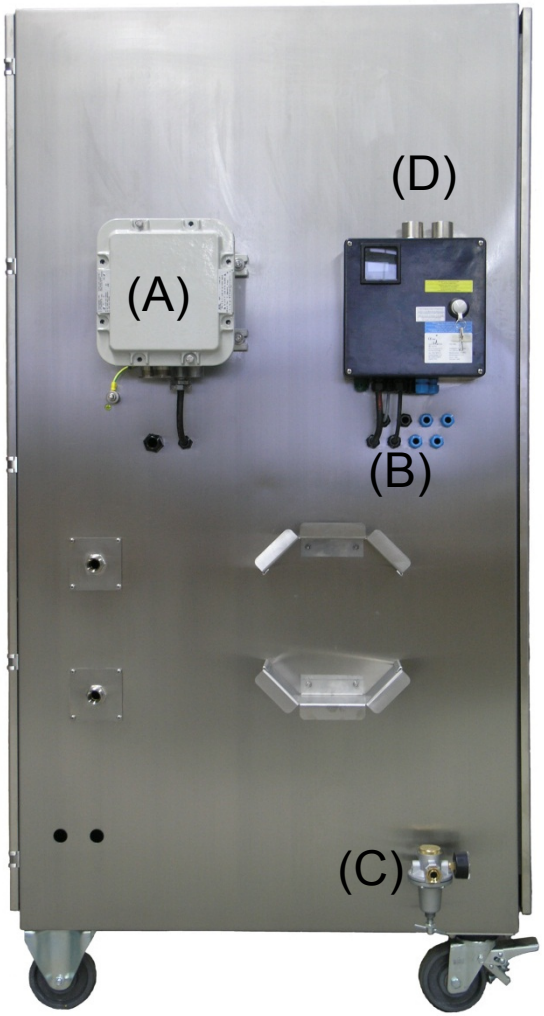
Version „Purging“

(A) Main contactor flameproof

(B) Ex-p control unit

(C) Purge inlet

(D) Purge outlet



Pressurisation

Flameproof main contactor

- To supply the pressurized enclosure
- Auxiliary protection Ex d
- High Price

Pressurisation

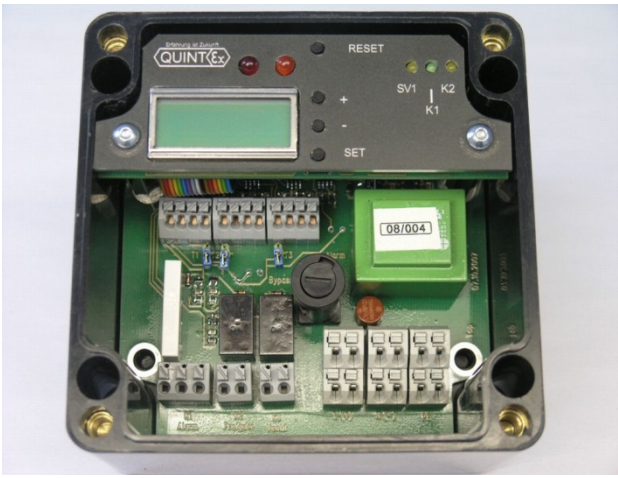
Ex- p Controller

Must be monitored:

- Flushing volume
- Flushing flow
- Inside pressure
- Flushing time

After purging:

- Leakage control



Pressurisation

In and Outletvalve

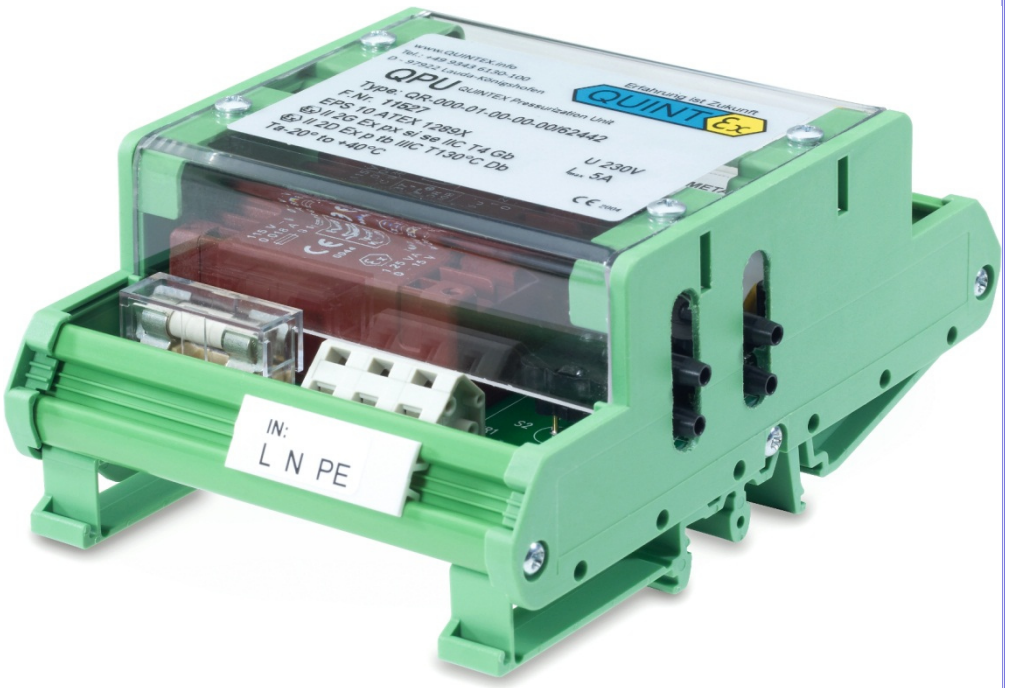
- Complex construction because flow measurement according to ATEX

