



Certificate / Certificat Zertifikat / 合格証

WES 1801124 C001
exida hereby confirms that the:

Falcon II 3/2-Way and 5/2-Way Solenoid Valve Series Westlock Controls Saddle Brook, NJ - USA

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

Revision 2.0 June 13, 2019
Surveillance Audit Due
Aug 1, 2022

Safety Function:

The Solenoid 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.



ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004



Evaluating Assessor

Certifying Assessor

WES 1801124 C001

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.

Versions:

3/2-Way, DTT (Spring Return)	Falcon Series : 3/2-Way, 2 position, Single Coil, Spring Return, De-energize to Trip, with or w/o Manual Override
3/2-Way, ETT (Spring Return)	Falcon Series : 3/2-Way, 2 position, Single Coil, Spring Return, Energize to Trip, with or w/o Manual Override
5/2-Way, DTT (Spring Return)	Falcon Series : 5/2-Way, 2 position, Single Coil, Spring Return, De-energize to Trip, with or w/o Manual Override
5/2-Way, ETT (Spring Return)	Falcon Series : 5/2-Way, 2 position, Single Coil, Spring Return, Energize to Trip, with or w/o Manual Override
Dual Coil Solenoid 5/2-Way	Falcon Series : 5/2-Way, 2 position, Dual Coil, fail in place, with or w/o Manual Overrides

IEC 61508 Failure Rates in FIT*

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
3/2-Way Single Coil - DTT	0	304	0	283
3/2-Way Single Coil - ETT	0	77	0	431
5/2-Way Single Coil - DTT	0	275	0	343
5/2-Way Single Coil - ETT	0	74	0	451
Dual Coil 5/2-Way	0	66	0	559
3/2-Way Single Coil-DTT w/automatic PVST†	301	3	263	20
3/2-Way Single Coil-ETT w/automatic PVST	76	1	408	23
5/2-Way Single Coil-DTT w/automatic PVST	272	3	315	28
5/2-Way Single Coil-ETT w/automatic PVST	72	2	422	29
Dual Coil 5/2-Way w/automatic PVST	64	2	524	35

* FIT = 1 failure / 10⁹ hours

† PVST = Partial Valve Stroke Test of a final element Device

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 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: WES 18/01-124 R002 V2R1 (or later)

Safety Manual: SMA007 Rev 0 (or later)

Falcon II
3/2-Way and 5/2-Way
Solenoid Valve Series



80 N Main St
Sellersville, PA 18960