


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	Mechtool Engineering Ltd.		
Address	Mechtool House Whessoe Road Darlington Co.Durham, DL3 0QT United Kingdom (UK)		
Type	NON-LOAD BEARING CLADDING SYSTEM (JET FIRE TEST)		
Equipment Description	Jet Fire Resisting Non-Load Bearing Cladding System Incorporating "FIRE MASTER X-607 SUPERWOOL" Insulation		
Specified Standard	Health & Safety Executive, Offshore Technology Report – OTI 95 634 "Jet Fire Resistance Test of Passive Fire Protection Materials"		
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	11 November 2006	Expiry date	10 November 2011
Certificate No.	SAS F060340	Signed	
Sheet No	1 of 3	Name	M. Farrier 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 DOCUMENTDate
11 November 2006Quote this reference on all future communications
LDSS/PAS/FITA/MF**APPENDIX TO CERTIFICATE OF TYPE APPROVAL NO. SAS F060340**

This Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

Health & Safety Laboratory, Buxton, United Kingdom, Test Report No. PS/96/15, dated October 1996 and Mech-Tool Engineering Limited Drawing No. EC6550/JF 03, Rev. 03, dated 15 August 1996.

CONDITIONS OF CERTIFICATION

1. Evaluation of the test results are given in the Appendix attached to this certificate.
2. Insulation to be fixed to substrate by 3mm O.D. stainless steel pins at not more than 300mm centres incorporating galvanised wire mesh and stainless steel fixed washers. (See Appendix for insulation details)
3. Application in each case to be approved by Lloyd's Register at the design stage.
4. The procedure under which this prototype was tested does not provide a pass or fail criteria.
5. This non-load bearing cladding system will also be accepted for maintaining 60 minutes integrity against jet fire exposure without insulation.
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

Mechtool Engineering Ltd.
Mechtool House
Whessoe Road
Darlington
Co. Durham, DL3 0QT
United Kingdom (UK)

Lloyd's Register EMEA
London Office
M. Farrier
Lloyd's Register

Martin Farrier
Lead Specialist
Product Approval Services
London Design Support Services
Lloyd's Register EMEA

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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LDSS/PAS/FITA/MF**APPENDIX TO CERTIFICATE OF TYPE APPROVAL NO. SAS F060340****TEST RESULTS**

Integrity: 60 minutes

Temperature:-

	Maximum Recorded Temperature	Maximum Temperature Rise above Ambient
Thermocouple No. 1 after 52.5 minutes	156°C	139°C
Thermocouple No. 3 after 57.5 minutes	177°C	160°C
Thermocouple No. 3 after 60 minutes	169°C	152°C

Ambient temperature was 17°C

DESCRIPTION OF TEST SPECIMEN

A 1.5mm thick stainless steel (grade 316) trapezoidal profiled (80mm deep) substrate having 3mm stainless steel pins fixed at not more than 300mm centres with the troughs infilled with "Firemaster X-607 Superwool" (density 96kg/m³). The substrate and infilled trough's were covered with three layers of insulation (layer 1 - 50mm thick, density 128kg/m³; layers 2 & 3, each 38mm thick, density 96kg/m³). Layers 2 and 3 were covered with an Aluminium Foil Vapour barrier (AG No. 780.327). The insulation was retained by galvanised 13mm hexagonal (22 gauge) wire mesh secured by stainless steel fixing washers to 3mm diameter stainless steel pins spaced at not more than 300mm centres.

SCOPE

Although the test has been designed to reproduce conditions similar to those found in large-scale jet fires resulting from realistic releases of hydrocarbons, it cannot guarantee a specific degree of protection from the myriad of possible jet fires. The Jet Fire Resistance Test, or indeed large-scale demonstrations, cannot therefore be used to confer a universal fire resistance rating for a specified time in the way that a standard furnace test confers a hydrocarbon rating. Hence this test does not give a rating analogous to the "H" rating derived from the hydrocarbon fire resistance test as detailed in ISO 834. This test is not intended to replace the hydrocarbon fire resistance test but is seen as a complementary test.

Although the method specified has been designed to simulate some of the conditions which occur in an actual jet fire, it cannot reproduce them all exactly. The results of this test do not guarantee safety but may be used as elements of a fire risk assessment for structures or plant. This should also take into account all the other factors which are pertinent to an assessment of the fire hazard for a particular end use.