- Different requirements for purging and leakage compensation

Pressurisation

Ex- p Druckwächtereinheit

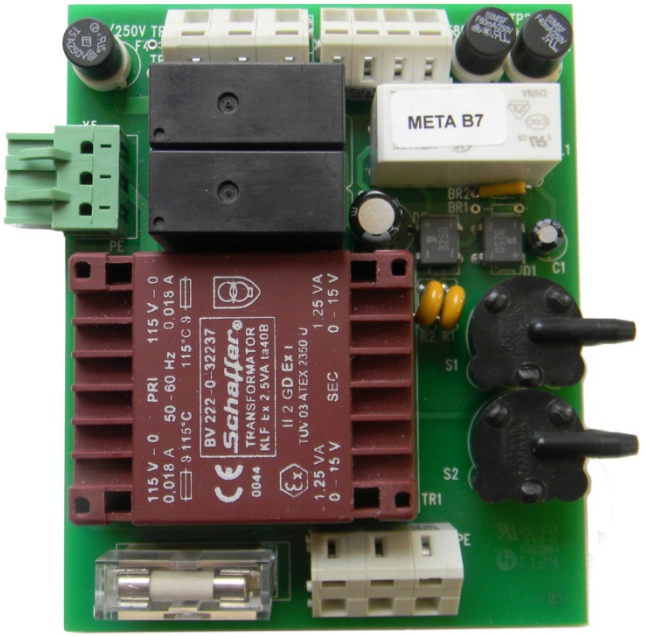
QUINGUARD



Pressurisation

The new approach

- Degrading the complexity
  80% less electronics
- easy to handle
- complete set
- economical



Pressurisation

Reduction of complexity

- No 2nd protection type

- No different pressure levels

- No complex electronics

Pressurisation

Reduction of complexity

- No calculation of flushing time

- No time lost by flushing

- No external mounting of the control devices

Pressurisation

Easy handling

- Only a few components

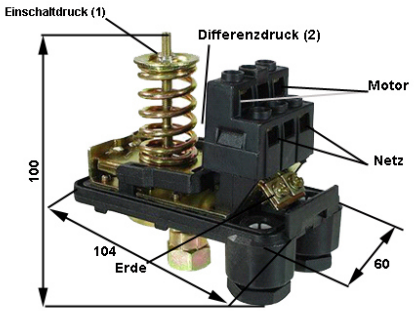
- Simple construction

- No setting required

Pressurisation

The guiding principle:

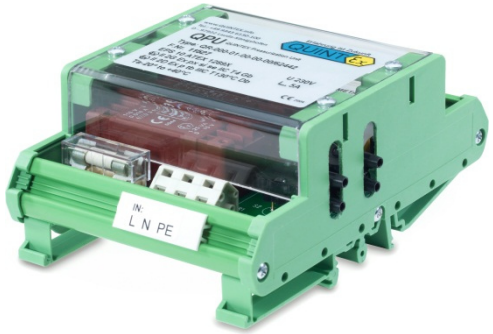
- Use of existing measurement (gas detector)
- Determination of the Ex-free zone
- Ex free only maintained

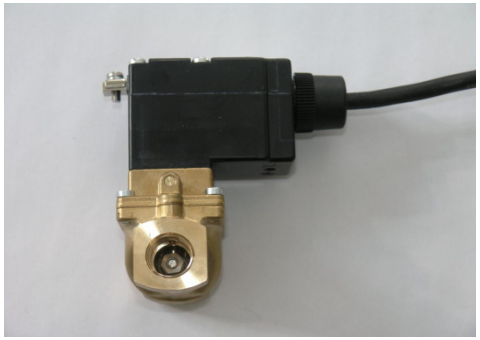


Pressurisation

Build up Quintex Ex p

- Special contactors as power supply (Patent)
- Pressure control unit QUINGUARD
- Portable Gas Detector
  (optional stationary)
- Valves with small flow diameter





