



## CERTIFICATE OF FIRE APPROVAL

This is to certify that

The product(s) detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations for use on offshore installations classed with Lloyd's Register, and for use on offshore installations when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

<b>Manufacturer</b>	Bestobell Oilfield Products
<b>Address</b>	Ashby Road Shepshed Loughborough Leicestershire, LE12 9EQ United Kingdom (UK)
<b>Type</b>	<b>H-120 PIPE PENETRATION (HYDROCARBON FIRE TEST)</b>
<b>Equipment Description</b>	Single Pipe Bulkhead Penetration Seal - Type: "Bestobell Double Fireflex Pipe Penetration Seal" Fitted to Both Sides of the Bulkhead
<b>Specified Standard</b>	UK Department of Energy hydrocarbon time/temperature relationship and the IMO Resolution A.517 (13) performance criteria

The attached Design Appraisal Document forms part of this certificate.

This certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.

Date of issue                      22 September 2009                      Expiry date                      21 September 2014

Certificate No.                      SAS F090350

Signed

Sheet No                      1 of 2

Name

S. Abraham  
Surveyor to Lloyd's Register EMEA  
A Member of the Lloyd's Register Group

Note:

This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register of any modification or changes to the equipment in order to obtain a valid Certificate.

"Lloyd's Register, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register Group'. The Lloyd's Register Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract."

## DESIGN APPRAISAL DOCUMENT

Date 18 November 2009	Quote this reference on all future communications LDSS/TA/SFS/MF
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### ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS F090350

This Design Appraisal Document forms part of the Certificate.

#### APPROVAL DOCUMENTATION

The Loss Prevention Council (LPC), Borehamwood, United Kingdom, Test Report No. TE82074, dated 23 March 1992 and TE83996, dated 12 November 1993.

#### CONDITIONS OF CERTIFICATION

1. When used in conjunction with an H-120 Class Steel Bulkhead, insulated with an approved insulation system.
2. For use on single steel pipes from 60mm OD up to 1067 mm OD, with a seal fitted on both sides of the bulkhead.
3. Pipe penetration consists of: steel sleeve (320mm deep x 5 to 10mm thick) welded mid-length into bulkhead; the full sleeve and pipe (for 300mm each side of bulkhead) insulated with Durablanket ceramic fibre (38mm thick, density 128kg/m<sup>3</sup>) covered with galvanised steel cladding. Seal comprises layers of woven ceramic cloth reinforced with stainless steel wire, ceramic felt, nickel foil, aluminium foil and glass cloth. The overlap joints of the seal to be bonded with a non-flammable neoprene based adhesive and the seal secured to sleeve and pipe using worm drive clips set 25mm from ends of seal, covered by the insulation.
4. Maximum steel sleeve size: 1220mm OD x 320 mm deep x 10mm thick for a 1067mm OD steel pipe and a seal length of 325mm.
5. Minimum steel sleeve size: 114mm OD x 320 mm deep x 5mm thick for a 60mm OD steel pipe and a seal length of 175mm.
6. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure that items are of the same standard as the approved prototype.

#### PLACE OF PRODUCTION

Bestobell Oilfield Products  
Ashby Road  
Shepshed  
Loughborough,  
Leicestershire, LE12 9EQ

#### Supplementary Type Approval Terms and Conditions

*This certificate and Design Appraisal Document relates to type approval, it certifies that the prototype(s) of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein, it does not mean or imply approval for any other use, nor approval of any products designed or manufactured otherwise than in strict conformity with the said prototype(s).*

Martin Farrier  
Lead Specialist  
Statutory Fire & Safety  
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Lloyd's Register EMEA

