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 1-2

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 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.

The manufacturer may use the mark:

Revision 3.0 September 27, 2022
Surveillance Audit Due
June 1, 2025

ANSI National Accreditation Board
ACCREDITED
ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004

exida Certification

Evaluating Assessor

Certifying Assessor

Certificate / Certificat / Zertifikat / 合格証

ASC 1301001 C005

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

Series 551 and 553 Pilot Operated Spool Valves

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.

Applications

Series 551 & 553 Spool Valves	3/2, NC, De-energize To Trip (DTT) and 5/2 (DTT)

IEC 61508 Failure Rates in FIT[1]

Failure Category	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
3/2 Single, NC, DTT, <2W Coil	0	209	0	329
3/2 Single, NAMUR, NC, DTT, <2W Coil	0	304	0	378
3/2 Single, NF Operator, NC, DTT, 9-16 W Coil	0	572	0	316
3/2 Single, NAMUR, NF Operator, NC, DTT, 9-16 W Coil	0	666	0	365
3/2 Redundant, NC, DTT, <2W Coil	0	187	0	369
5/2 Single, DTT, <2W Coil	0	234	0	378
5/2 Single NAMUR, DTT, <2W Coil	0	256	0	432
5/2 Single, NF Operator, DTT, 9-16 W Coil	0	597	0	365
5/2 Single, NAMUR, NF Operator, DTT, 9-16 W Coil	0	618	0	419
5/2 Redundant, DTT, <2W Coil	0	197	0	418
Adder for Coils[2] 9-16 Watts	0	299	0	0
Adder for Class H Coils 16–30 Watts	0	729	0	0
3/2 Single, Air Operated, NC, DTT	0	268	0	249
5/2 Single, Air Operated, DTT	0	195	0	328

[1] FIT = 1 failure / 10^9 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: ASC 13/01-001 R003 V2R1 (or later)

Safety Manual: V9629 Rev JC (or later)

80 N Main St
Sellersville, PA 18960