Pressurisation

Advantages

Measurement to exclude occurence of gas with existing technology:

- Price (cheap electronics)
- Speed (no flushing time))

Pressurisation

Advantages

- No high flushing pressure (foils are not overloaded e.g. HMI devices)
- System in operation at once

Pressurisation

QUINT Ex®

Patent contactor and relais

- Built inside (no protruding parts)
- No additional protection needed
- Easy assembly and installation on DIN rail

Pressurisation

Quinguard:

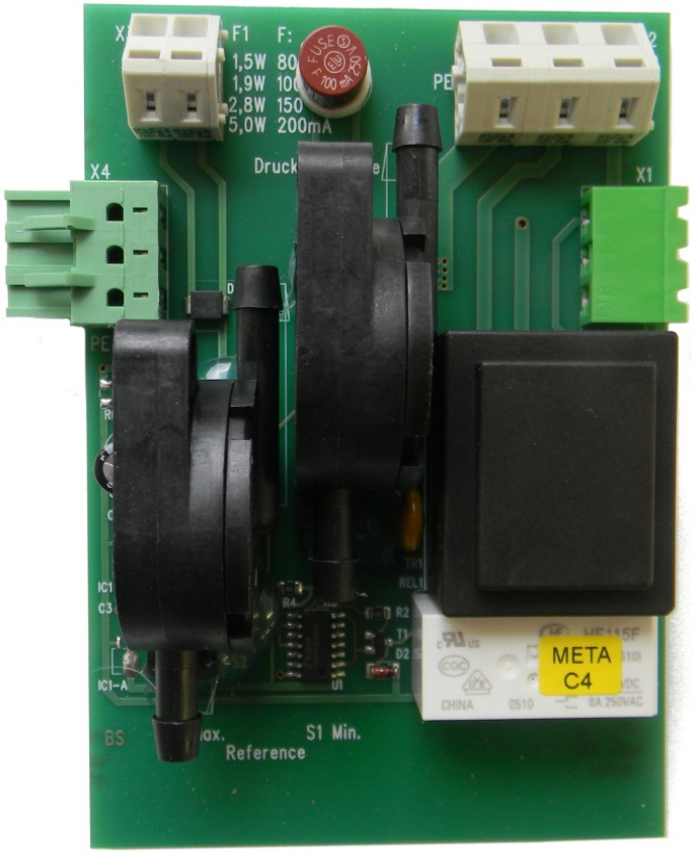
- Easy assembly
- DIN-rail snap
- Easy to modify to implement serial device adaptation
- For Zone 1 and Zone 2 applicable

Pressurisation

Valvemodul

- Controls and regulates the pressure in the enclosure between free adjustable values

