



Certificate / Certificat Zertifikat / 合格証

BIF 1705128 C002

exida hereby confirms that the:

FP02G and FP05G Series Gas Service Solenoid Valves

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

Have been assessed per the relevant requirements of:

IEC 61508 : 2010 Parts 1-2

and meets requirements providing a level of integrity to:

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**

Safety Function:

The Solenoid Valves will vent the service port pressure when de-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 3.2 January 12, 2024
Surveillance Audit Due
October 1, 2026



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 :

These products have 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:

Valve Types	Description and Application
FP02G and FP05G	3 Port, 2 Position Normally Closed/Open Solenoid Valve for Gas Service, De-Energize to Trip (DTT) Applications
Options Included for the above Models:	Single Type 74, 77 and 78 or Type 58 Solenoid Operator DC or AC (Wiring Option 1) Coil up to 10W Up to 690 Bar Max Working Pressure Spring Return and Detented Manual Override

IEC 61508 Failure Rates in FIT¹

Device/Application/Configuration	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
FP02G and FP05G; NC, DTT	0	179	0	137
FP02G and FP05G; NO, DTT	0	128	0	183

¹ 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 17/05-128 R002 V2 R4 (or later)

Safety Manual: SM.0002 Rev 3 of later



80 N Main St
Sellersville, PA 18960

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Series Solenoid Valves