



The manufacturer
may use the mark:



Revision 2.0 June 30, 2016
Surveillance Audit Due
April 1, 2019



ANSI Accredited Program
PRODUCT CERTIFICATION
#1004

Certificate / Certificat Zertifikat / 合格証

ASC 1301001 C005

exida hereby confirms that the:

Series 551 and 553 Pilot Operated Inline Spool Valves

**ASCO Numatics
Lucé, France**

Have 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**

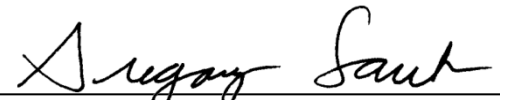
Safety Function:

The 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 1301001 C005

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 :**

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_H.

IEC 61508 Failure Rates in FIT¹ (LP Coil options)

Failure Category	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
3/2 Single	0	178	0	347
3/2 Single NAMUR	0	273	0	371
3/2 Single, w/NF Operator	0	292	0	333
3/2 Single NAMUR, w/NF Operator	0	389	0	358
3/2 Single w/PVST ²	0	178	343	3
3/2 Single NAMUR w/PVST	0	273	367	4
3/2 Single, w/NF Operator w/PVST	0	292	330	3
3/2 Single NAMUR, w/NF Operator w/PVST	0	389	354	4
3/2 Redundant	0	205	0	387
3/2 Redundant w/PVST	0	205	383	4
5/2 Single	0	278	0	357
5/2 Single NAMUR	0	275	0	389
5/2 Single, w/NF Operator	0	392	0	343
5/2 Single NAMUR w/NF Operator	0	388	0	376
5/2 Single w/PVST	0	278	353	4
5/2 Single NAMUR w/PVST	0	275	385	4
5/2 Single, w/NF Operator w/PVST	0	392	340	3
5/2 Single NAMUR w/NF Operator w/PVST	0	388	372	4
5/2 Redundant	0	265	0	397
5/2 Redundant w/PVST	0	265	393	4

¹ FIT = 1 failure / 10⁹ hours

² PVST = Partial Valve Stroke Test of a final element Device

Applications

Series 551 & 553 Spool Valves	De-energize To Trip, Normally Closed Valves
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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: ASC Q1301001 R003 V1R2

Safety Manual: V9629R4 (or later)

**Series 551 and 553
Pilot Operated Spool
Valves**



64 N Main St
Sellersville, PA 18960

T-061, V1R9