- Valve AC 230V or
- Valve DC 24V

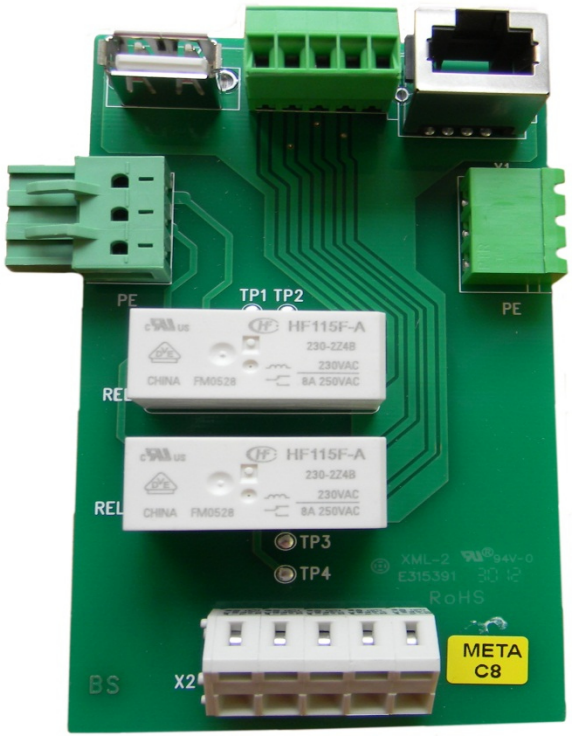


Pressurisation

Interfacemodul

Connects and disconnects datalines from the system to a PC

- USB 2.0
- RJ 45
- 4 pole arbitrary separation



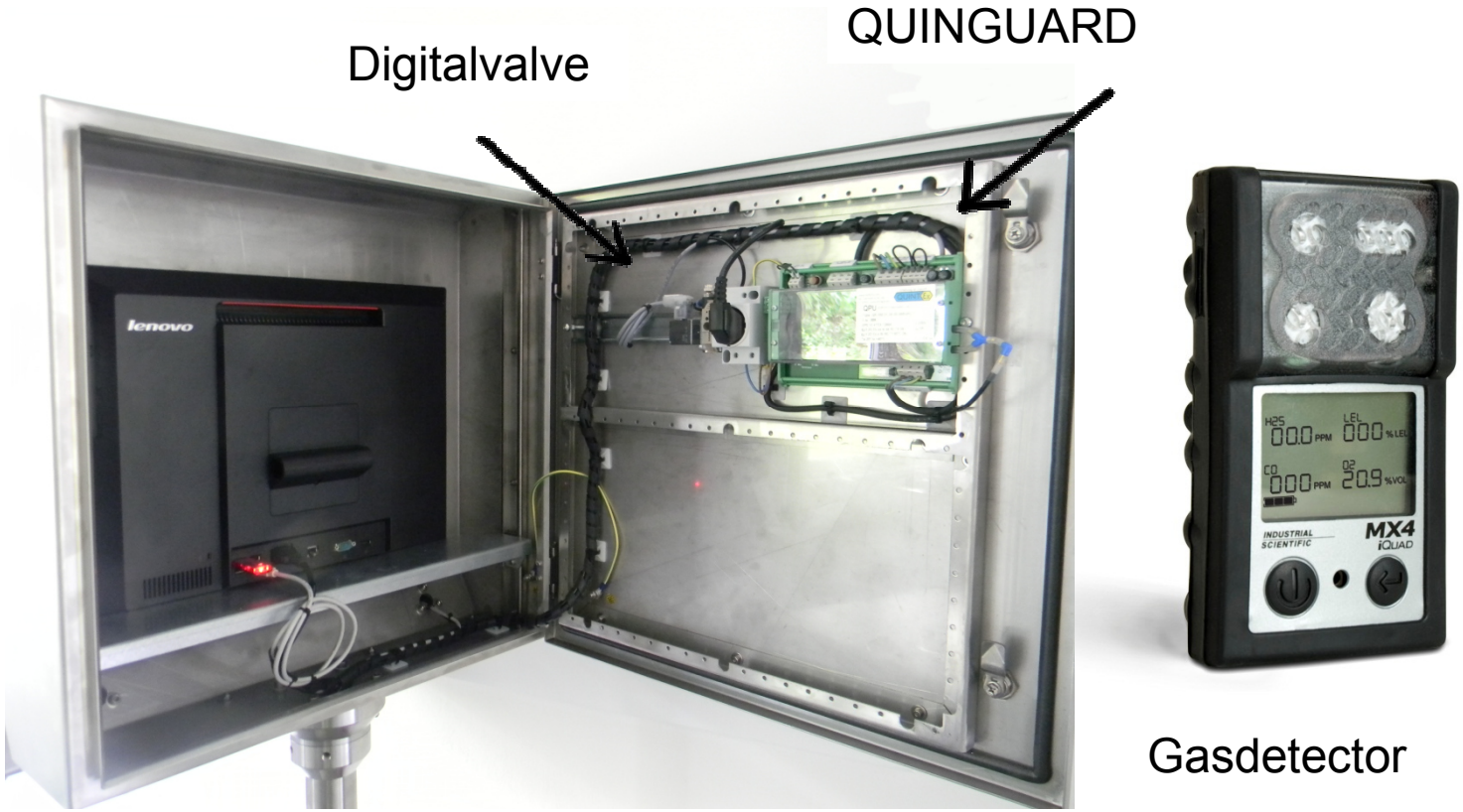
Pressurisation

Valves

- Inexpensive digital valves
- Small design, since only leakage compensation
- No outlet (only as a security device)

