



# Certificate / Certificat Zertifikat / 合格証

ASC 2112125 C001

exida hereby confirms that the:

## Series 327/8327G Solenoid Valves

The manufacturer  
may use the mark:



### ASCO Ede, The Netherlands

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<sub>H</sub> Device**

**PFH/PFD<sub>avg</sub> and Architecture Constraints  
must be verified for each application**

Revision 2.2 December 5, 2022

Surveillance Audit Due  
January 1, 2026

#### Safety Function:

The Valve will move to the designed safe position 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.



Evaluating Assessor

Certifying Assessor

## ASC 2112125 C001

### Systematic Capability: SC 3 (SIL 3 Capable)

### Random Capability: Type A, Route 2<sub>H</sub> Device

#### PFH/PFD<sub>avg</sub> 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 these products 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<sub>H</sub>.

#### IEC 61508 Failure Rates in FIT<sup>1</sup>

Model	Application	$\lambda_{SD}$	$\lambda_{SU}$	$\lambda_{DD}$	$\lambda_{DU}$
327B0/8327G...	DTT, NC, Out P2 to Vent P1	0	416	0	58
	DTT, NO, Pressure P1 to Out P2	0	368	0	96
	ETT, NC, Pressure P3 to Out P2	0	9	0	199
	ETT, NO, Out P2 to Vent P3	0	48	0	160
327B1..., 327B2..., 327H	DTT, NC, Out P2 to Vent P1	0	174	0	58
	DTT, NO, Pressure P1 to Out P2	0	126	0	96
	ETT, NC, Pressure P3 to Out P2	0	9	0	162
327B3	ETT, NO, Out P2 to Vent P3	0	48	0	123
	DTT, NC, Out P2 to Vent P1	0	130	0	58
	DTT, NO, Pressure P1 to Out P2	0	82	0	96
327B3NFIS... & 327B3WSCRS...	ETT, NC, Pressure P3 to Out P2	0	9	0	144
	ETT, NO, Out P2 to Vent P3	0	48	0	105
	DTT, NC, Out P2 to Vent P1	0	168	0	64
	DTT, NO, Pressure P1 to Out P2	0	120	0	103
327A	ETT, NC, Pressure P3 to Out P2	0	14	0	188
	ETT, NO, Out P2 to Vent P3	0	53	0	150
	DTT, NC, Out P2 to Vent P1	0	395	0	57
	DTT, NO, Pressure P1 to Out P2	0	367	0	87
327B0 Redundant	ETT, NC, Pressure P3 to Out P2	0	13	0	173
	ETT, NO, Out P2 to Vent P3	0	43	0	138
327B1, B2, H Redundant	DTT (2oo2 NC)	0	57	0	315
	ETT (1oo2 NC)	0	151	0	36
327B3 Redundant	DTT (2oo2 NC)	0	30	0	315
	ETT (1oo2 NC)	0	151	0	33
MO Option Adder	DTT (2oo2 NC)	0	20	0	315
	ETT (1oo2 NC)	0	151	0	27
NVR Option Adder	DTT, NC & NO	0	45	0	39
	DTT, NC & NO	0	45	0	59

<sup>1</sup> FIT = 1 failure / 10<sup>9</sup> hours

#### SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFH/PFD<sub>avg</sub> 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:** ASC 21/12-125 R001 V2R1 (or later)

**Safety Manual:** V9629 Rev JC (or later)

