



Certificate / Certificat Zertifikat / 合格証

BIF 091025 C002

exida hereby confirms that the:

Series VBP-16 Volume Boosters and HIPEX-16 Valves

**Bifold Fluidpower Ltd.
Chadderton, Manchester- UK**

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_{AVG} and Architecture Constraints
must be verified for each application**

Safety Function:

The Booster / Valve will move to the designed safe position when de-energized / energized within the specified safety time.

Application Restrictions:

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

The manufacturer
may use the mark:



Revision 4.0 July 24, 2020
Surveillance Audit Due
July 1, 2023



ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004



Evaluating Assessor

Certifying Assessor

BIF 091025 C002

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

**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.

Series VBP-16 Volume Boosters and HIPEX-16 Valves

IEC 61508 Failure Rates in FIT*

Model	Configuration	λ_{sd}	λ_{su}	λ_{dd}	λ_{du}
Standard VB	De-Energize to Trip	0	265	0	218
	Energize To Trip	0	68	0	415
Filter VB	De-Energize to Trip	0	280	0	223
	Energize To Trip	0	72	0	434
HIPEX	De-Energize to Trip	0	148	0	133

* 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 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 subsystem 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 09/10-25 R003 V4R1 (or later)

Safety Manual: SM.0006 Rev13 or later



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