Pressurisation

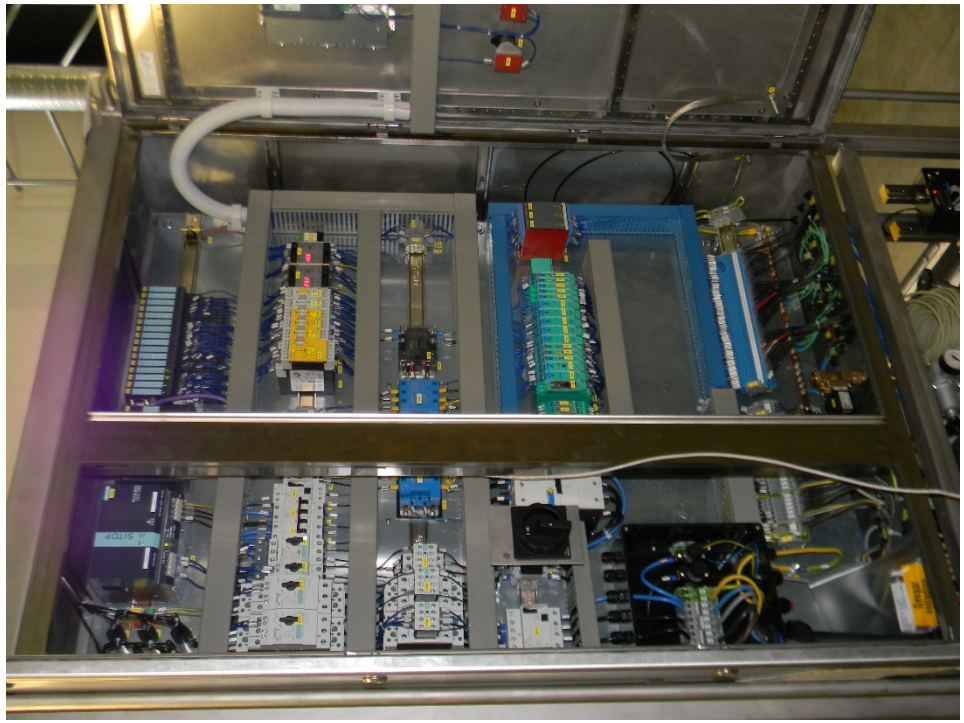
Systemoverview

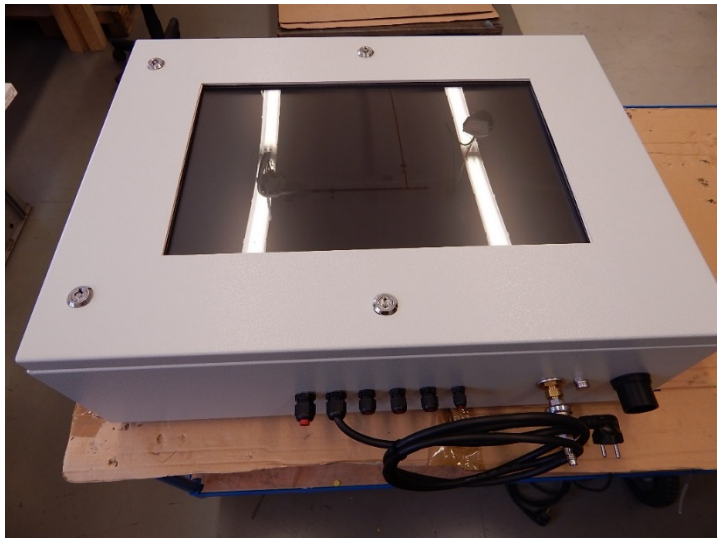


Gasdetector

Pressurisation

Application pictures





Pressurisation

Application pictures

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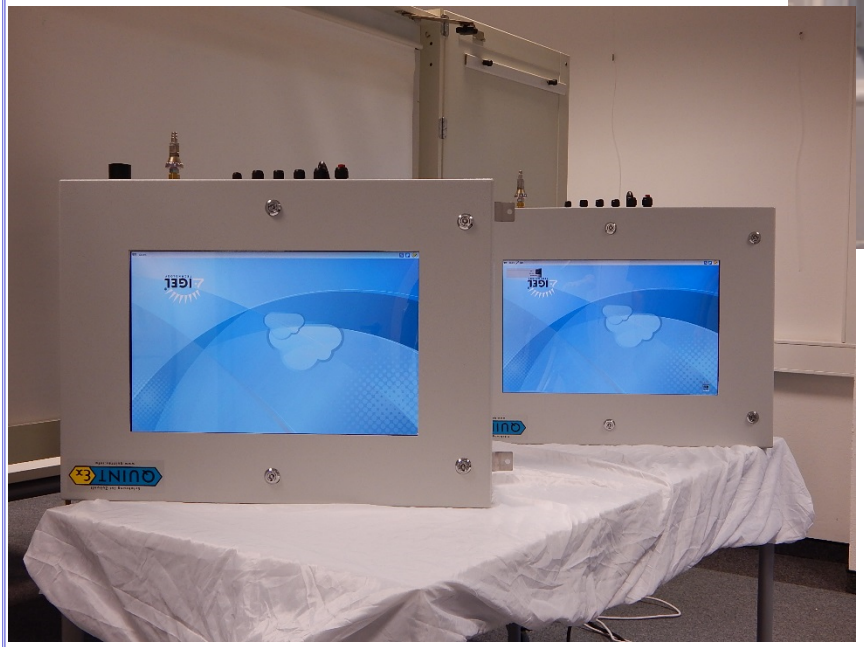


