BULLETIN 219

Date: 17/03/2014

Implementation date: with immediate effect

Conductive elements

We understood that bulletin 179 has been used frequently to support your sales, so we thought it important to have it updated to include the new released media and elements.

It also allows for an update of the bulletin with the recent changes in EN13463-1:2009.

1. What is a conductive element?

Metal parts

All metal components of an element need to be interconnected with a resistance lower than 10exp6 Ohm. This is achieved in our elements in two independent ways:

- First connection is via metal contact between liner and endcaps through the potting compound.
- Second independent safety is via application of conductive paste on all metal joints of the element.

All metal parts must be connected to ground.

Media (non-metal parts)

Although ATEX allows usage of non-metal materials with resistance < 10exp9 Ohm, a filtration media also needs to dissipate charges that could come from (chargeable) dust. Directive BGR 132 states that in case of filter materials, surface electrical resistance must be < 10exp8 Ohm in order to be called antistatic (test according to DIN 54345).

For a list of antistatic media available, see chapter 6.

Media & metal parts

In order to have a full earthing path, the antistatic media (see list below) must be connected to the metal parts to ground. This is guaranteed by applying a clip (Siloair) or copper threads (Torit cartridges & Unicell), see images below.

Conclusion:

1. If all metal parts in an element are interconnected with a resistance < 10exp6 Ohm and connected to earth with a resistance < 10exp6 Ohm, your element is **earthed** as requested by the standards.
2. Elements with metal parts interconnected, BUT with a media that has a surface resistance higher than 10exp8 Ohm are earthed, **NOT CONDUCTIVE** elements.
   Example: FW-E
3. Elements with metal parts interconnected AND with media that has a surface resistance lower than 10exp8 Ohm are **CONDUCTIVE** elements, provided that the media and metal parts are interconnected.
   Example: UW SB AS, Torit Tex AS

metal parts (endcaps, liners, ...)	/	interconnected	interconnected
+			
media	standard*	standard*	antistatic
=			
element	STANDARD	EARTHED, NON-CONDUCTIVE	CONDUCTIVE**
↓	↓	↓	↓
USE	non-explosive dust only	explosive dust with MIE>1mJ***	explosive dust with MIE<1mJ***

* standard media: not antistatic with a resistance > 10exp8 Ohm
** media is also interconnected with metal parts
*** changed from 3 to 1 mJ

2. What does this mean in practice?

When handling explosive dust, 4 different situations can occur.
In each situation you have to ask the question: is there a risk on explosion?

Situation 1:

Media is conductive and earthed properly to ground
Dust is not conductive

- → Conductive media will safely get rid of possible charges of the dust
- → No explosion risk

Situation 2:

Media is conductive and earthed properly to ground
Dust is conductive

- → Conductive media will safely get rid of charges of the dust
- → Dustcake is conductive, so cannot build up charges
- → No explosion risk

Situation 3:

Media is not conductive, but element is earthed properly to ground
Dust is conductive

- → Non conductive media cannot guarantee a safe elimination of possible charges of the dust
- → But conductive dust on the media will reduce its surface resistance considerably and can in some cases lead to a sufficiently conductive media.
- → No explosion risk if you use a media from below list that has this property (see *)

Situation 4:

Media is not conductive, but element is earthed properly to ground
Dust is not conductive

- Non conductive media cannot get rid of charges of the dust and could in worst case even build up a charge on its own (non conductive).
- Dustcake is not conductive, so can build up charges
- Ignition source in both media and dustcake, so there's an explosion risk.
- So, this situation must be avoided. Eg. UW earthed cannot be used in this situation.

When handling explosive gas, there are other considerations. Since the explosive gas is able to pass through the media, the charge may accumulate on the inside of the media as well as the outer surface.

In this instance it is important that the media is conductive on both inner and outer surfaces where the gas zone is classified as 1, this results in sintamatic, UW SB AS and spunbonded polyester AS for Excel being unsuitable and fully conductive media should be used.

When handling gas, Product Group needs to be contacted.

3. Overview of antistatic media

See table page 4.

We hope these changes will make things more clear and will lead to a safer use of the correct element.

Regards,

Barbara Berger Koen Oostvogels

	Antistatic?	Remark
PowerCore		
Ultraweb	-	
Ultraweb Flame Retardant	-	
Ultraweb on Spunbond	-	
Ultraweb Antistatic	✓	not for ATEX gas atmospheres
Cartridges		
Ultraweb	-	*
Ultraweb Antistatic	✓	will be available soon
Ultraweb Flame Retardant	-	
Fibraweb	-	*
Cellulex	-	
Ultraweb on Spunbond	-	
Ultraweb on Spunbond Antistatic	✓	not for ATEX gas atmospheres
Torit-Tex	-	
Torit-Tex Antistatic	✓	
Thermoweb	-	
Kevlar Nomex	-	
Pleatable Duralife	-	
Synteq XP®	-	
Panels		
Ultraweb on Spunbond	-	
Ultraweb on Spunbond Antistatic	✓	not for ATEX gas atmospheres
Torit-Tex	-	
Torit-Tex Antistatic	✓	
Spunbonded Polyester for Excel	-	
Spunbonded Polyester Antistatic for Excel	✓	not for ATEX gas atmospheres
Sintamatic Standard	-	
Sintamatic Antistatic	✓	not for ATEX gas atmospheres
Bags		
Duralife	-	
Duralife Antistatic	✓	
Duralife Oleophobic	-	
Duralife Oleophobic Antistatic	✓	
Tetratex	-	
Tetratex Antistatic	✓	
Tetratex Contact Polyester	-	
Tetratex Contact Polyester Antistatic	✓	
Aramid	-	
Aramid Antistatic	✓	
P84	-	
Dralon Homopolymer Acrylic	-	
Polypropylene	-	
Polypropylene Antistatic	✓	
Polyester Standard	-	
Polyester Antistatic	✓	
Polyester Oleophobic	-	
Polyester Oleophobic Antistatic	✓	
NDRF		
See price list spare parts		

* Ultraweb and Fibraweb have been tested on conductivity and media surface resistance >10exp8 (thus not antistatic media). Due to its structure, it was found that (pre)coating it with a conductive dust immediately makes it more than sufficiently conductive.