

■ **Prevention - explosive atmospheres**

“Give us 5 minutes of your time ...  
... and we will give them safely back!”



■ **THE PROBLEM: Flammable, explosive dust in filter units**

Organic and/or metallic dust

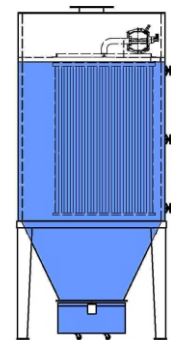
- ⇒ in the pharmaceutical, chemical and metalworking industry
  - ⇒ from agglomeration, drying and coating operations
  - ⇒ from grinding, cutting, welding, polishing, blasting, etc.
  - ⇒ present during simple bulk goods handling
- can be flammable or potentially explosive

■ **ANALYSIS: Zone definitions in filter units**

**Raw gas compartment**

The zones in filter separators differ depending on the type of jet-pulse cleaning which is used during separation of flammable/explosive dust in the raw gas compartment:

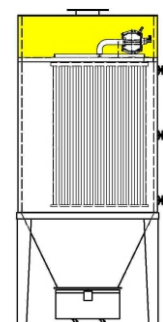
- ⇒ On systems with **time-cycle controlled jet-pulse cleaning**, the explosive atmosphere is present constantly, over long periods of time or often, meeting the definition of **Zone 20**
- ⇒ On systems that use **jet-pulse cleaning with differential pressure control**, a potentially explosive atmosphere only occurs occasionally, meeting the definition of **Zone 21**



**Clean gas compartment**

When filter separators are used for the intended purpose, the dust concentration in the clean gas compartment remains below the lower explosion limit, and there is no risk of explosion.

- ⇒ Dust penetration and filter breakage are potential problems on conventional filter media such as bag filters (cloth) or cartridges (paper). Because these faults can occur, the literature classifies the clean gas compartment on filter separators as Zone 22.
- ⇒ This type of fault does not occur on Herding® sintered plate filters. Our filter medium is a rigid body with a PTFE surface coating. Dust separation takes place through surface filtration. The Herding® sinter plate filter acts as a **Dust@Zone Barrier**. There is no explosive dust atmosphere in the clean gas compartment, which is actually safe zone.



## ■ Prevention - explosive atmospheres

## ■ THE SOLUTION: The Herding® sinter plate filter as a dust<sup>☉</sup> zone

The Herding® sinter plate filter offers the following advantages as a **Dust<sup>☉</sup> Zone Barrier**:

### **Electrical subsystems on the standard version**

The motor on the fan, which is built into the Ip54 noise-insulation cover, is fully adequate. There is no need for an expensive ATEX version.

### **Mechanic subsystems on the standard version**

There is no mandatory gap between the inlet nozzle and the impeller. There is also no need for specific material combinations on these parts.

### **Clean gas compartment as a “safe zone” for electrical connections**

The enclosure for the electrical (valve) control unit is mounted in the safe zone. There is no need for expensive compliant versions.

### **Other subsystems**

All components which are mounted in the clean gas compartment or are connected to it do not have to comply with ATEX regulations because there is no explosion hazard.

### **Ease of maintenance**

Standard parts are most easier and less costly to maintain than ATEX-compliant parts. In accordance with German operational safety regulations (TRBS 1201 Part 1), compliant-subsystems may only be checked and maintained by approved personnel.

## ■ SERVICE: Explosion protection document

We have acquired extensive expertise during the ongoing development of our filter elements and units which do not contain sources of ignition. We contribute our expertise to a variety of organizations including the Association of German Engineers (VDI), the German Engineering Federation (VDMA) and the German Insurance Association (GDV). HERDING also shares its expertise in handling flammable and explosive dust with customers who use filter units.



We offer a filter system analysis service to review customer compliance with ATEX requirements. Following an assessment on site, HERDING discusses the design issues with the customer and generates an explosion protection document based on German occupational safety regulations (BetrSichV). HERDING performs a risk assessment including zone and ignition hazard analysis and generates an appropriate preventive, design and organizational action plan.

**“Talk to us ...  
... and we will keep you out of harm's way”**

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