Division Overpressure

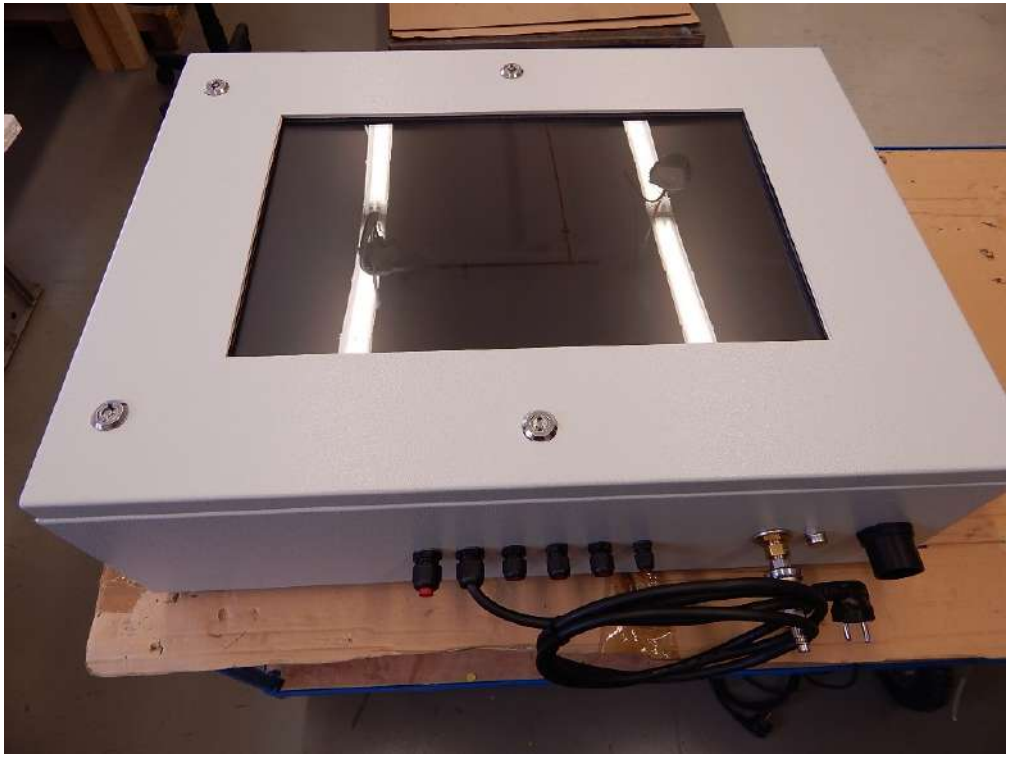
PLC/DCS system

Division Overpressure

Mobile enclosure for Heating and Cooling System

Division Overpressure

24“Touch Panel for Zone 1



Division Overpressure

19“ Panel PC with keyboard and Trackball

Division Overpressure

Mobile enclosure for Heating and Cooling System

Division Overpressure

Simulation enclosure for AIRBUS defence

Division Overpressure

24“ Touch Panel PC

Division Overpressure

Zone 2 Panel PC

