



TYPE EXAMINATION CERTIFICATE

This certificate is issued to

Rotork Fluid Systems Limited

*Regina House
Ring Road
Bramley
Leeds
LS13 4ET
United Kingdom*

for their

***Smart Valve Monitoring System
SVM100 and SVM200***

To certify that the above equipment, when connected in the manner described and assessed in Sira Report R56A18726A, have no identified means of affecting the probability of failure on demand of the safety function to which they are connected and hence are suitable for use with ESD safety-related systems designed according to IEC 61508 or IEC 61511 and of any SIL rating, subject to the stated conditions and scope in this certificate.

The standard used as the basis for the assessment was:

IEC 61508-2:2000

Certification Manager:

A handwritten signature in black ink, appearing to read "D R Stubbings".

D R Stubbings

Date of Initial Issue: 21st September 2009
Date of this Issue: 17th January 2012
Renewal Date: 20th September 2014

This certificate may only be reproduced in its entirety without any change.



Sira Certification Service

Rake Lane, Eccleston, Chester, CH4 9JN, England
Tel: +44 (0) 1244 670900
Fax: +44 (0) 1244 681330
Email: info@siracertification.com
Web: www.siracertification.com

Failure rate data

FMECA summary data is shown below, where the failure criterion is: Not to interfere with the valve safety function

Criterion	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}	SFF	PFD _{AVG}
SVM100 (part no. 29251)	5.23E-07	4.12E-07	0.00E+00	0.00E+00	100%	0
SVM200 (part no. 49324)	5.45E-07	4.21E-07	0.00E+00	0.00E+00	100%	0

FMECA assumptions: MTTR = 12 hours; Proof test = 10 years; 'no part' failures not included

Conditions of Certification and Safe Use

1. This certificate does not cover interpretation of the pressure profile output provided by the Smart Valve Monitoring (SVM) System.
2. This certificate only applies when the SVM system is used where the ESD valve moves to its safe state on loss of power to its controlling solenoid(s).
3. The SVM is intended to monitor each ESD valve in a safety system separately. Hence, for safety functions that use more than one ESD valve, each valve will be treated separately by the SVM.

General Conditions and Notes

1. This certificate is based on a failure modes and effects analysis (FMEA) of the equipment assessed in Sira report number R56A18726A and is only valid for products which are identical with the equipment assessed.
2. The design of the product certificated is defined in the drawing list given in Sira report number R56A18726A which forms the design schedule for this certificate.
3. The manufacturer must inform Sira of any modification that affects any of the documents, drawings or any other information referred to in the report. Modifications to a certificated product are not permitted until a new certificate, or certificate variation, has been issued by Sira.
4. The use of this Certificate and the Sira Certification Mark that can be applied to the product or used in publicity material are subject to the 'Regulations Applicable to the Holders of Sira Certificates' and 'Supplementary Regulations Specific to Functional Safety Certification'.
5. This document remains the property of Sira Certification Service and shall be returned when requested by the certifier.