



Certificate / Certificat Zertifikat / 合格証

WES 1307059 C001

exida hereby confirms that the:

Falcon V 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
May 1, 2022

Safety Function:

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

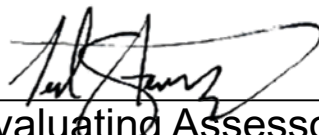
Application Restrictions:

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 1307059 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.

Version Overview:

3-Way, DTT (Spring Return)	Falcon V Series : 3-Way, 2 position, single Solenoid, Spring Return, De-energize to Trip, 1.4Cv, with or w/o Manual Override
3-Way, ETT (Spring Return)	Falcon V Series : 3-Way, 2 position, single Solenoid, Spring Return, Energize to Trip, 1.4Cv, with or w/o Manual Override
4-Way, DTT (Spring Return)	Falcon V Series : 4-Way, 2 position, single Solenoid, Spring Return, De-energize to Trip, 1.4Cv, with or w/o Manual Override
4-Way, ETT (Spring Return)	Falcon V Series : 4-Way, 2 position, single Solenoid, Spring Return, Energize to Trip, 1.4Cv, with or w/o Manual Override
Double Sided Solenoid 3 or 4-Way	Falcon V Series : 3-Way or 4-Way, 2 position, double sided Solenoids, fail in place, 1.4Cv, with or w/o Manual Overrides

IEC 61508 Failure Rates in FIT¹

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
3-Way Single Solenoid - DTT	0	353	0	299
3-Way Single Solenoid - ETT	0	96	0	481
4-Way Single Solenoid - DTT	0	379	0	369
4-Way Single Solenoid - ETT	0	121	0	551
3-Way or 4-Way Double Solenoids	0	180	0	733

* 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 13/07-059 R002 V3 R1 (or later)

Safety Manual: SMAN-005 (or later)

Falcon V
Solenoid Valve Series



80 N Main St
Sellersville, PA 18960

T-061, V3R2