Division Overpressure

Container Solution for cooling and heating solution

Division Overpressure

Container Solution for cooling and heating solution

Division Overpressure

Pharmacetucal
enclosure for
a mobile coater

Division Overpressure

Containment system for analyzers

Division Overpressure

Containment system for analyzers

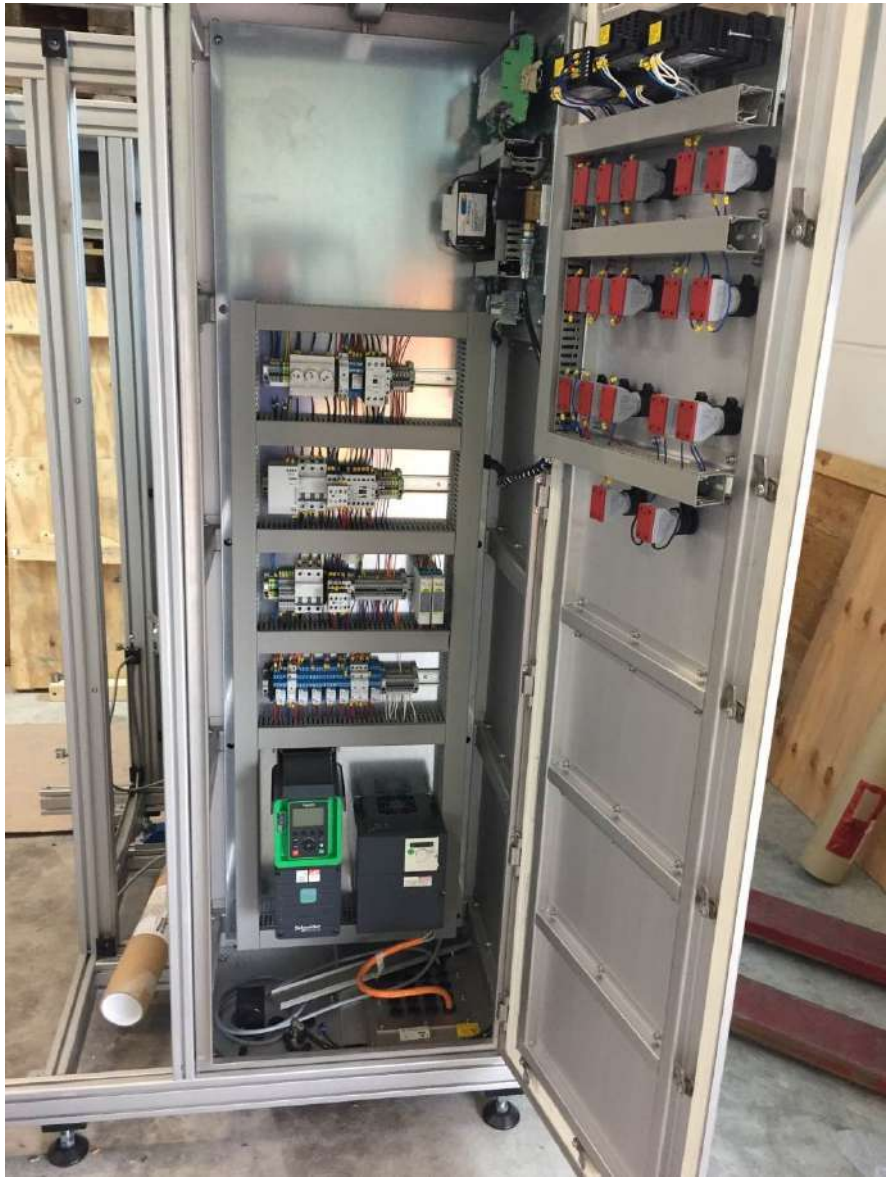
Division Overpressure

Division Overpressure

Control panel

Division Overpressure

