

Atex Conformance and IBExU Reports Simplified

BFM Global has commissioned the IBExU Institute on four occasions to test the BFM fitting for conformance with Atex standards regulating product in potentially explosive environments.

1. Report 1B-10-8-058 August 2010 – Tested the LM4 and the replaced Seeflex 040 and 400W
2. Report 1B-12-8-052 July 2012 – Tested Seeflex 040E
3. Report 1B-13-8-029 March 2013 – Tested Seeflex 020E and Longer Length Connectors
4. Report 1B-13-8-085 August 2013 – Tested Seeflex 040AS

Taking all these reports into consideration for the BFM® fitting with diameters ranging from 100 to 650mm diameter we have summarised results in the following table with explanation to follow.

		BFM® Connector Materials		
Product Transport	Explosion Zone	Seeflex 040E/020E	Seeflex 040AS	LM4
Free Fall	Dust Ex Zones <i>Interior/Exterior:</i> 20-22	1m	2m	1m
	Gas-ex Zones <i>Exterior 1+2</i>	In Explosion Group 11A + 11B: Zone 1: 200mm Zone 2: 1m Explosion Group 11C: Not Applicable	2m	1m
Pneumatic Transport	Dust Ex Zones <i>Interior/Exterior:</i> 20-22	200mm	200mm	200mm
	Gas-ex Zones <i>Exterior 1+2</i>	Not Applicable	200mm	200mm

Seeflex 040E

The BFM fitting with Seeflex 040E connector can be used in all dust zones. Below is the key conclusion from Report 1B-12-8-052.

In accordance with the results in Table 1 and [1] the tested BFM® Material Seeflex 040E can be used without restrictions in all dust explosion hazardous areas (dust explosion hazardous zones are possible both inside and outside of the BFM® connector), if the mechanical design of the BFM® connector is as per [1].

Connector Sizes: The IBExU report (1B-13-8-029) states that the BFM fitting with Seeflex 040E connectors conforms to Atex regulations in all dust zones when using standard diameters (up to 650mm) with a length of up to 1m for free fall and 200mm for pneumatic conveyance. Sizes outside this range would need to be tested independently.

Seeflex 020E

Report 1B-13-8-029 states that the Seeflex 020E does not have any significant difference from the Seeflex 040 in terms of electrostatic behaviour and exactly the same applies for the Seeflex 040E and 020E.

Seeflex 040AS

The Seeflex 040AS can be used in all dust hazardous zones. It is also suitable in outer gas zones 1 and 2 as long as the length is no more than 200mm. relevant section from report 1B-13-8-085 is pasted on the following page.

In accordance with the test results and [1] the tested BFM® Material Seeflex 040AS can be used without restrictions in all dust explosion hazardous areas (dust explosion hazardous zones are possible both inside and outside the BFM® connector), if the mechanical design of the BFM® connector is as per [1] (length of the BFM® connector: 200 mm). BFM® connectors with a standard length up to 200 mm can also be used without restrictions in outer gas explosion hazardous areas of the zone 1 and 2, respectively (outer zone 0 is not considered because it is normally not present there). The aforementioned conclusions apply both to the free fall of explosive dust through the BFM® connectors and to the pneumatic transport.

Connector Sizes:

For all Dust Zones. The IBExU report (1B-13-8-085) state that the BFM fitting conforms to Atex regulations with all standard diameters (up to 650mm) with a length of up to 2m long for free fall and 200mm long for pneumatic conveyance.

For Outer Gas Zones 1 & 2. The IBExU report (1B-13-8-085) states that the BFM fitting conforms to Atex regulations with all standard diameters (up to 650mm) and a length of up to 200m long for free fall and pneumatic conveyance.

Sizes outside this range would need to be tested independently.

LM4

The BFM fitting with LM4 connectors can be used in all dust hazardous zones. It is also suitable in outer gas zones 1 and 2. Relevant section from report 1B-10-8-058 is pasted below.

Zone outside	Zone inside and/or outside	Permissible surface of the BFM ¹⁾ at Explosion Group		
		II A	II B	II C
LM4				
1	20, 21, 22	no restrictions ⁴⁾		
2	20, 21, 22	no restrictions ⁴⁾		

Connector Sizes: The IBExU report (1B-13-8-029) states that the BFM fitting with LM4 connectors conforms to Atex regulations, as above, with all standard diameters (up to 650mm) and lengths of up to 1m long for free fall and 200mm for pneumatic conveyance.

Zones are defined under the ATEX Guideline in Europe as follows

Area Classification. Process plants are divided into Zones (European and IEC method) or Divisions (North American method) according to the likelihood of a potentially explosive atmosphere being present.

European and IEC Classification	Definition of zone or division	North American Classification
Zone 0 (gases)	An area in which an explosive mixture is continuously present or present for long periods	Class I Division 1 (gases)
Zone 20 (dusts)		Class II Division 1 (dusts)
Zone 1 (gases)	An area in which an explosive mixture is likely to occur in normal operation	Class I Division 1 (gases)
Zone 21 (dusts)		Class II Division 1 (dusts)
Zone 2 (gases)	An area in which an explosive mixture is not likely to occur in normal operation and if it occurs it will exist only for a short time.	Class II Division 1 (gases)
Zone 22 (dusts)		Class II Division 2 (dusts)

Difference in reported results for resistance testing

There are a huge range of variables that can affect the results for resistance testing. These include temperature, size (length of wire, surface size of medium), electricity used (voltage), humidity, measuring method, measuring equipment and a number of other factors.

BFM Global has used a recognised standard test for many years: Test Method ASTM D 257-07 "DC Other testing methods and laboratories will produce differing results, all of which are valid and within recognised tolerances.

Notes:

These facts and information are provided based on our knowledge. The compliance with existing legislation, standards and guidelines is the responsibility of the end user. BFM Global reserves the right for technical changes to the product.