



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.

Manufacturer	Bestobell Oilfield Products
Address	Ashby Road Shepshed Loughborough Leicestershire, LE12 9EQ United Kingdom (UK)
Type	H-120 PIPE PENETRATION (HYDROCARBON FIRE TEST) (POST BLAST)
Equipment Description	Single Pipe Bulkhead Penetration Seal - Type: "Bestobell Double Fireflex Pipe Penetration Seal" Fitted to Both Sides of the Bulkhead
Specified Standard	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 F090354

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.

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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 F090354

This Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

The Loss Prevention Council (LPC), Borehamwood, United Kingdom, Test Report Nos. 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 FIREFLEX 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) are insulated with Durablanket ceramic fibre (38mm thick, density 128kg/m³) 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 double 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.

NOTE

The pipe penetration was subjected to a series of blast overpressure tests, with a maximum peak overpressure of 1.25 bar, and a duration of 200ms, prior to fire testing. The AEA Technology, Winfirth, United Kingdom Test Report No. AEA-D&W-0656, dated September 1993 and the Fire Research Station, Borehamwood, United Kingdom Test Report No. TCR 6/94, dated March 1994 refer.

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
London Design Support Services
Lloyd's Register EMEA

