Certificate / Certificat
Zertifikat / 合格証

ASC 2104058 C001

exida hereby confirms that the:

Redundant Control System (RCS)

ASCO, L.P.
Florham Park, NJ - USA

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 Redundant Control System will move to the safe state of Normally Open, Normally Closed or Double Acting per the RCS configuration within the specified safety time when de-energized.

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 1.1 August 12, 2022
Surveillance Audit Due
October 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 2104058 C001

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

Redundant Control System

Systematic Capability :

These product haves 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:

Architecture	SOV	Application
1oo1HS RCS	Aluminum or SS	NC Single Acting, De-Energize to Trip (DTT) NO Single Acting, DTT Double Acting, DTT (2oo2 only)
2oo2D RCS	Aluminum or SS	
2oo2 or 2oo3 Basic RCS	Aluminum	NC Single Acting, DTT
2oo2 or 2oo3D Premium RCS	Aluminum	NC Single Acting, DTT

IEC 61508 Failure Rates in FIT[1]

RCS Component (Manually Initiated Diagnostic Tests)	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
NC or NO, SA, DTT Solenoid Valve	0	377	0	247
DA, DTT Solenoid Valve	0	332	0	289
NC 2oo2 or 2oo3 Basic Manifold	0	4	0	3
NC 1oo1HS, 2oo2 or 2oo3 Manifold & Bypass Valve	0	53	0	26
NO 1oo1HS, NO or DA 2oo2 Manifold & Bypass Valve	0	19	0	60
GO Proximity Switch[2]	0	0	0	0
Pressure Switch[2]	0	0	0	0

RCS Component (Automated Diagnostic Tests)	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
NC or NO, SA, DTT Solenoid Valve	373	4	230	17
DA, DTT Solenoid Valve	329	3	267	22
NC 2oo2 or 2oo3 Basic Manifold	N/A, no Diagnostics			
NC 1oo1HS, 2oo2 or 2oo3 Manifold & Bypass Valve	52	1	24	2
NO 1oo1HS, NO or DA 2oo2 Manifold & Bypass Valve	19	0	54	6
GO Proximity Switch[2]	0	0	0	0
Pressure Switch[2]	0	0	0	0

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 21-04-058 R002 V1R1 (or later)

Safety Manual: SM V9535 R3 DA (or later)

80 N Main St
Sellersville, PA 18960