



Certificate / Certificat Zertifikat / 合格証

BIF 1503004 C001

exida hereby confirms that the:

Quick Exhaust Valves

Bifold Fluidpower Ltd.

Chadderton, Greater Manchester - UK

The manufacturer
may use the mark:



Has been assessed per the relevant requirements of:

IEC 61508 : 2010 Parts 1-7

and meets requirements providing a level of integrity to:

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

**PFD/PFD_{AVG} and Architecture Constraints
must be verified for each application**

Revision 3.1 June 12, 2018
Surveillance Audit Due
October 1, 2021

Safety Function:

The valve will exhaust the cylinder port within the specified safety time.

Application Restrictions:


The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.



ANSI Accredited Program
ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004




Evaluating Assessor


Certifying Assessor

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Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

PFH/PFD_{AVG} and Architecture Constraints must be verified for each application

Systematic Capability :

The product has met manufacturer design process requirements of Safety Integrity Level (SIL) 3. These are intended to achieve sufficient integrity against systematic errors of design by the manufacturer.

A Safety Instrumented Function (SIF) designed with this product must not be used at a SIL level higher than stated.

Random Capability:

The SIL limit imposed by the Architectural Constraints must be met for each element. This device meets *exida* criteria for Route 2_H.

Versions:

QEV - Standard Service	S06QEV to S25QEV Pneumatic Quick Exhaust Valves
QEV – Artic Service	AS06QEV to AS25QEV Pneumatic Quick Exhaust Valves
QEV - Hydraulic Series	3 Port, 2 Position Quick Exhaust Valve QEV 15 and QEV 50

IEC 61508 Failure Rates in FIT*

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
QEV - Standard or Artic Service	0	36	0	33
QEV Hydraulic Series	0	45	0	53

* FIT = 1 failure / 10⁹ hours

SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFH/PFD_{avg} considering redundant architectures, proof test interval, proof test effectiveness, any automatic diagnostics, average repair time and the specific failure rates of all products included in the SIF. Each element must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

The following documents are a mandatory part of certification:

Assessment Report: BIF 15/03-004 R002 V3, R2 (or later)

Safety Manual: SIL – SM.0010 & SM.016



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Sellersville, PA 18960