

## Addition

IB-13-8-029

to the Test Reports IB-10-8-058 and IB-12-8-052:  
**BFM<sup>®</sup> connectors of Seeflex 020 and Seeflex 020E**  
as well as larger hose lengths

- Translation -

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## **Addition**

### **IB-13-8-029**

#### **to the Test Reports IB-10-8-058 and IB-12-8-052: BFM<sup>®</sup> connectors of Seeflex 020 and Seeflex 020E as well as larger hose lengths**

(Translation)

## **1 Order / Background**

Within the scope of the Test Reports IB-10-8-058 [1] and IB-12-8-052 [2] the BFM<sup>®</sup> connectors of the company BFM Global Ltd, Beach Haven 0749, Auckland, New Zealand were assessed regarding their suitability at the free fall of explosible dusts through these connectors. The presence of a possible explosive gas atmosphere has also been taken into account.

The tested plastic materials Seeflex 040 and Seeflex 040E of the BFM<sup>®</sup> connectors have a wall thickness of 1 mm each. The connectors shall be produced in future also from the materials Seeflex 020 and Seeflex 020E. These materials are chemically identical with the aforementioned Seeflex materials, but they have a wall thickness of only 0.5 mm.

In addition, it is intended to use also larger hose lengths than the tested standard length of 200 mm.

BFM Global Ltd. has commissioned the IBExU Institut für Sicherheitstechnik GmbH, Freiberg, Germany, with a corresponding assessment.

## **2 Safety technical assessment**

### **2.1 Reduced wall thickness of 0.5 mm at Seeflex 020 and Seeflex 020E**

The half wall thickness of Seeflex 020 and Seeflex 020E does not cause any significant changes in the electrostatic behaviour of the BFM<sup>®</sup> connectors in comparison with the materials Seeflex 040 and Seeflex 040E. From the view of the explosion protection the BFM<sup>®</sup> connectors made of Seeflex 020 and Seeflex 020E can be used in explosive atmospheres, but the analogous conditions / criteria for Seeflex 040 in [1] and Seeflex 040E in [2], respectively, have to be applied.

## 2.2 Larger hose lengths

At the pneumatic transport [3] and also at the free fall of dusts an increasing charging of the hoses at increasing distance from the spigot (flange) has to be expected with an increasing hose length of the homogeneous hose materials.

Because the BFM<sup>®</sup> connectors made of Seeflex 040, Seeflex 400W and Seeflex 040 examined in [1] and [2] as well as the BFM<sup>®</sup> connectors made of Seeflex 020 and Seeflex 020E show resistances which lie only insignificantly about the limiting value of a dissipative material and because the material LM4 is still dissipative [1], these materials can be used in explosive dust atmosphere up to a hose length of maximum 1 m at the free fall (Up to this length additional tests are not necessary.). Particularly at dusts with very high resistances and at a very dry atmosphere (air) the risk of dangerous charging increases with an increasing hose length.

BFM<sup>®</sup> connectors with a length up to 1 m can also be used at the free fall at an outer explosive gas atmosphere of the zone 1 and 2 in the case of the material LM4 as well as zone 2 in the case of the other materials. The length of the BFM<sup>®</sup> connectors has to be limited on the standard length of 200 mm at the use in zone 1 in the outside area, except the material LM4. It has to be pointed out that the same area criteria of the standard length also apply to an increased hose length (see table 6 in [1] or table 2 in [2]). At the BFM<sup>®</sup> connectors made of Seeflex 020 the respective criteria which applies to Seeflex 040 [1] have to be considered (analogous: Seeflex 020E → Seeflex 040E [2]).

## 2.3 Note, validity

The here evaluated and in [1] and [2] contained results apply to the free fall of explosible dust through BFM<sup>®</sup> connectors. BFM<sup>®</sup> connectors with a standard length up to 200 mm can also be used for the pneumatic transport, presupposed that no explosive gas atmosphere is then present (exception: material LM4 with explosive gas atmosphere in the outside area according to table 6 in [1]).

Particularly at larger hose lengths (see chapter 2.2) the test results are not transferable to a pneumatic dust transport at which considerably higher charging can arise.

## Literature:

- [1] Test Report IB-10-8-058 about the electrostatical properties of the BFM® connectors Seeflex 040, Seeflex 400W and LM4 and their use in potentially explosive areas,  
IBExU Institut für Sicherheitstechnik GmbH, Freiberg, 08 October 2010
- [2] Test Report IB-12-8-052 about the electrostatic properties of the BFM® material Seeflex 040 E and its use in potentially explosive areas,  
IBExU Institut für Sicherheitstechnik GmbH, Freiberg, 24 July 2012
- [3] Blum, C., M. Glor, C.-D. Walther und W. Fath: Elektrostatische Zündgefahren beim pneumatischen Transport brennbarer Stäube durch isolierende oder ableitfähige Rohre und Schlauchleitungen,  
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