Control panel for Rolls Royce fuel testing system



Division Overpressure

Laboratory coating mill

Division Overpressure

Gas bottle printer

Division Overpressure

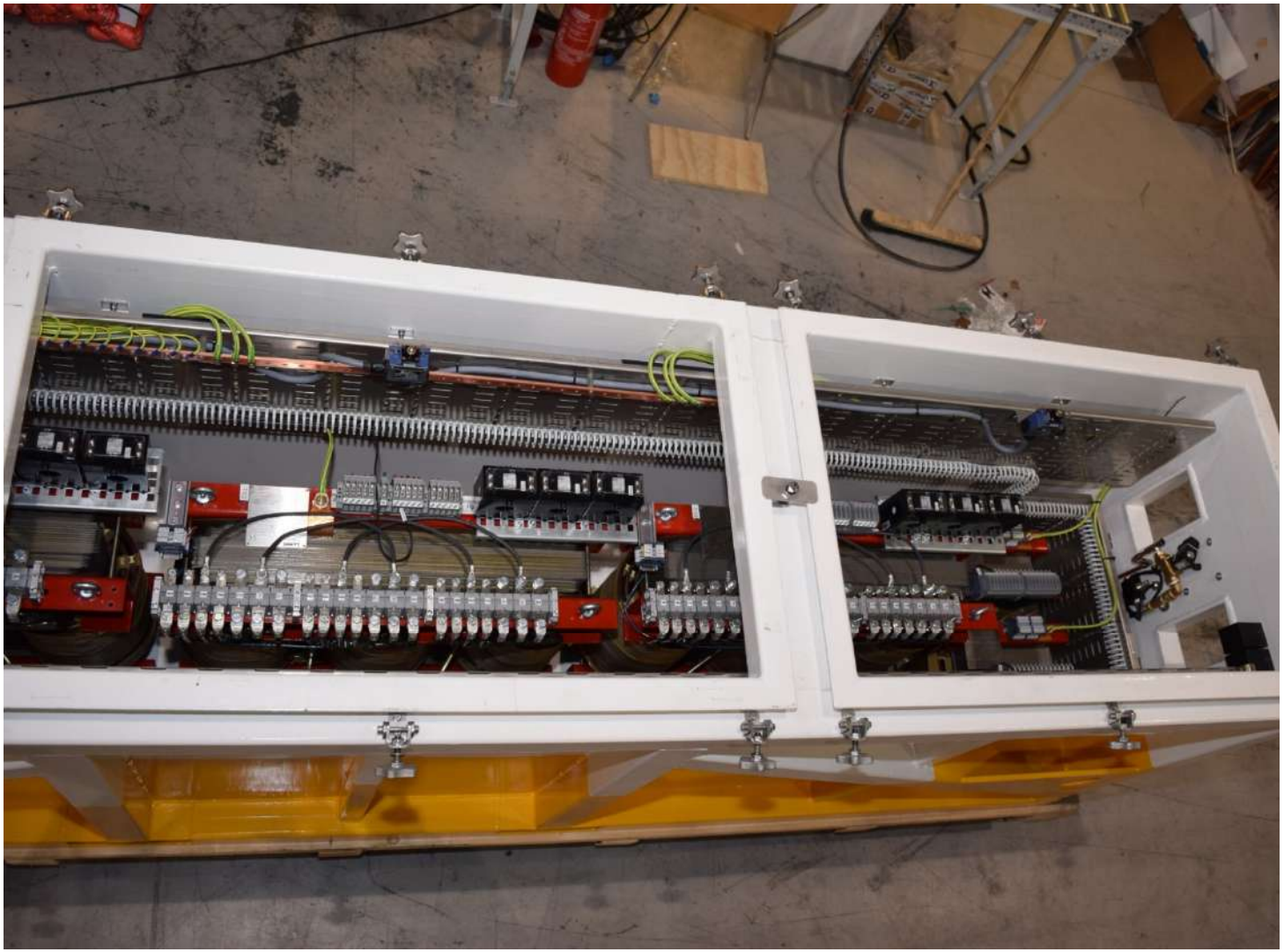
Mobile aircraft refueling system

Division Overpressure

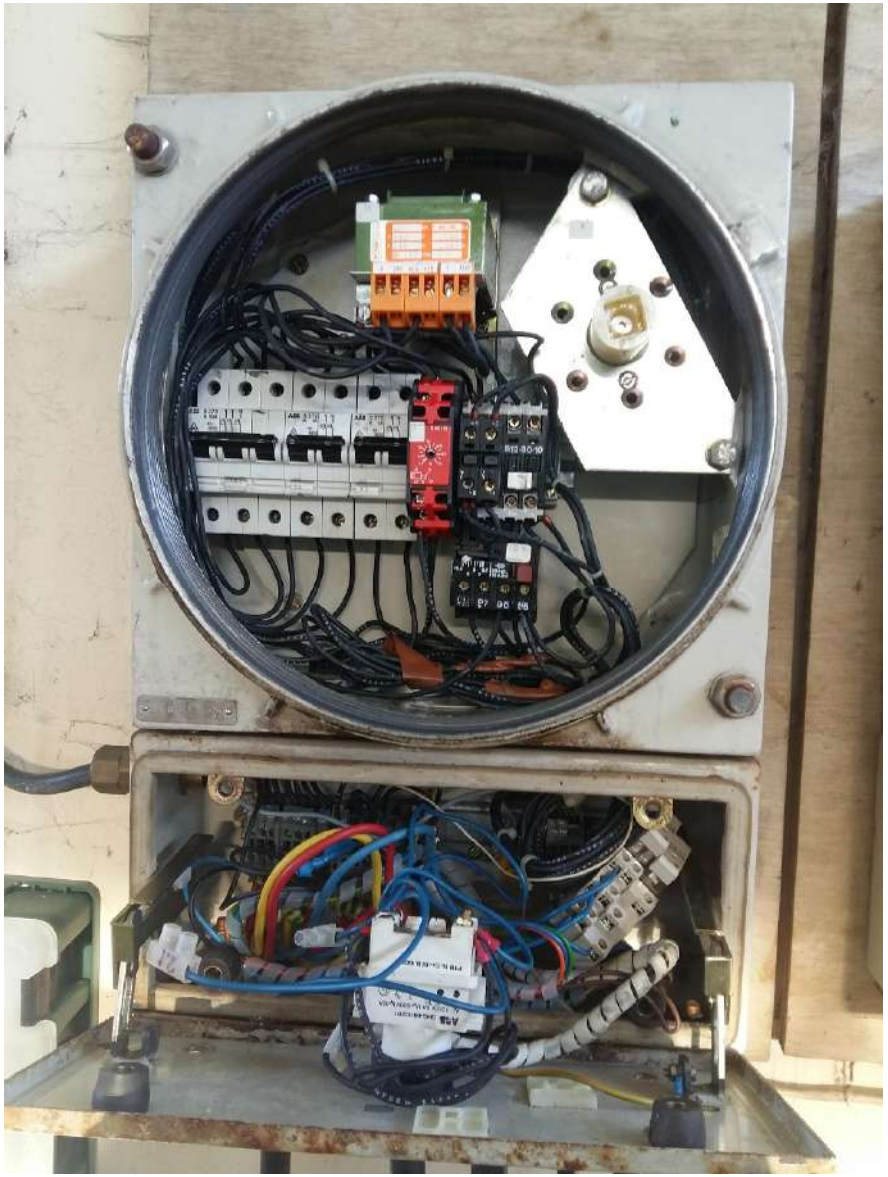
Transformator enclosure for a huge oilplatform winch

Division Overpressure

Transformator enclosure for a huge oilplatform winch



Division Overpressure

Different analyzer systems

How NOT to do