Overpressure System 2.0

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What means Ex p or pressurization?

Ex p is a type of protection that maintains a positive pressure in a enclosure,

to prevent ingress of potentially explosive gases or mixtures.

The space inside the enclosure is ex-free, this causes that can be used in the surrounding enclosure almost all industry standard equipment and installation materials in the ex area.

Conditions for such protection are:

- Compressed air or inert gas connection
- Approved control unit that monitors the internal pressure
- Enclosure in protection class with at least IP4X
- Commissioning through free trade fairs or pre-purging

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Where are overpressure systems a solution?

This type of protection can be used very diverse due to their simple design, since there are no restrictions as to the built-in devices. Even display devices or complex control devices (touch screens) can be built with this kind of protection in hazardous areas and serviced if necessary. Since it mainly involves the same equipment as in the non ex-area, is the operation and ensures proper use immediately.

Typical applications are:

- Analysis equipment
- Panels of any size
- Robot systems
- Filling systems
- Painting systems
- Dosing systems
- Special equipment (customized)
- Temperature control units

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Advantage over other types of protection

Often the only way cost-effectively to provide special equipment but also control devices in hazardous areas due to the pressurization. Equipment with short life cycles, we in the computer industry, can be often not quickly brought enough through the approvals, each represent the technically up-to-date. With the pressurization such considerations play no role it standard equipment can be used here.

Advantages:

- Economic efficiency
- Flexibility
- Availability
- Switch-off pressure loss
- Installation by customer
- Easy - and maintenance-friendly

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What advantages does the operator?

The actual device can be installed through QUINTEX, but also directly on-site at the operator or manufacturer. It provides a quick and easy implementation without large delays. Assumes the unit on-site in operation is connected only the air pressure, the monitoring device in function and the device is now in the ex-area.

At substations, the procedure is as simple. QUINTEX makes available to the customer (Panel builders or end customer with control cabinet construction) the monitoring device and specify the control cabinet. QUINTEX can also if necessary obtain with the monitoring device the cabinet and then forward to the customer, to integrate the installations and perform the wiring.

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Which air/gas can be used for Overpressure?

The ignition protection gas must be non-flammable. The manufacturer must set the ignition protection gas as well as permissible alternatives. The ignition Protection gas should reduce the effectiveness of the ignition protection type neither because of its chemical properties or the impurities it contains.

Air for measuring normal quality, nitrogen, hydrocarbon or other non-flammable gases are considered appropriate ignition shielding gases.

When using an inert gas, such as nitrogen, suffocation. Therefore, an appropriate warning on the housing should be attached.

Usually the temperature of ignition protection gas must be no higher than 40 ° C at the inlet of the housing. This is a higher or lower temperature is required separately to clarify.

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Differences between flushing and free measurment

Flushing:

- Wait time
- High power - washing phase
- High pressure - rinsing phase
- Controller installed outside
- Contactor with ATEX enclosure
- Contactor exterior mounted
- High operating costs

Free measurment:

- Free measurement by detector
- Only leakage compensation
- Internal pressure never exceeds 15mbar
- Patented contactor series
- All components inside
- Certified enclosure series
- Usage in small and large enclosures economically feasible

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What are the advantages of the QUINGUARD®?

The QUINGUARD ® pressure switch unit has following advantages over the conventional flushing variant:

- No setting is necessary (unless a flushing time entry)
- No necessary flushing time calculation
- No loss of time through before flushing
- No external mounting outside - installation as a modular enclosure
- Enclosure series SPZ already tested - no additional acceptance costs
- Low internal pressure of the control cabinet - no high flushing pressure
- Particularly suitable for very narrow casing E.g. industry-PC´s
- Particularly suitable for very large cases such as container
- Cheap in price and in the maintenance cost

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Commissioning of the QUINGUARD® System?

The enclosure series SPZ of QUINTEX is characterized by its high flexibility for the customer. For him the SPZ series provides for the first time a way, without a new renewed acceptance, to have an Exp empty Cabinet acquire and rebuild this with his presentation and his manpower and to install this directly in the Ex area. All housings are constructed with a stationary gas detector controller with Valvemodul including power supply and the QUINGUARD ®. All pneumatic components (needle valve and digital valve incl. fittings) are mounted and adjusted. The wiring is wired on terminals customer-friendly. After connecting the compressed air and contacting the voltage, both he takes the plate starts the system automatically and turns to for free measurement.

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It is a gas inside – what is to do?

The SPZ enclosure series delivers with a normally open valve (NO). This means after the start-up, power and compressed air have been applied, air passes out of the NO valve as long as until that gas detector switches The valve get energized and closes the compressed air supply. A gas mixture measured the valve does not close and it flows as long as compressed air after until no measurable gas concentration is more available. The gas mixture can leave the enclosure through the built-in FGO outlet even when door is closed. Easier and faster it goes when the door is opened. With the door open, be aware that air flows and thus an audible error may occur.

It is assumed that no gas is in the majority of cases in the enclosure.

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What happens if the leakage gets higher?

The SPZ series comes with a normally open valve(NO). This means after the start-up, power and compressed air have been applied, air passes out of the NO valve as long as until that gas detector switches to. The valve is energized and closes the compressed air supply. The leakage compensation is realized by a preset needle valve. In the course of time, it can happen that increases the rate of leakage. The built-in Valve modul detects this condition, and then automatically compensates for this loss. This opens the NO-valve and it as long as air passes after until the set pressure is reached. If valve switches to often please check the seals and cable glands. No visible limits of seal behavior to recognize are the possibility to open the needle valve to achieve a higher basic leakage.

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QUINT Ex

What is the max. power dissipation inside the SPZ?

The enclosure series SPZ is designed so that different power dissipating of the performance of the installations may be used. This involves the warming inside the enclosure.

The power dissipaiting of the build ins is higher than the allowed consultation must be held. It is then possible to cool the air inside the enclosure to reduce the internal temperature. But in each case separately to check this. Two different cooling systems will be offered perform as water/air heat exchanger inside and a version with VORTEX air/air cooler.

The Division into a temperature class depends on the hottest outer surface of the housing or the hottest surface of an internal component.