



**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 F090353**

This Design Appraisal Document forms part of the Certificate.

**APPROVAL DOCUMENTATION**

The Loss Prevention Council (LPC), Borehamwood, United Kingdom, Test Report Nos. TE82888, dated 14 December 1992 and TE83996, dated 12 November 1993.

**CONDITIONS OF CERTIFICATION**

1. When used in conjunction with an 'H-0' Class Steel Bulkhead. (With no temperature criteria).
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 (250mm 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 (25mm 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 double worm drive clips set 25mm from ends of seal, covered by the insulation.
4. Maximum steel sleeve size: 1220mm OD x 250 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 250 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).*

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